

Automotive Solutions

Q1 2026
AEC-Q100 QUALIFIED



Typical Applications

Smart Cockpit/IVI (Cluster/HUD/T-Box/V2X)



- ◆ DCDC/LDO
- ◆ PMIC
- ◆ SBC
- ◆ Power Switch
- ◆ Power Driver
- ◆ Safety PMIC
- ◆ Audio
- ◆ Battery/Charger
- ◆ MCU
- ◆ Amplifier & ESD
- ◆ Panel Bias PMIC
- ◆ Panel Backlight
- ◆ Safety MCU
- ◆ Interface
- ◆ Sensor

ADAS/ADS

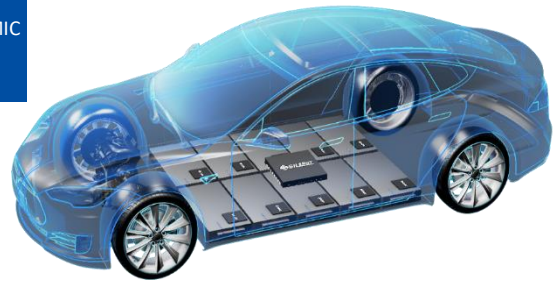


- ◆ Power IC
- ◆ Power Switch
- ◆ Sensor PMIC
- ◆ Amplifier & ESD
- ◆ Safety PMIC
- ◆ Core Power/PMIC
- ◆ Safety MCU
- ◆ Interface

xEV-Powertrain



- ◆ Aux. Power
- ◆ BMS AFE/Interface
- ◆ ADC
- ◆ Reference
- ◆ Amplifier & ESD
- ◆ Hall Current Sensor
- ◆ Power Switch
- ◆ Safety PMIC
- ◆ Isolated Gate Driver
- ◆ Digital Isolator
- ◆ Safety MCU
- ◆ Interface



Body/LED Lighting



- ◆ Power IC
- ◆ LED Driver
- ◆ Power Switch
- ◆ MCU
- ◆ Amplifier & ESD
- ◆ Basic SBC
- ◆ Motor driver
- ◆ Interface
- ◆ Ambient Light Driver

Body & Convenience



- ◆ Power ICs
- ◆ Motor Driver
- ◆ ASIL B MCU
- ◆ Amplifier & ESD
- ◆ USB Charger
- ◆ Power Switch
- ◆ Smart eFuse
- ◆ Wireless Power Charger
- ◆ Interface/MSDI
- ◆ Basic SBC

Chassis & Safety



- ◆ Power ICs
- ◆ Power Switch
- ◆ ASIL B MCU
- ◆ Amplifier & ESD
- ◆ Safety PMIC
- ◆ Basic SBC
- ◆ Motor Driver
- ◆ Safety Motor Driver
- ◆ Safety MCU
- ◆ Interface

Automotive Qualified

Silergy and Its Supplier Quality System and Certificates

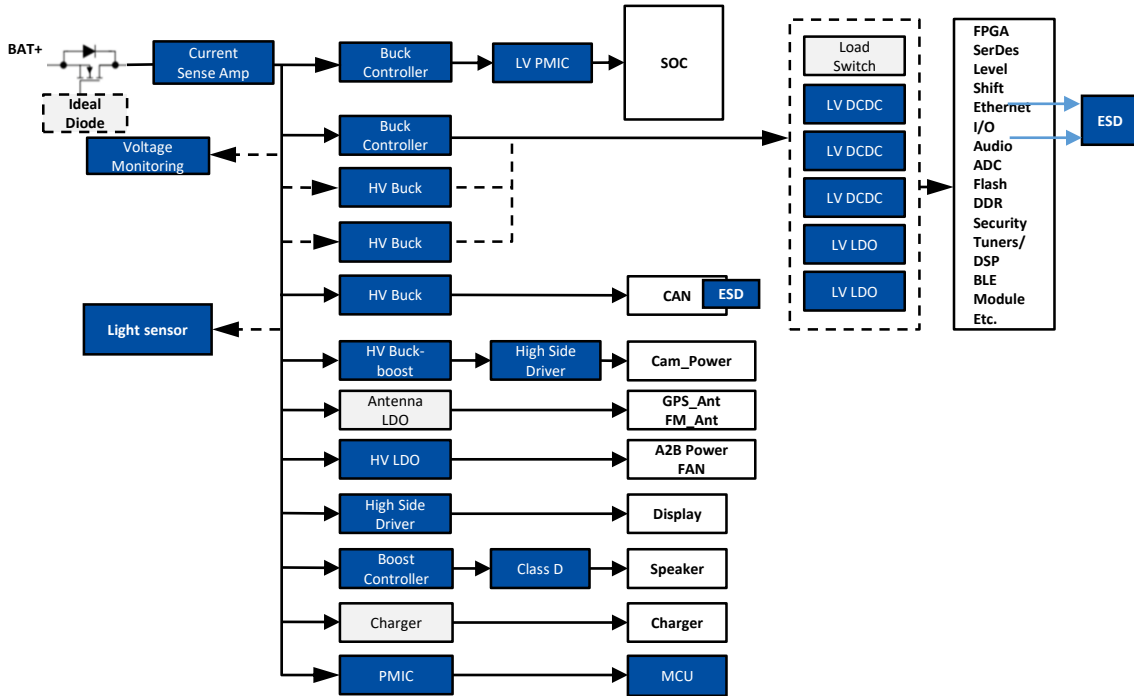
- ISO9001
- ISO14001
- ISO26262
- ISO27001
- ROHS/HF/REACH
- Responsible Business Alliance(RBA)
- IATF 16949 (suppliers)
- ISO17025(suppliers)
- ISO45001(suppliers)
- Sony Green Partner

Quality Control

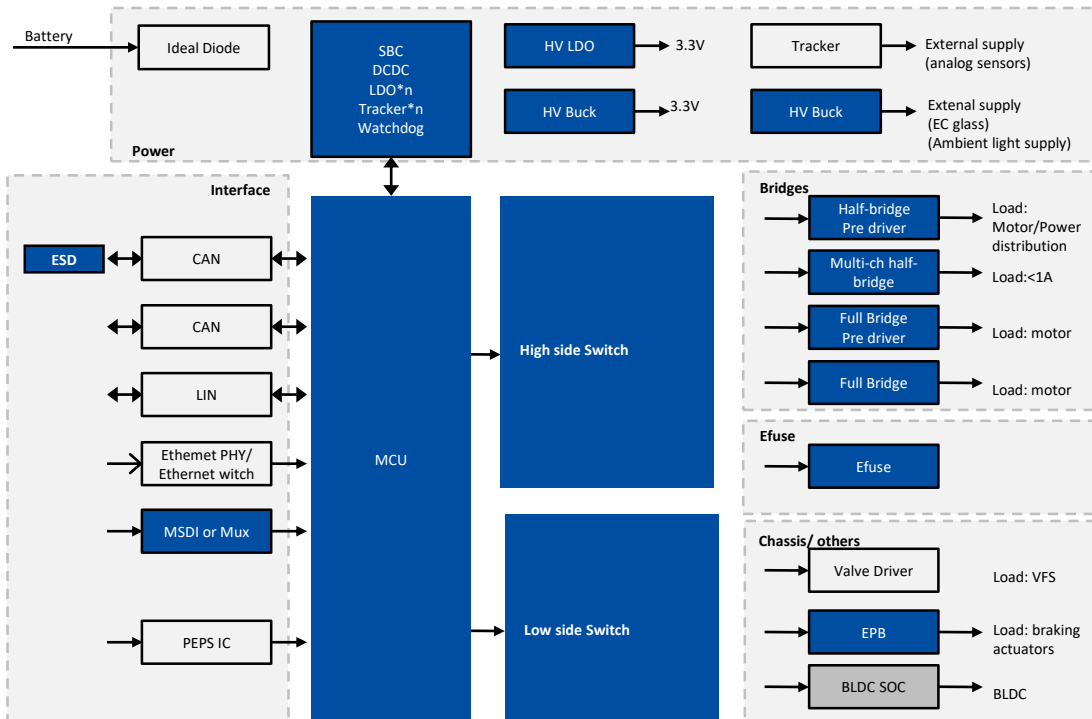
- On-Site Foundry and Assembly Teams
- Daily Short-Term and Long- Term Reliability Monitoring
- Quarterly Supplier Quality Review
- Annual Supplier Audits



In-Vehicle Infotainment

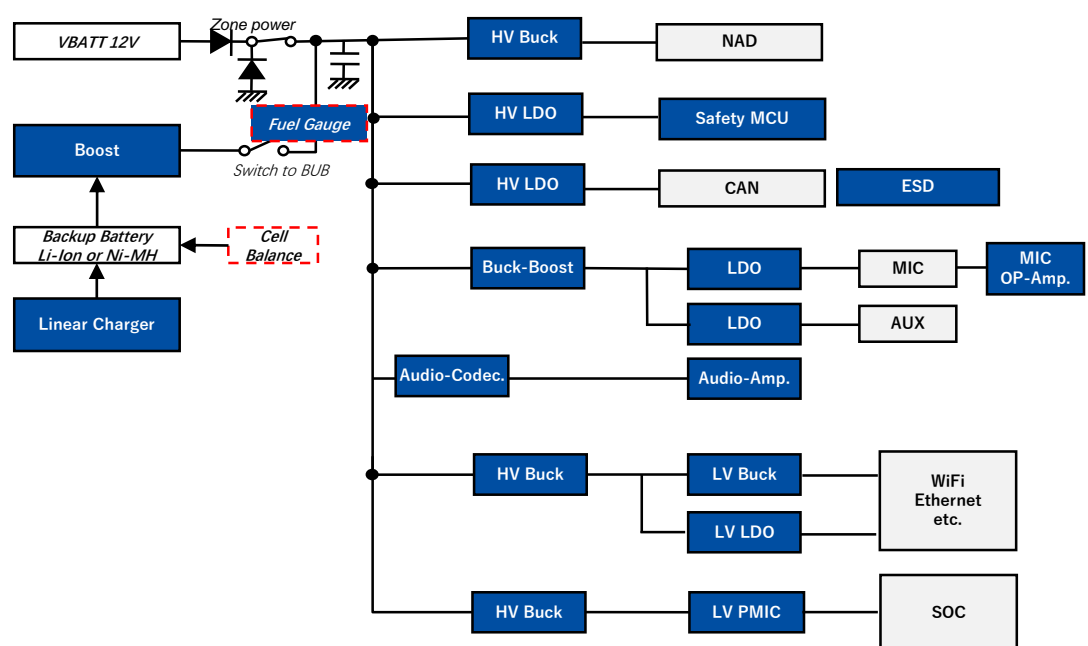


Zone Control Unit

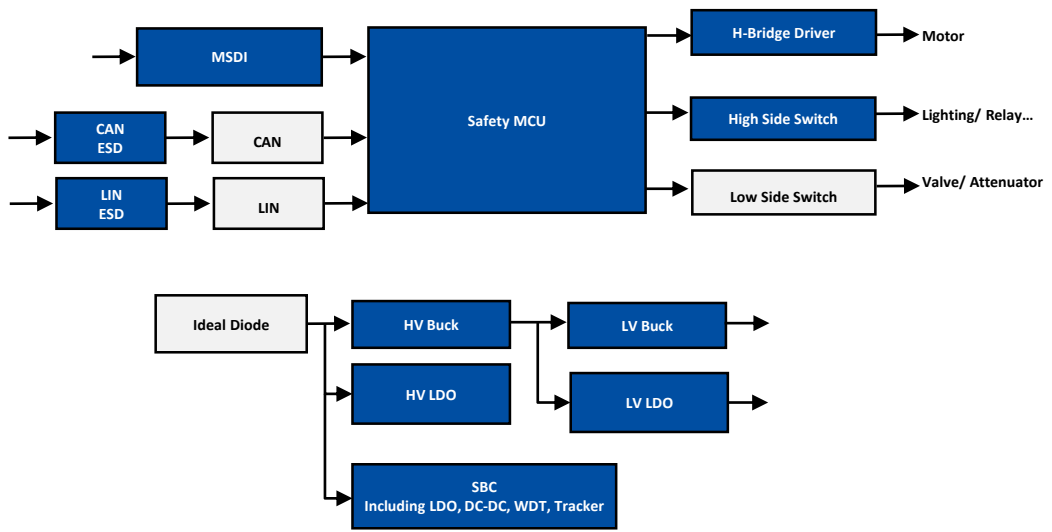


System Solution

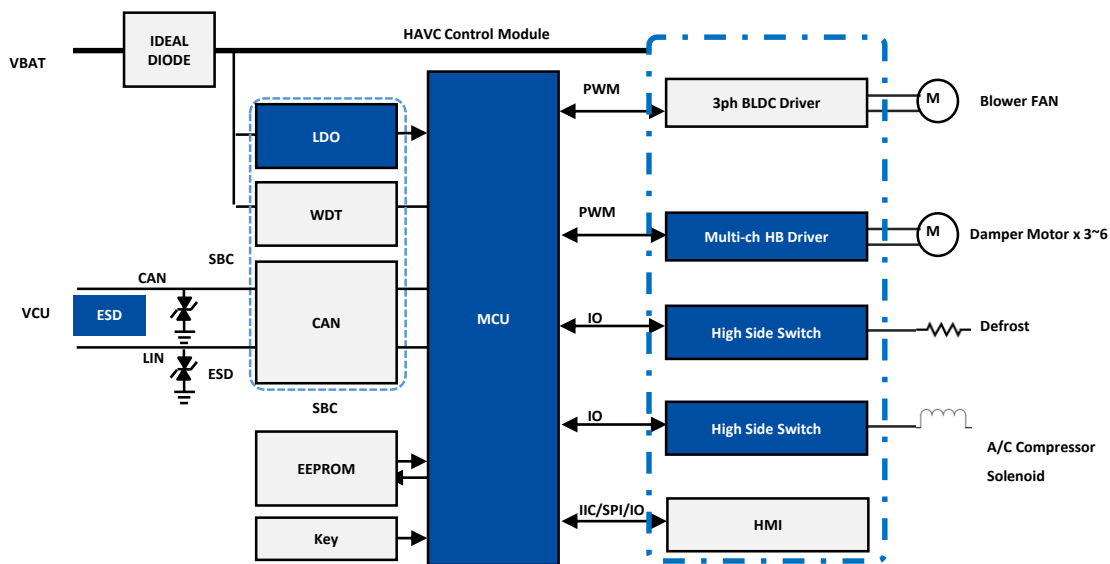
T-Box



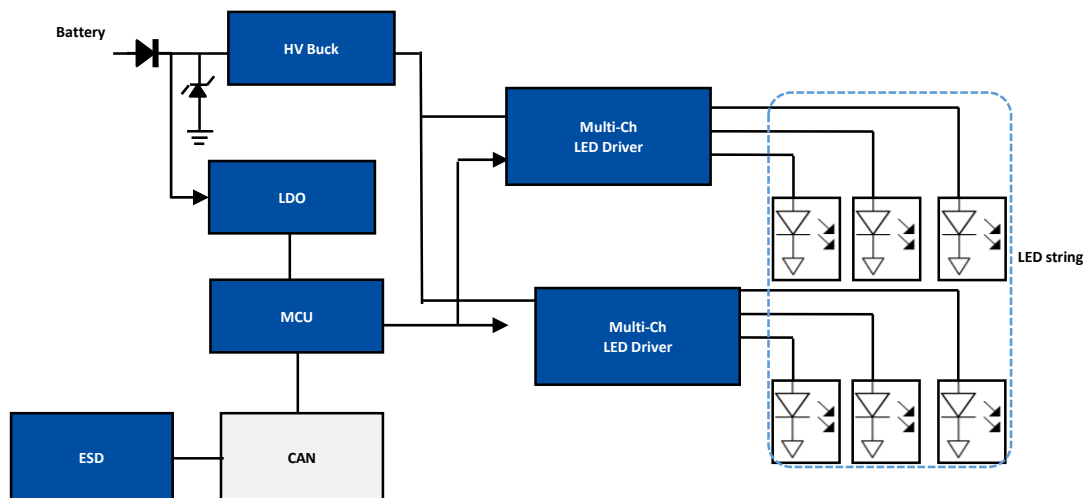
Body Control



HVAC Control

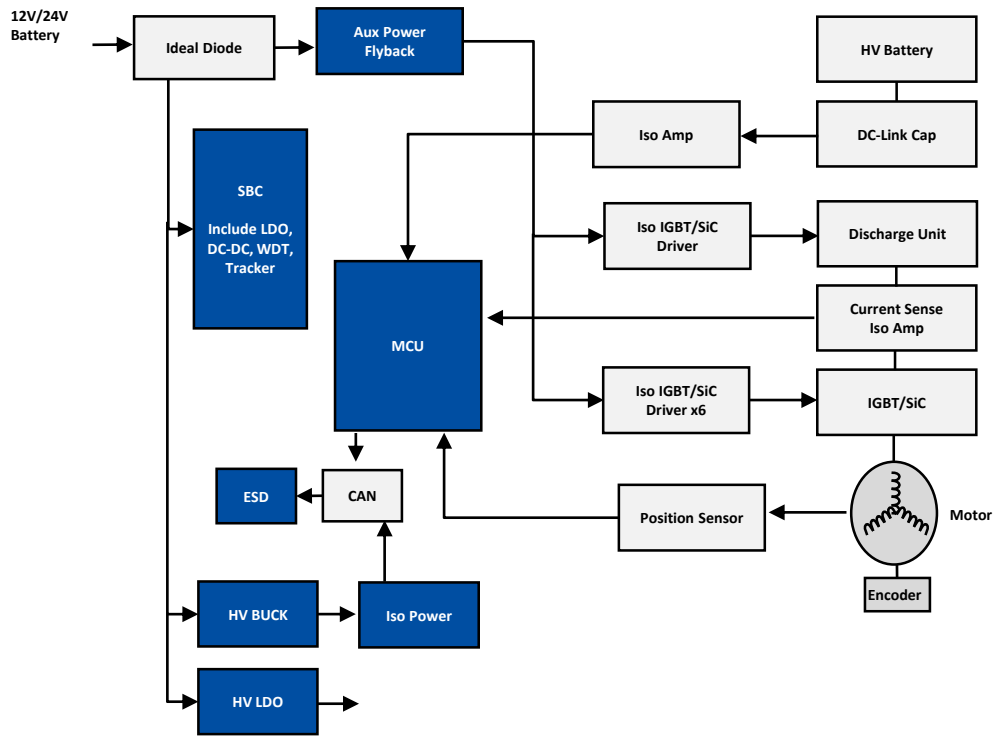


Rear Lighting/ Turn Light

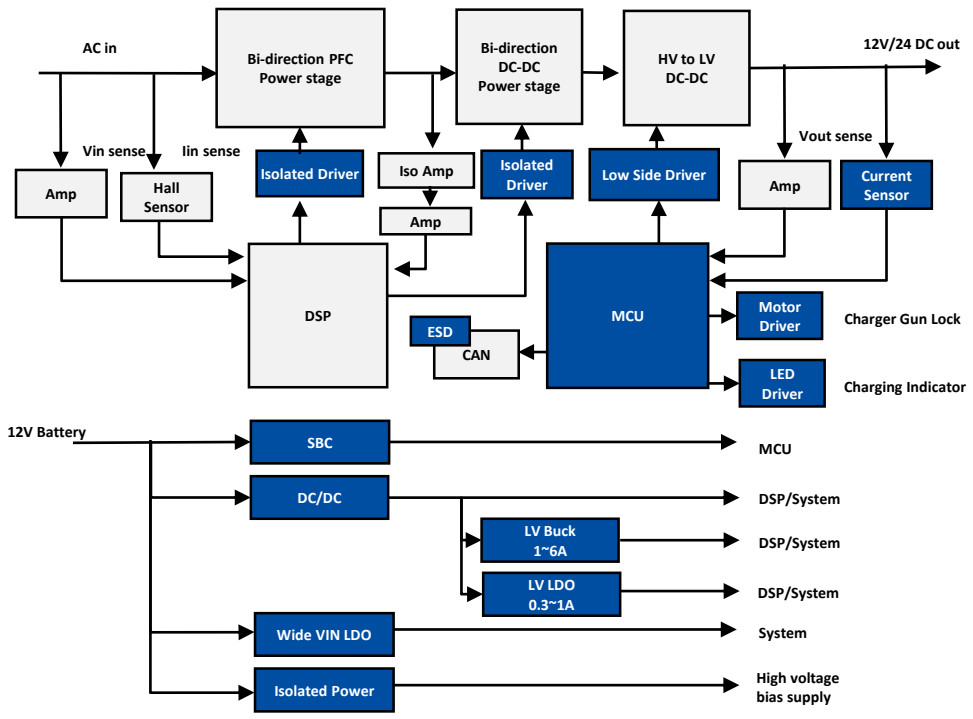


System Solution

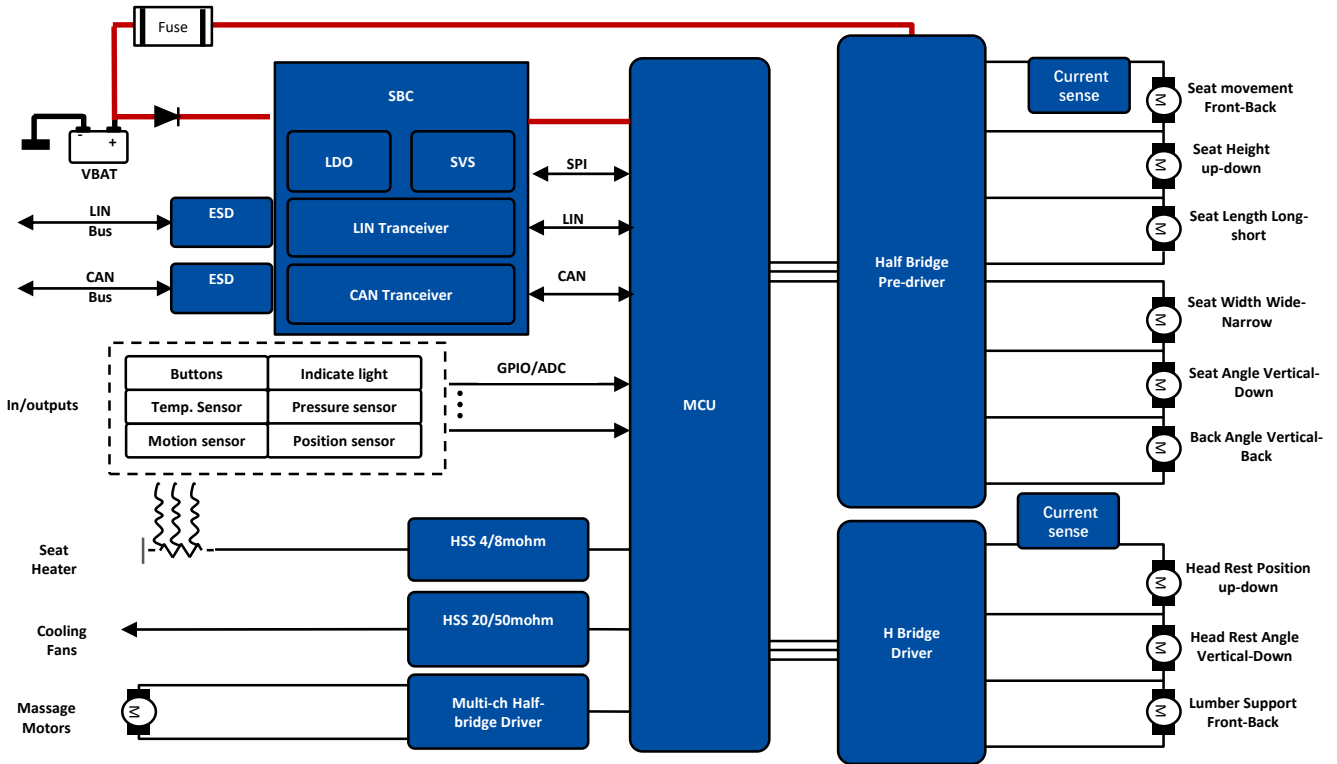
Traction Inverter



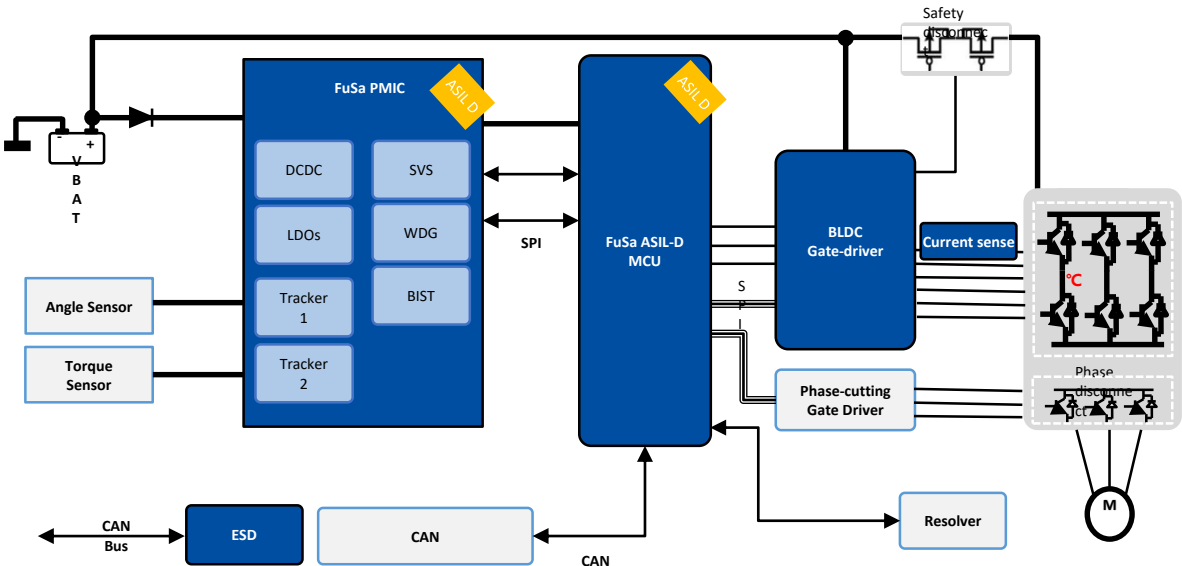
OBC+DC-DC



Seat Control Unit

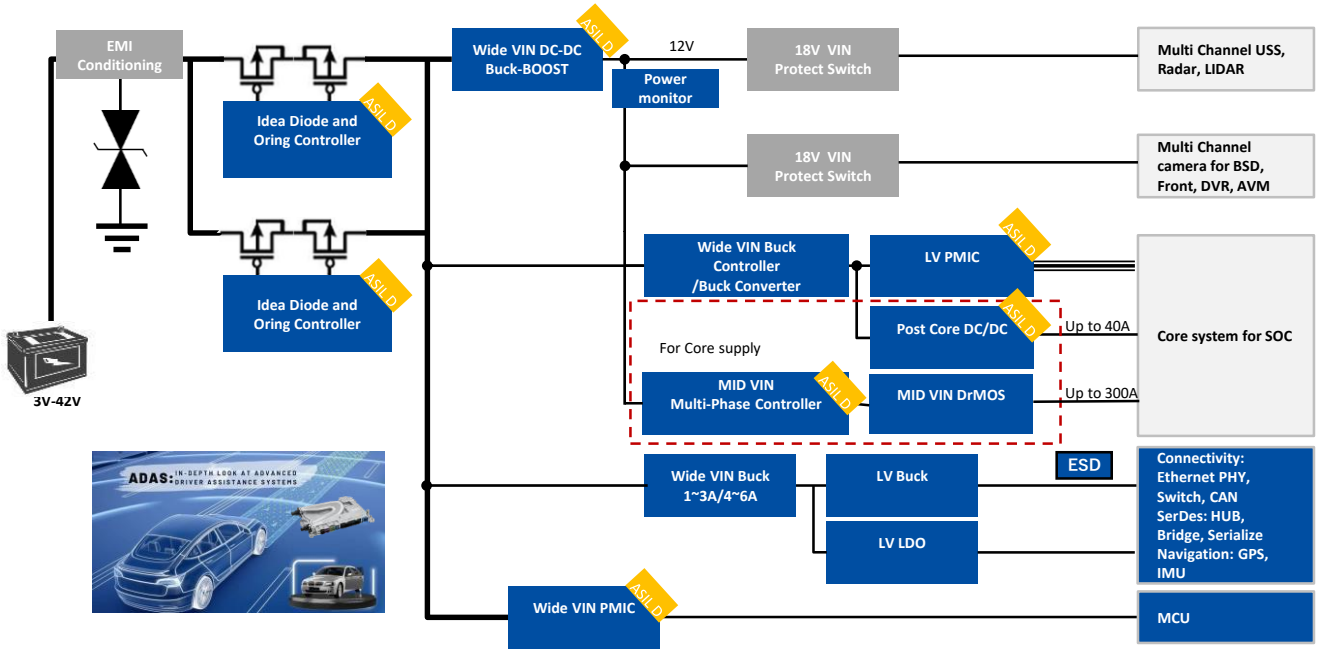


EPS

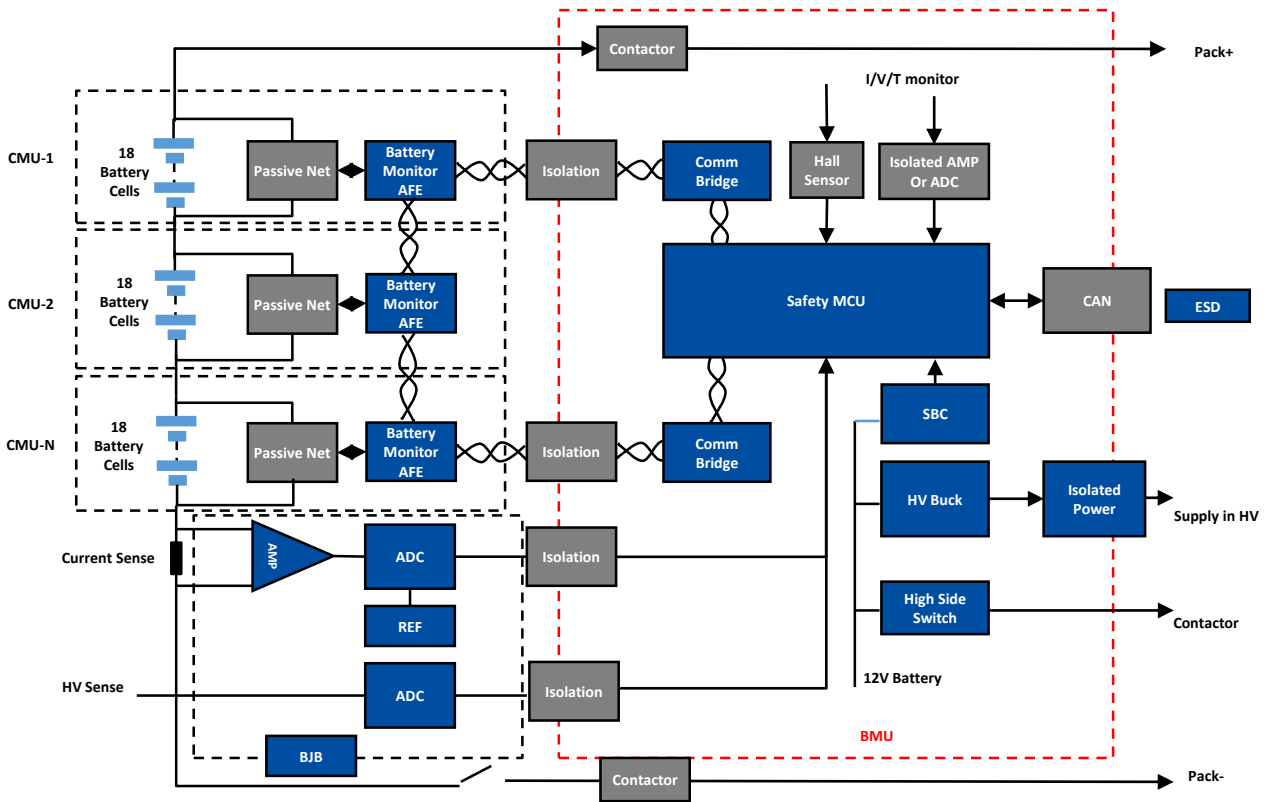


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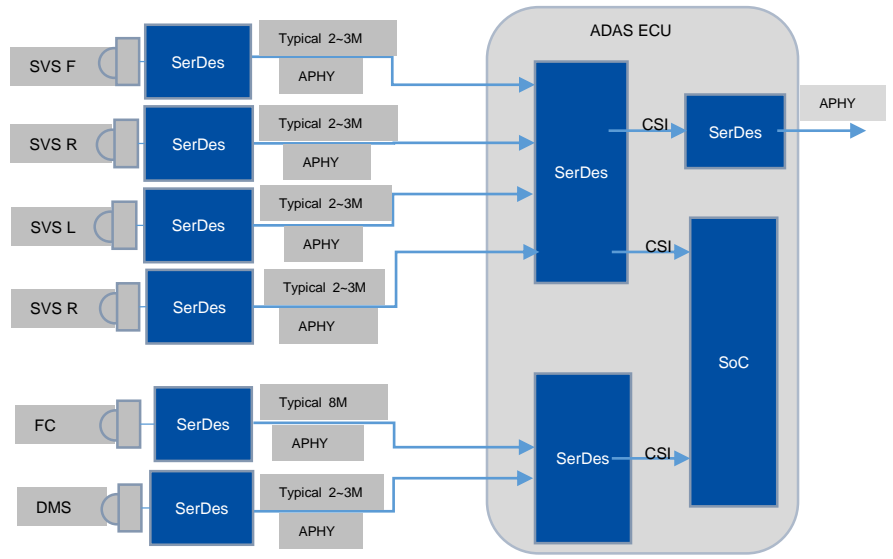
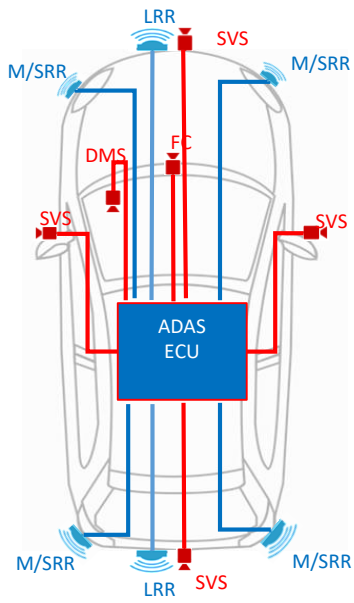
AD(A)S Controller



BMS





SerDes for AD(A)S



DC/DC

Category	P/N	V _{in} (min) (V)	V _{in} (max) (V)	I _{out} (A)	Switching frequency (kHz)	Features	Package	Status
Buck	SA23001ADFD	2.8	5.5	1	2350	Fixed soft-start, Low Iq, UVP with hiccup, 100% duty cycle, Low ISD, Forced PWM,	DFN2×2-8	MP
Buck	SA23002ATWD	2.8	5.5	2	2350	Fixed soft-start, Low Iq, UVP with hiccup, 100% duty cycle, Low ISD, Forced PWM,	DFN1.4×1.8-6	MP
Buck	SA23002ADFD	2.8	5.5	2	2350	Fixed soft-start, Low Iq, UVP with hiccup, 100% duty cycle, Low ISD, Forced PWM,	DFN2×2-8	MP
Buck	SA23002BDFD	2.8	5.5	2	2350	Fixed soft-start, Low Iq, UVP with hiccup, 100% duty cycle, Low ISD,	DFN2×2-8	MP
NEW Buck	SA23002CTWD	2.8	5.5	2	2350	Fixed soft-start, Low ISD, Short-circuit protection with hiccup, 100% duty cycle, Thermal shutdown, Cycle by cycle overcurrent protection	DFN1.4×1.8-6	MP
Buck	SA23002CDFD	2.8	5.5	2	2350	Fixed soft-start, UVP with hiccup, 100% duty cycle, Low ISD,	DFN2×2-8	MP
Buck	SA23003ATWD	2.8	5.5	3	2350	Fixed soft-start, Low Iq, UVP with hiccup, 100% duty cycle, Low ISD, Forced PWM,	DFN1.4×1.8-6	MP
Buck	SA23003CTWD	2.8	5.5	3	2350	Fixed soft-start, UVP with hiccup, 100% duty cycle, Low ISD,	DFN1.4×1.8-6	MP
Buck	SA23004XHQ	2.8	5.5	4	1800-3000	Adjustable soft-start, Low Iq, Wettable flanks package, UVP with hiccup, 100% duty cycle, Low ISD, Spread spectrum, Forced PWM, Frequency synchronization,	QFN2×3-9	MP
Buck	SA23006XHQ	2.8	5.5	6	1800-3000	Adjustable soft-start, Low Iq, Wettable flanks package, UVP with hiccup, 100% duty cycle, Low ISD, Spread spectrum, Forced PWM, Frequency synchronization,	QFN2×3-9	MP
Buck	SA25901BAT	2.8	6	1	2300	Fixed soft-start, Low Iq, UVP with hiccup, 100% duty cycle, Low ISD, Spread spectrum, Forced PWM, Auto-discharge	SOT583	MP
Buck	SA25901ABAT	2.8	6	1	2300	Fixed soft-start, Low Iq, UVP with hiccup, 100% duty cycle, Low ISD, Spread spectrum, Forced PWM	SOT583	MP
NEW Buck	SA25902BAT	2.8	6	2	2300	Fixed soft-start, Low Iq, UVP with hiccup, 100% duty cycle, Low ISD, Spread spectrum, Forced PWM, Auto-discharge	SOT583	MP
Buck	SA25903BAT	2.8	6	3	2200	Fixed soft-start, Low Iq, UVP with hiccup, 100% duty cycle, Low ISD, Spread spectrum, Forced PWM, Auto-discharge	SOT583	MP
NEW Buck	SA25903BBAT	2.8	6	3	2300	Fixed soft-start, Low Iq, UVP with hiccup, 100% duty cycle, Low ISD, Forced PWM, Auto-discharge	SOT583	MP
Buck	NEW SA26012VDQ	2.8	7	12	600-1000	Adjustable soft-start, UVP with hiccup, Low ISD, Forced PWM or PFM,	QFN3×4-19	MP
Buck	SA26066WYQ	3	7	6	600-2200	Adjustable soft-start, UVP with hiccup, Low ISD, Forced PWM,	QFN2×3-14	MP

DC/DC

Category	P/N	V _{in} (min) (V)	V _{in} (max) (V)	I _{out} (A)	Switching frequency (kHz)	Features	Package	Status
Buck	 SA24506XNQ	3.5	36	6	300-2200	Fixed soft-start, Low Iq, Wettable flanks package, UVP with hiccup, OVP, External bias input, Low ISD, Spread spectrum, Frequency synchronization,	QFN3.5×4-14	MP
Buck	SA24404XNQ	4	36	4	300-2200	Fixed soft-start, Low Iq, Wettable flanks package, UVP with hiccup, OVP, External bias input, Low ISD, Spread spectrum, Frequency synchronization,	QFN3.5×4-14	MP
Buck	SA24406XNQ	4	36	6	300-2200	Fixed soft-start, Low Iq, Wettable flanks package, UVP with hiccup, OVP, External bias input, Low ISD, Spread spectrum, Frequency synchronization,	QFN3.5×4-14	MP
Buck	SA24406EXNQ	4	36	6	300-2200	Fixed soft-start, Wettable flanks package, UVP with hiccup, OVP, External bias input, Low ISD, Spread spectrum, Frequency synchronization,	QFN3.5×4-14	MP
Buck	SA24481TLQ	4.5	36	1	300-2200	Fixed soft-start, Low Iq, UVP with hiccup, Low ISD, Spread spectrum,	QFN2×2-12	Support MP
Buck	SA24483TLQ	4.5	36	3	300-2200	Fixed soft-start, Low Iq, UVP with hiccup, Low ISD, Spread spectrum,	QFN2×2-12	MP
Buck	SA24483ETLQ	4.5	36	3	300-2200	Fixed soft-start, UVP with hiccup, Low ISD, Spread spectrum,	QFN2×2-12	Support MP
Buck	SA24491TLQ	4.5	36	1	300-2200	Fixed soft-start, UVP with hiccup, Low ISD, Spread spectrum,	QFN2×2-12	MP
Buck	SA24492TLQ	4.5	36	2	300-2200	Fixed soft-start, UVP with hiccup, Low ISD, Spread spectrum,	QFN2×2-12	MP
Buck	SA24493TLQ	4.5	36	3	300-2200	Fixed soft-start, UVP with hiccup, Low ISD, Spread spectrum,	QFN2×2-12	MP
Buck	 SA24493ETLQ	4.5	36	3	300-2200	Fixed soft-start, UVP with hiccup, Low ISD, Spread spectrum,	QFN2×2-12	MP
Buck	SA24493LTLQ	4.5	36	3	300-2200	Fixed soft-start, UVP with hiccup, Low ISD, Spread spectrum,	QFN2×2-12	MP
Buck	SA24403FCA	4.2	40	3.5	300-2200	Fixed soft-start, Low Iq, UVP with hiccup, Low ISD,	SO8E	MP
Buck	SA24401FCA	4.25	40	0.6	500	Fixed soft-start, Low Iq, UVP with hiccup, Low ISD,	SO8E	MP
Buck	SA24401BFCA	4.25	40	0.6	2100	Fixed soft-start, Low Iq, UVP with hiccup, Low ISD,	SO8E	MP

DC/DC

Category	P/N	V _{in} (min) (V)	V _{in} (max) (V)	I _{LIM} (A)	Switching frequency (kHz)	Features	Package	Status
Buck-Boost	SA22307TVA	4	36	7	200~600	Soft start, PFM/FCCM	QFN5x5-30	MP
Boost	SA22115VPA	2.7	16	15	400	Disconnection FET	QFN3x4-15	MP

Category	P/N	Rail (#)	Phase (#)	V _{cc} (typ) (V)	Switching frequency (kHz)	Interface	Package	Status
Multi-phase	SA58258QJQ	2	N + M ≤ 8 (M ≤ 4)	5	400~2000	PMBus	QFN7×7-48	MP

Category	P/N	V _{IN} (min) (V)	V _{IN} (max) (V)	I _{OUT} (max) (A)	Protection Mode	Fault Response	Features	Package	Status
eFuse	SA21816CQSQ	2.7	18	5.3	OVP, OCP, UVP, OTP	Auto-recovery	Reverse blocking	QFN3x4-20	MP

Category	P/N	Channel (#)	V _{IN} (min) (V)	V _{IN} (max) (V)	I _{OUT} (max) (A)	Features	Package	Status
ORing	SA21904AQEQ	1	4	40		Auto-recovery OCP, Auto-recovery input OVP	QFN5×5-32	MP

Category	P/N	Operating voltage (min) (V)	Operating voltage (max) (V)	Channels (#)	R _{on} (typ) (mΩ) T _j = 25°C	I _{max} (A)	Current limit type	Features	Package	Status
High-side Switch	SA21803AHTP	8	36	1	38	4.5	Fixed 47A	Current sense, SCG, OLP, OTP Protection	TSOP14E	MP

Category	P/N	Vin (max) (V)	Vin (min) (V)	Iout (max) (A)	Feature	Package	Status
LDO	SA21345AFCA	36	4	0.3	Fixed soft-start, Low Iq, Over current protection	SO8E	MP
LDO	SA21345CDFD	36	4	0.3	Fixed soft-start, Low Iq, Over current protection	DFN2×2-8	MP
LDO	SA21345DAAA	36	4	0.15	Fixed soft-start, Over current protection, Output short to ground protection (hiccup mode)	SOT23-5	MP
LDO	SA21345GFAA	36	4	0.15	Fixed soft-start, Over current protection, Output short to ground protection (hiccup mode)	SO8	MP
LDO	SA21345NFPC	36	4	0.3	Fixed soft-start, Low Iq, Over current protection, Output short to ground protection (hiccup mode)	SO8E	MP
LDO	SA21345QFCP	36	4	0.3	Fixed soft-start, Low Iq, Over current protection	SO8E	MP
NEW	SA21345SFCP	36	4	0.3	Fixed soft-start, Low Iq, Over current protection	SO8E	MP: Q1 2026
LDO	SA21340FCA	36	4	0.3	Fixed soft-start, Low Iq, Over current protection, Output short to ground protection (hiccup mode)	SO8E	MP
LDO	SA21340IFCP	36	4	0.3	Fixed soft-start, Low Iq, Over current protection, Output short to ground protection (hiccup mode)	SO8E	MP
NEW	SA21340IAAT	36	4	0.15	Fixed soft-start, Low Iq, Over current protection, Output short to ground protection (hiccup mode)	SOT23-5	MP
LDO	SA21340PFCP	36	4	0.3	Fixed soft-start, Low Iq, Over current protection, Output short to ground protection (hiccup mode)	SO8E	MP
LDO	SA21340PDAD	36	4	0.3	Fixed soft-start, Low Iq, Over current protection, Output short to ground protection (hiccup mode) , Wettable flanks package	DFN3×3-8	MP
NEW	SA21308A00DED	6	1.62	0.5	Precise output, Fixed soft-start, Low Iq, Over current protection, Output short to ground protection, Foldback Current Limit, Wettable flanks package	DFN2×2-6	MP
LDO	SA21308B00DED	6	2	0.5	Precise output, Fixed soft-start, Low Iq, Over current protection, Output short to ground protection, Foldback Current Limit	DFN2×2-6	MP
LDO	SA21309A00DAD	6	1.5	1	Precise output, Fixed soft-start, Low Iq, Over current protection, Output short to ground protection , Foldback Current Limit, Wettable flanks package	DFN3×3-8	MP
NEW	SA21309B00DAD	6	2	1	Precise output, Fixed soft-start, Low Iq, Over current protection, Output short to ground protection, Foldback Current Limit, Wettable flanks package	DFN3×3-8	MP
LDO	SA21305AUYS	3.3	1.65	1.35	Fixed soft-start, Over current protection, Output short to ground protection, Foldback Current Limit	CSP 2.4×2.4 - 36	MP

Controller

Category	P/N	Topology	Vin (min) (V)	Vin (max) (V)	Switching frequency (kHz)	Features	Package	Status
Controller	SA33101HSP	Buck	4	36	200-1000	Suport PLL/PFM/FCCM, Controller	SSOP18E	MP
Controller	SA33103QCQ	Buck	4	60	200-1000	Suport PLL/PFM/FCCM, Controller	QFN4×4-24	MP
Controller	SA22900QEQ	Dual-phase Boost	5	50	50~1100	Spread spectrum, Input voltage tracking, Programmable dead time, Programmable minimum on time, Selectable phase drop and add	QFN5×5-32	MP
Controller	SA22001AQEQ	Buck-Boost	6	60	150-400	Power good, Programmable soft start, Wettable flanks package, UVP, OVP, OCP, ISO26262 ASIL-D Certified	QFN5×5-32	MP
Controller	SA22300FAP	Boost/Flyback/Sepic	3.45	36	/	Cycle by cycle overcurrent protection, OCP, FB short protection, Current mode, DC/DC Controller for Boost/Flyback/Sepic	SOP8	MP
Controller	SA22301HOP	Boost/Flyback/Sepic	4.75	36	100-1000	Cycle by cycle current limit, hiccup mode OCP, Current mode, DC/DC Controller for Boost/Flyback/Sepic	SSOP14E	MP
Controller	SA32703FAP	Boost/Flyback/Sepic	5	11	30-500	11V 1A Boost/Flyback Controller	SO8	MP

PMIC

Category	P/N	Vin (min) (V)	Vin (max) (V)	Regulated outputs (#)	Step-down DC/DC converter	Step-up DC/DC converter	LDO	Features	Package	Status
PMIC	SA47302 Series	4	16	4	3	/	1	Fixed output voltage, Power sequence control, Reset output, Diagnostics, Spread spectrum	QFN3x3-16	MP
PMIC	SA47301 Series	3	40	7	1	/	6	ASIL-D, SPI interface, Diagnostics, Watchdog, Error monitor, Safe state control, Spread spectrum	QFN7x7-48	MP

Category	P/N	V _{in} (min) (V)	V _{in} (max) (V)	Number of half bridges	RDS(on) (HS + LS) (mΩ)	Peak output current (A)	Integrated FETs (Yes/No)	Feature	Package	Status
Motor Driver	SA52106VAA	5.5	25	6	1500	1.2	Yes	Sleep mode, Paralleled output mode, Daisy chain functionality, OVP, OCP, SCP, OLD	QFN5x5-24	MP
Motor Driver	SA52106HHP	4.5	32	6	1500	1.8	Yes	Sleep mode, Paralleled output mode, Daisy chain functionality, OVP, OCP, SCP, OLD	TSSOP24E	MP
Motor Driver	SA52116VAQ	5.5	25	6	1500	1.2	Yes	Sleep mode, Paralleled output mode, Daisy chain functionality, OVP, OCP, SCP, OLD	QFN5x5-24	MP
Motor Driver	SA52126HHP	4.5	32	6	1500	1.5	Yes	Sleep mode, Paralleled output mode, Daisy chain functionality, Spread spectrum clocking, OVP, OCP, SCP, OLD	TSSOP24E	MP
Motor Driver	SA52108HHP	4.5	32	8	1500	1.8	Yes	Sleep mode, Paralleled output mode, Daisy chain functionality, OVP, OCP, SCP, OLD	TSSOP24E	MP
Motor Driver	SA52108VAQ	4.5	32	8	1500	1.8	Yes	Sleep mode, Paralleled output mode, Daisy chain functionality, OVP, OCP, SCP, OLD	QFN5x5-24	MP
Motor Driver	SA52128HHP	4.5	32	8	1500	1.5	Yes	Sleep mode, Paralleled output mode, Daisy chain functionality, OVP, OCP, SCP, OLD	TSSOP24E	MP
Motor Driver	SA52128BHHP	4.5	32	8	1500	1.5	Yes	Sleep mode, Paralleled output mode, Daisy chain functionality, Spread spectrum clocking, OVP, OCP, SCP, OLD	TSSOP24E	MP
NEW Motor Driver	SA52110HHP	4.5	32	10	1500	1.5	Yes	Sleep mode, Paralleled output mode, Daisy chain functionality, OVP, OCP, SCP, OLD, Spread spectrum clocking	TSSOP24E	MP
Motor Driver	SA52112VAQ	4.5	32	12	1500	1.8	Yes	Sleep mode, Paralleled output mode, Daisy chain functionality, OVP, OCP, SCP, OLD	QFN5x5-24	MP

Motor Driver

Category	P/N	V _{in} (min) (V)	V _{in} (max) (V)	Number of half bridges	RDS(on) (HS + LS) (mΩ)	Peak output current (A)	Integrated FETs (Y/N)	Feature	Package	Status
Motor Driver	SA52122HHP	4.5	32	12	1500	1.5	Yes	Sleep mode, Paralleled output mode, Daisy chain functionality, OVP, OCP, SCP, OLD	TSSOP24E	MP
Motor Driver	SA52122BHHP	4.5	32	12	1500	1.5	Yes	Sleep mode, Paralleled output mode, Daisy chain functionality, Spread spectrum clocking, OVP, OCP, SCP, OLD	TSSOP24E	MP
Motor Driver	SA52902QEQ	4.9	37	2	/	/	No	100% PWM, Smart gate driver, Inline current sensing, Spread spectrum clocking, OLD, SCD, Motor brake in sleep mode, MOSFET monitors, Limp home	QFN5x5-32	MP
Motor Driver	SA52270FFP	4	28	2	60	15	Yes	Overvoltage clamp, Cross-conduction protection, Current limitation, Protection against loss of ground and loss of VCC, Standby mode, Current sense	SOP16	MP
Motor Driver	SA52270LFFP	4	28	2	60	12	Yes	Overvoltage clamp, Cross-conduction protection, Current limitation, Protection against loss of ground and loss of VCC, Standby mode, Current sense	SOP16	MP

Gate Driver

Category	P/N	Driving FETs Type	Channel(#)	Input bias voltage (V)	Output bias voltage (V)	Sink/Source current (A)	Feature	Package	Status
Gate Driver	SA52631DAD	Si MOS	–	4.4	14	0.75A/1.25A	UVP, Interlock	DFN3x3-8	MP
Gate Driver	SA52631FAP	Si MOS	/	4.4	14	0.75A/1.25A	UVP, Interlock	SOP8	MP

Category	P/N	Driving FETs Type	V _{in} (min) (V)	V _{in} (max) (V)	Topology	Switching frequency (min)(kHz)	Switching frequency (max)(kHz)	I _q (typ) (μA)	Feature	Package	Status
ISO DCDC	SA52731AAT	1	3	5.5	Push-Pull	358	394	1000	Short-circuit protection, Spread spectrum clocking, UVP, Thermal shutdown	SOT23-5	MP

Category	P/N	V _{in} (V)	V _{out} (V)	I _{out} (A)	Features	Package	Status
LED Driver	SA32707HFA	28	-	0.15	3Ch*150mA Linear Driver	TSSOP16E	MP
LED Driver	SA32774QJQ	4.9	16	0.1	24-Channel LED Driver for Rear Light Application	QFN7×7-48	MP
NEW LED Driver	SA33760QJQ	55	55	-	4 switcher buck-boost controller; high frequency; V _{IN} range from 4.5-55, V _{LED} range from 3-55	QFN7×7-48	MP
LED Driver	SA33761HHP	55	55	-	4 switcher buck-boost controller; high frequency; V _{IN} range from 4.5-55, V _{LED} range from 3-55	TSSOP24E	MP
NEW LED Driver	SA33756GCF	60	60	1.6	16 channel matrix controller for ADB application	LQFP7x7-48E	MP
NEW LED Driver	SA33764QEQ	40	60	-	2 phase boost CV controller, VIN range from 5-40V	QFN5x5-32	MP
NEW LED Driver	SA33766IDP	60	55	1.6	2 channel BUCK converter, VIN range from 5-60V, ILED cover 1.6A	TSSOP32E-UP	MP

Audio

Category	P/N	Channel (#)	Vs (min)	Vs (max)	Input type	PSRR (dB)	THD+N (%)	SNR (dB)	Feature	Package	Status
Headphone /Line Driver	SA51023HDA	1	4.5	18	Analog	114	0.0007	114	High CMRR	TSSOP14	MP

Category	P/N	Channel (#)	Vs (min)	Vs (max)	Input type	Load (min) (Ω)	THD+N (%) (1kHz 1W)	SNR (dB)	Po (W/Ch)	Feature	Package	Status
Class D Amplifier	SA51024HGA	1	5.5	18	Analog	2	0.08	102	10	Startup speaker diagnostics, Power limit	TSSOP28E	MP
Class D Amplifier	SA51034HFA	1	4.5	18	Analog	1.8	0.035	102	8	Startup speaker diagnostics, Power limit, I2C	TSSOP16E	MP
Class D Amplifier	SA51054HFA	1	4.5	18	Analog	1.9	0.048	102	22	Startup speaker diagnostics, Power limit, I2C	TSSOP16E	MP
Class D Amplifier	SA51500HFP	1	4.5	28	Analog	1.8	0.03	102	10	Startup speaker diagnostics, Power limit, I2C, Spread spectrum	TSSOP16E	MP
Class D Amplifier	SA51510HFP	1	4.5	28	Analog	1.8	0.03	102	22	Startup speaker diagnostics, Power limit, I2C, Spread spectrum	TSSOP16E	MP

Category	P/N	ADC Ch (#)	DAC Ch (#)	Input Ch (#)	Output Ch (#)	SR (kHz)	ADC SNR (dB)	ADC THD+N (dB)	DAC SNR (dB)	DAC THD+N (dB)	Feature	Package	Status
Audio converter	SA55602HNP	/	1	/	1	8, 16, 32, 44.1, 48, 88.2, 96, 192	/	/	115	90	Current limit, Low IQ	TSSOP24	MP
Audio Converter	SA55621QCQ	1	1	2	3	8, 16, 32, 44.1, 48, 88.2, 96	99	91	107	83	TDM, Mic direct path, Current limit	QFN4x4-24	MP

Category	P/N	Direction	Common mode voltage (V)	Vcc(V)	Input offset (max)(μ V)	Input offset drift (typ) (μ V/ $^{\circ}$ C)	Voltage gain (V/V)	Band width (kHz)	CMRR (min) (dB)	Gain error (max)	Iq (max) (mA)	Package	Status
Current Sense	SA59101AHT	Bi	-0.3 to 26	3 to 5.5	\pm 100	\pm 0.1	50	60	100	\pm 0.50%	0.1	SOT363	MP
Current Sense	SA59102AHA	Bi	-0.3 to 26	3 to 5	\pm 50	\pm 0.1	100	28	105	\pm 0.50%	0.1	SOT363	MP
Current Sense	SA59131FAP	Bi	-4 to 80	2.73 to 5.5	\pm 22	\pm 0.05	100	550	116	\pm 0.15%	2.6	SOP8	MP
Current Sense	SA59131HMP	Bi	-4 to 80	2.73 to 5.5	\pm 25	\pm 0.05	100	500	114	\pm 0.15%	2.6	TSSOP8	MP

Category	P/N	Resolution (bit)	Common mode voltage (V)	Vcc(V)	Input offset (max)	Input offset drift(max) (μ V/ $^{\circ}$ C)	Gain error	Gain error drift (max) (ppm/ $^{\circ}$ C)	CMRR (min) (dB)	Channel (#)	Power measurement accuracy	Iq (max) (μ A)	Package	Status
Power Monitor	SA59205FBP	16	0 to 36	2.7 to 5.5	\pm 10 μ V	\pm 0.1	0.15%	\pm 50	130	1	0.30%	390	MSOP10	MP
	SA59202DAA	12	3.6 to 25	3.6 to 25	\pm 10LSB	-	-	-	-	1	-	600	DFN3x3-8	MP

ADC

Category	P/N	Resolution (bit)	Sample rate (max) (sps)	Channel (#)	Interface	SNR (typ)	INL (max)	Input type	Power consumption (typ)(mW)	Architecture	Reference mode	Package	Status
ADC	SA89851HLP	12	1000k	8	SPI	69 dB	4 LSB	Unipolar	10.6	SAR	External	TSSOP30	MP
ADC	SA89853HUP	12	1000k	16	SPI	69 dB	4 LSB	Unipolar	10.6	SAR	External	TSSOP38	MP
ADC	SA59400FBP	12	120-4360	4	SPI	/	/	Differential, Single-ended	/	Delta-sigma	Internal	MSOP10	MP
ADC	SA59401FBP	16	8-890	4	SPI	/	/	Differential, Single-ended	/	Delta-sigma	Internal	MSOP10	MP

Category	P/N	Vo (V)	Initial accuracy (max)(%)	Temp coeff (max)(ppm/ $^{\circ}$ C)	Low frequency noise (typ)(μ Vpp/V)	Minimum operating current (max)(μ A)	Operating Current (max)(mA)	Package	Status
Reference	SA89550AOT	5.0	0.1	41	6.6	100	15	SOT-23	MP
	SA89550BAOT	4.096	0.1	33	6.6	97	15	SOT-23	MP
	SA89550CAOT	3.3	0.1	37	6.6	94	15	SOT-23	MP
	SA89550DAOT	2.5	0.1	43	6.6	88	15	SOT-23	MP
	SA89550EAOT	2.048	0.1	38	6.6	88	15	SOT-23	MP
	SA89550FAOT	3.0	0.1	39	6.6	92	15	SOT-23	MP

Category	P/N	Channel (#)	Operating voltage (V)	Switch input voltage (min) (V)	Switch input voltage (max) (V)	Wetting current (mA)	Interface	Package	Status
MSDI	SA89822BQEQ	22	6 to 36	-14	38	1,2,6,8,10	SPI	QFN5x5-32	MP
	SA89833GCF	33	6 to 36	-14	38	2, 6, 8, 10	SPI	LQFP7x7-48E	MP

Light Sensor

Category	P/N	Function	Vdd (min) (V)	Vdd (max) (V)	ALS peak wavelength	ALS light current ($\mu\text{A}/\text{lux}$)	IR peak (nm)	IR light current ($\mu\text{A}/\text{mW}/\text{cm}^2$)	Package	Status
Light Sensor	SA88010RS22-J00	IR sensor	0	20	/	/	870	6.7	2.0x1.5x0.6	MP
Light Sensor	SA88011AS22-J00	ALS sensor	2	6	520	0.14	/	/	2.0x1.5x0.6	MP

Category	P/N	Function	Vdd (min) (V)	Vdd (max) (V)	VI2C (typ) (V)	Idd (typ) (μA)	Sensitivity-G @100ms (mLux/count)	Flicker sample rate (max) (kHz)	Package	Status
Light Sensor	SA88137AS22-J00	ALS	2.5	3.6	1.8, 3.3, 5.0	150	1.6	1000	SMD2020-6	MP

ESD

Category	P/N	Configuration	Number of protected signal lines	Vrwm (V)	Vbr (min) (V)	Vbr (max) (V)	Vc@Ipp (V)	Ipp (A) (8/20 μs)	Cd (pF)	Vesd (kV)	Package	Status
ESD	SAT01N24AMA	Bidirectional	1	24	26.7	35	40	4	12	30	SOD323	MP
ESD	SAT11N24AMO	Bidirectional	2	24	26.7	35	40	8	23	30	SOD323	MP
ESD	SAT03N24AOT	Bidirectional	2	24	26.7	35	40	4	12	30	SOT-23	MP
ESD	SAT13N24AOT	Bidirectional	2	24	26.7	35	40	8	23	30	SOT-23	MP
ESD	SAT21S05DWD	Bidirectional	1	5	5.5	9	10	4.5	0.5	30	DFN1.0x0.6-2	MP
ESD	SAT21A05DWD	Bidirectional	1	5	6	13	6.5	10	0.25	20	DFN1.0x0.6-2	MP
ESD	SAT46S03DVD	Bidirectional	4	3	3.3	6.3	8	6	0.4	30	DFN2.5x1.0-10	MP

NEW

Category	P/N	Vin (V)	Vout (V)	Iout (A)	Features	Package	Status
Linear Charger	SA61930QIA	4.5	36	0.5	LDO + Linear Charger	QFN4x4 16	MP
Linear Charger	SA61930BQIA	4.5	36	0.5	LDO + Linear Charger	QFN4x4 16	MP
USB Charger	SA61931QCA	4.5	40	3	QC3.0, DCP, 18W	QFN4x4 24	MP

BMS AFE

Category	P/N	Application	Features	Package	Status
BMS AFE	SA63122GGF SA63122AGGF	BMS, EV/HEV	Stackable 18S Monitor and Passive Cell Balancer with Daisy Chain	TQFP10x10-64E	MP
BMS Bridge	SA63000HFP SA63000AHFP SA63000BHFP	BMS, EV/HEV	SPI Interface: 2MHz-6MHz	TSSOP16E	MP

MCU

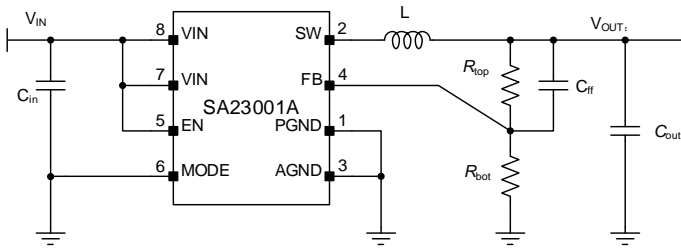
Category	P/N	CPU	Freq (MHz)	C-Flash (KB)	D-Flash (KB)	SRAM (KB)	CAN	UART /LIN	SPI	Security	Package	Targeted Applications	Package	
MCU	SA32B12QEQ	M4F	120	128	128	64	1	2	1	SHE	QFN5x5-32	Body Control, Smart Cockpit, T-BOX, OBC, BMS, HVAC, Lighting, WPC, etc.	MP	
MCU	SA32B12AQEQ	M4F	120	128	128	64	1	2	2	SHE	QFN5x5-32		MP	
MCU	SA32B12GFF	M4F	120	128	128	64	3	3	3	SHE	LQFP7x7-48		MP	
MCU	SA32B14GFF	M4F	120	256	128	64	3	3	3	SHE	LQFP7x7-48		MP	
MCU	SA32B14GDF	M4F	120	256	128	64	3	4	3	SHE	LQFP10x10-64		MP	
MCU	SA32B16GFF	M4F	120	512	128	64	3	3	3	SHE	LQFP7x7-48		MP	
MCU	SA32B16GDF	M4F	120	512	128	64	3	4	3	SHE	LQFP10x10-64		MP	
MCU	SA32B16GEF	M4F	120	512	128	64	3	4	4	SHE	LQFP14x14-100		MP	
MCU	SA32B19GEF	M4F	160	1M	128	256	3	4	4	HSM	LQFP14x14-100		Sampling, MP: Q2 2026	
MCU	SA32B20GEF	M4F	160	2M	128	256	3	4	4	HSM	LQFP14x14-100		Sampling, MP: Q2 2026	
MCU	SA32B20GLF	M4F	160	2M	128	256	4	6	6	HSM	LQFP20x20-144		Sampling, MP: Q1 2026	
MCU	SA32D408NLG	RSIC-V	300	8M	384	1344	10	12	8	HSM	BGA17x17-292		Traction inverter, 400V/800V BMS, ZCU, ONE-BOX, ADAS, etc.	Sampling, MP: Q2 2026
MCU	SA32D610NLG	RSIC-V	300	10M	384	2048	10	12	8	HSM	BGA17x17-292			Sampling, MP: Q2 2026
MCU	SA32D610NMG	RSIC-V	300	10M	384	2048	10	12	8	HSM	BGA21x21-373			Sampling, MP: Q2 2026

SerDes

Category	P/N	Application	Downlink Direction Rate	Uplink Direction Rate	Input/Output Port Format	Package	Status
SerDes	SA89717QEQ	ADAS Serializer	6.5Gbps	65Mbps	MIPI DPHY	QFN5x5-32	Sampling, MP: Q2 2026
SerDes	SA89715QEQ	ADAS Serializer	2Gbps/4Gbps	100Mbps	MIPI DPHY	QFN5x5-32	Sampling, MP: Q2 2026
SerDes	SA89712WCQ	ADAS DeSerializer	6.5Gbps	65Mbps	MIPI DPHY/CPHY	QFN9x9-64	Sampling, MP: Q2 2026
SerDes	SA89722WCQ	ADAS DeSerializer	2Gbps/4Gbps	100Mbps	MIPI DPHY/CPHY	QFN9x9-64	Sampling, MP: Q2 2026
SerDes	SA89724XAQ	ADAS DeSerializer	6.5Gbps	65Mbps	MIPI DPHY/CPHY	QFN8x8-56	Sampling, MP: Q2 2026
SerDes	SA89720XAQ	ADAS DeSerializer	2Gbps/4Gbps	100Mbps	MIPI DPHY/CPHY	QFN8x8-56	Sampling, MP: Q2 2026

SA23001ADFD

2.8V-5.5V Input, 1A Single Synchronous Buck Converter



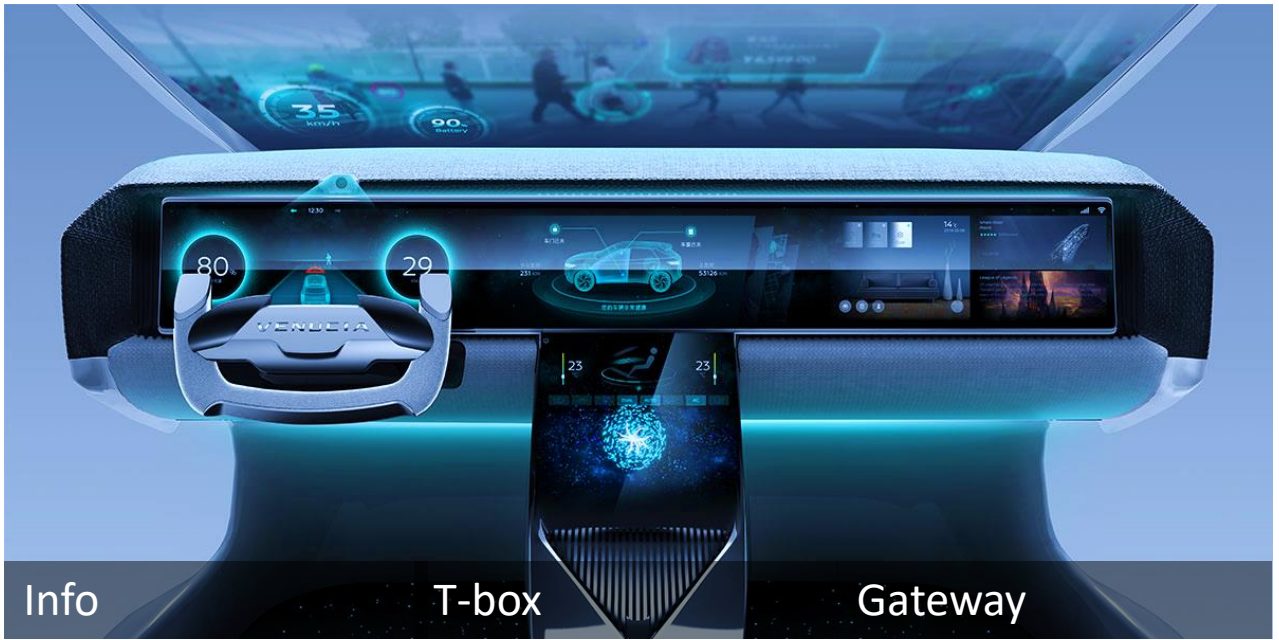
Features

- 2.8V to 5.5V Input Voltage Range
- Up to 1A Output Current
- External Adjustable Voltage with $\pm 1.5\%$ Reference Accuracy
- $1\mu\text{A}$ Shutdown Current (Typical)
- Fixed 2.35MHz Switching Frequency Minimizes Required External Components
- Selectable PWM and PFM Operating Modes
- 100% Duty-Cycle Capable
- Cycle-by-Cycle Current-Limit Protection
- Hiccup-Mode Short-Circuit Protection
- Thermal Shutdown
- Package: DFN2 \times 2-8
- Automotive AEC- Q100 Grade 1 certified

Applications

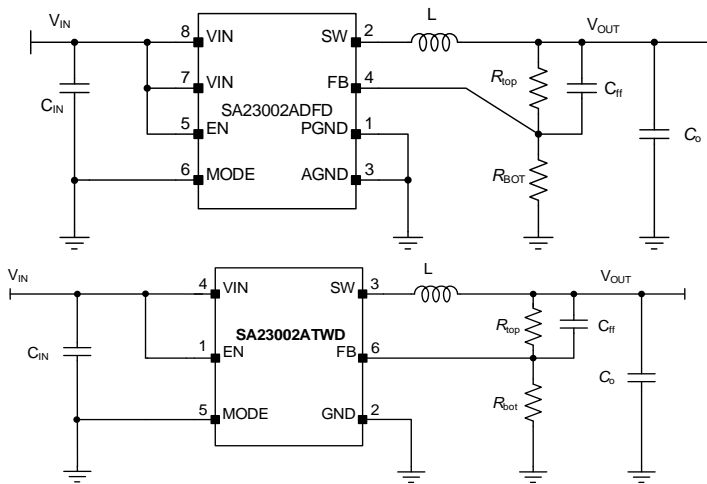
- Info, T-box, Gateway, Cluster
- Automotive Display
- ADAS

Buck Regulators



SA23002ADFD
SA23002ATWD

2.8V-5.5V Input, 2A Single Synchronous Buck Converter



DFN2×2-8



DFN1.4×1.8-6

Features

- 2.8V to 5.5V Input Voltage Range
- Up to 2A Output Current
- Reference Accuracy of External Adjustable Voltage
 - SA23002ADFD: $\pm 1.5\%$
 - SA23002ATWD: $\pm 1.2\%$
- Typical $1\mu\text{A}$ Shutdown Current
- Fixed 2.35MHz Switching Frequency
- PWM and PFM Operating Selectable
- 100% Duty Cycle Capability
- Cycle-by-Cycle Current Limit Protection
- Hiccup Mode Short-Circuit Protection (SCP)
- Thermal Shutdown
- Automotive AEC- Q100 Grade 1 Certified

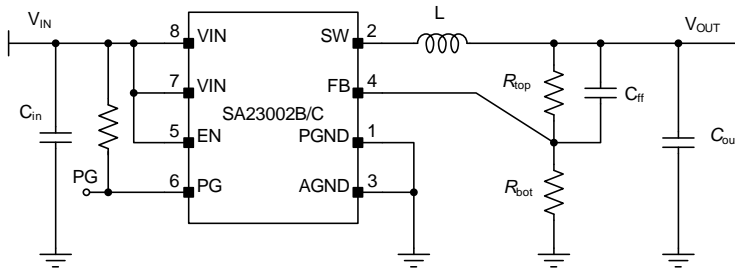
Applications

- Info, T-box, Gateway, Cluster
- Automotive Display
- ADAS

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SA23002BDFD/SA23002CDFD

2.8V-5.5V Input, 2A Single Synchronous Buck Converter



Features

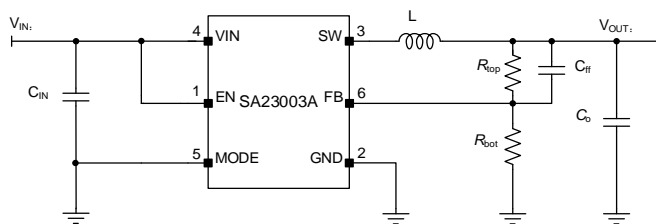
- 2.8V to 5.5V Input Voltage Range
- External Adjustable Voltage with $\pm 1.5\%$ Reference Accuracy
- Typical $1\mu\text{A}$ Shut Down Current
- Fixed 2.35MHz Switching Frequency
- Light Load Operating Mode
 - SA23002B is PFM Mode
 - SA23002C is PWM Mode
- Power Good Indicator
- Internal Soft Start
 - SA23002B: typical 0.2ms
 - SA23002C: typical 0.4ms
- 100% Duty Cycle for Lowest Dropout
- Cycle by Cycle Current Limit Protection
- Hiccup Mode Short-Circuit Protection (SCP)
- Thermal Shutdown
- Package: DFN2 \times 2-8
- Automotive AEC- Q100 Grade 1 certified

Applications

- Info, T-box, Gateway, Cluster
- Automotive Display
- ADAS

Buck Regulators

SA23003ATWD 2.8V-5.5V Input, 3A Single Synchronous Buck Converter



Features

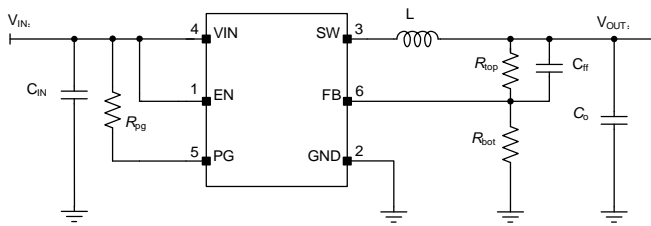
- 2.8V to 5.5V Input Voltage Range
- Up to 3A Output Current
- External Adjustable Voltage with $\pm 1\%$ Reference Accuracy
- $1\mu\text{A}$ Shutdown Current (Typical)
- Fixed 2.35MHz Switching Frequency Minimizes Required External Components
- Fixed Frequency PWM or PFM Light Load Operating Mode
- Typical 0.4ms Internal Soft Start
- 100% Duty-Cycle Capable
- Cycle-by-Cycle Current-Limit Protection
- Hiccup-Mode Short-Circuit Protection
- Thermal Shutdown
- Package: DFN1.4 \times 1.8-6
- Automotive AEC-Q100 Grade 1 Certified

Applications

- Info, T-box, Gateway, Cluster
- Automotive Display
- ADAS

SA23002CTWD/SA23003CTWD

2.8V-5.5V Input, 2A/3A Single Synchronous Buck Converter



Features

- 2.8V to 5.5V Input Voltage Range
- Up to 3A Output Current
 - SA23002C Output Current: 2A
 - SA23003C Output Current: 3A
- External Adjustable Voltage with $\pm 1.5\%$ Reference Accuracy
- 1 μ A Shutdown Current (Typical)
- Fixed 2.35MHz Switching Frequency Minimizes Required External Components
- Fixed Frequency PWM Operating Modes
- Typical 0.4ms Internal Soft Start
- Power Good Indicator
- 100% Duty-Cycle Capable
- Cycle-by-Cycle Current-Limit Protection
- Hiccup-Mode Short-Circuit Protection
- Thermal Shutdown
- Package: DFN1.4 \times 1.8-6
- Automotive AEC-Q100 Grade 1 Certified

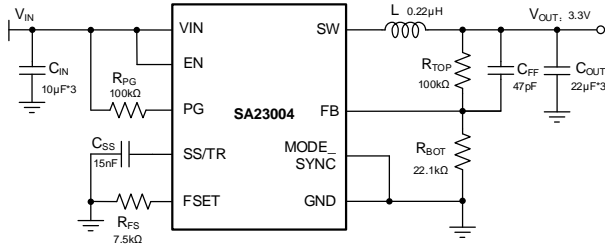
Applications

- Info, T-box, Gateway, Cluster
- Automotive Display
- ADAS

Buck Regulators

SA23004XHQ

2.8V-5.5V Input, 4A Single Synchronous Buck Converter



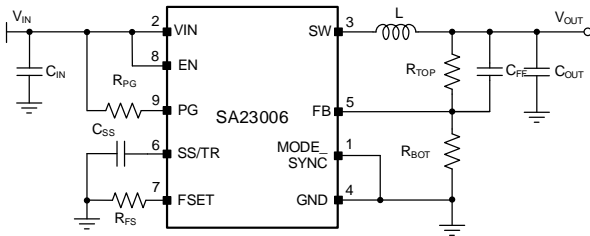
Features

- 2.8V to 5.5V Input Voltage Range
- Up to 4A Output Current
- External Adjustable Output Voltage with $\pm 1.2\%$ Reference Voltage Accuracy
- 1 μ A Shutdown Current (Typical)
- 36 μ A Quiescent Current (Typical)
- Adjustable Switching Frequency of 1.8MHz to 3MHz
- PWM or PFM Operation Selectable in Light Load
- Adjustable Soft-Start Time
- 100% Duty-Cycle for Lowest Dropout
- Optional Frequency Spread Spectrum
- Cycle-by-Cycle Current Limit Protection
- Hiccup Mode Short-Circuit Protection
- Power Good Indicator
- Thermal Shutdown
- Compact QFN2 \times 3-9 Package
- Automotive AEC-Q100 Grade 1 Certified

Applications

- Info, T-box
- Automotive Display
- ADAS

2.8V-5.5V Input, 6A Single Synchronous Buck Converter



Features

- 2.8V to 5.5V Input Voltage Range
- Up to 6A Output Current
- External Adjustable Output Voltage with $\pm 1.2\%$ Reference Voltage Accuracy
- $1\mu\text{A}$ Shutdown Current (Typical)
- Adjustable Switching Frequency of 1.8MHz to 3MHz
- PWM or PFM Operation Selectable in Light Load
- Adjustable Soft-Start Time
- 100% Duty-Cycle for Lowest Dropout
- Optional Frequency Jittering Function
- Cycle-by-Cycle Current Limit Protection
- Hiccup Mode Short-Circuit Protection
- Power Good Indicator
- Thermal Shutdown
- Compact QFN2 \times 3-9 Package
- Automotive AEC-Q100 Grade 1 Certified

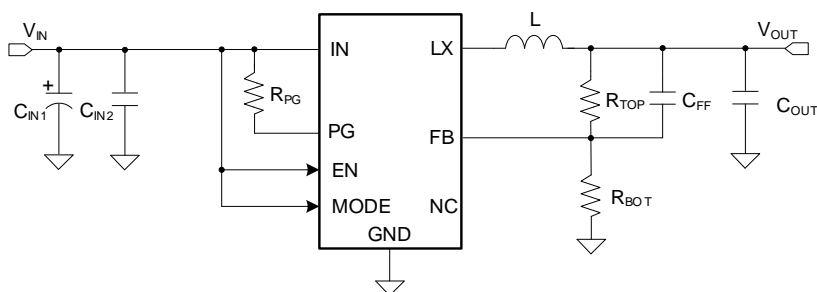
Applications

- Info, T-box
- Automotive Display
- ADAS

Buck Regulators

SA25901BAT/SA25901ABAT/SA25902BAT/SA25903BAT/SA25903BBAT

High-Efficiency, 6V, 1A/2A/3A, 2.2MHz/2.3MHz Synchronous Step-Down Regulator



Features

- Input Voltage Range: 2.8V ~ 6V
- Low $R_{DS(ON)}$ for Internal Switches(Top/Bottom): 65m Ω /25m Ω
- Output Current capability
 - SA25901/SA25901A: 1A
 - SA25902: 2A
 - SA25903/SA25903B: 3A
- Constant Frequency Peak Current Mode Control
- Low 38 μ A Quiescent Current
- $\pm 1\%$ 0.6V Reference Over -40 $^{\circ}$ C to +150 $^{\circ}$ C
- Switching Frequency
 - SA25903: 2.2MHz
 - SA25901/SA25901A/SA25902/SA25903B:2.3MHz
- Internal Soft-Start Limits Inrush Current3
- 100% Duty Cycle Dropout Operation
- Spread Spectrum Clocking
- Power-Good Indicator
- Hiccup Mode for Short-Circuit Protection
- Compact SOT583 Package
- Automotive AEC-Q100 Grade 1 Qualified

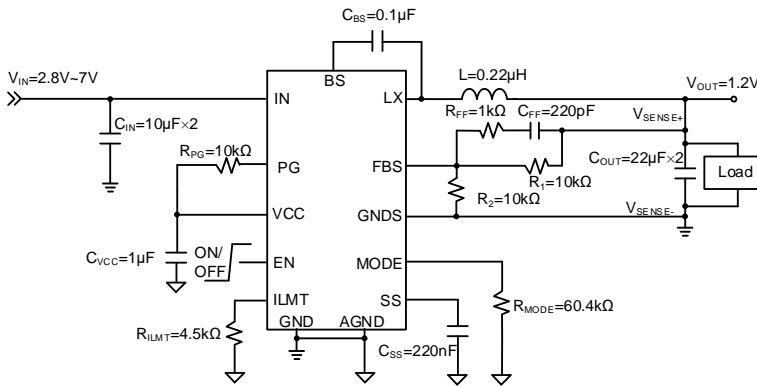
Applications

- Info, Cluster
- ADAS
- Display

[Back](#)



High Efficiency, 7V, 12A Synchronous Step Down Regulator



Features

- Input Voltage Range: 2.8V-7V
- Internal 12.6mΩ Power Switch and 4.3mΩ Synchronous Rectifier
- Accurate Reference: 0.6V \pm 1%
- Differential Remote Sense
- Fast Transient Response
- 600kHz, 800kHz and 1000kHz Operating Frequency
- Selectable Automatic High-efficiency Discontinuous Operating Mode at Light Loads
- Programmable Valley Current Limit
- Reliable Built-in Protections:
 - Automatic Recovery for Input Under-voltage (UVLO), Output Under-voltage (UVP) and Over-temperature (OTP) Conditions
 - Cycle-by-cycle Valley and Peak Current Limit (OCP)
 - Cycle-by-cycle Reverse Current Limit
- Internal and Adjustable Soft-Start to Limit Inrush Current
- Smooth Pre-Biased Startup
- Power Good Output Monitor for Undervoltage and Overvoltage Detection
- Package: QFN3 \times 4-19
- Automotive AEC- Q100 Grade 1 Certified

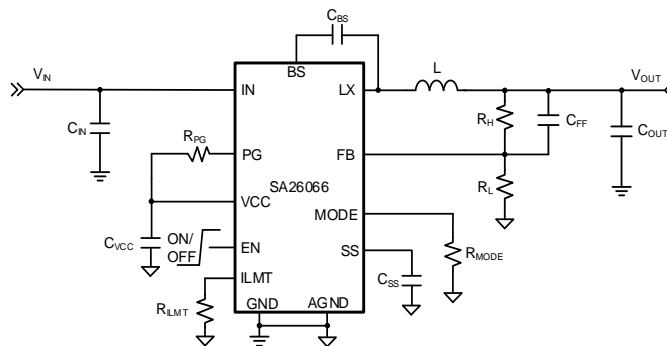
Applications

- Info, T-box, Gateway, Cluster
- Automotive Display
- ADAS

Buck Regulators

SA26066WYQ

7V Input 6A Synchronous Step-Down Regulator



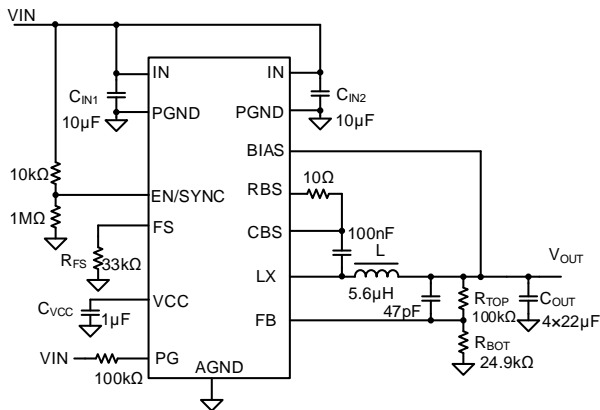
Features

- 3V to 7V Input Voltage Range
- Up to 6A Output Current
- $\pm 1\%$ Reference Voltage over -40°C to $+125^{\circ}\text{C}$ Junction Temperature Range
- Internal $22.1\text{m}\Omega$ Power Switch and $8.1\text{m}\Omega$ Synchronous Rectifier
- Instant-PWM™ Provides Fast Transient Response
- 660kHz, 1100kHz, and 2200 kHz Operating Frequency
- Selectable PFM/FCCM Operation
- Programmable Valley Current Limit
- Cycle-by-Cycle Valley and Peak Current Limit (OCP) and Reverse Current Limit if FCCM is Selected
- Output Overvoltage (OVP), Output Undervoltage (UVP), Overtemperature (OTP)
- Hiccup Mode after 32 Consecutive Cycles of Valley Current-Limit Protection
- Pre-Biased Startup
- Power-Good Indicator
- Compact Package: QFN2x3-14
- Automotive AEC-Q100 Grade 1 Certified

Applications

- Info, T-box, Gateway, Cluster
- Automotive Display
- ADAS

36V Input, 6A Synchronous Step Down Regulator



Features

- 3.5V to 36V Input Voltage Range
- Support 42V Load Dump
- Support 3.0V Cold Crank
- 6A Output Current Capability
- Low $R_{DS(ON)}$ for Internal Switches: 41mΩ Top, 21mΩ Bottom
- Typical 11.5μA Quiescent Current and 1μA Shutdown Current.
- 300kHz to 2.3MHz Switching Frequency
- Synchronization to External Clock
- Spread Spectrum Function
- Hiccup Mode Output Short-Circuit Protection
- EN On/Off Control with Accurate Threshold
- Cycle-by-Cycle Peak Current Limit
- Power Good Indicator
- 1V \pm 1% Reference Voltage Over -40°C to 150°C Temperature Range
- QFN3.5x4-14 Package with Wettable Flanks
- Automotive AEC- Q100 Grade 1 Certified

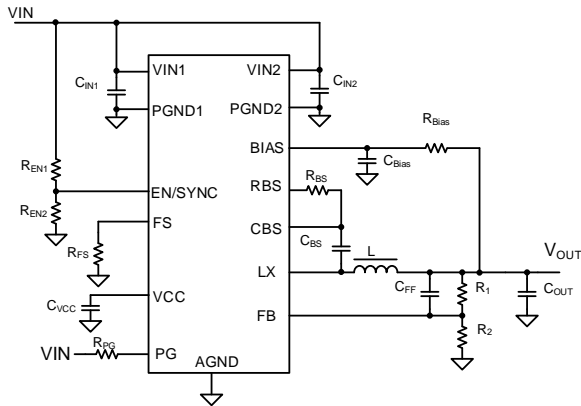
Applications

- IVI
- T-BOX
- Gateway

Buck Regulators

SA24404XNQ

36V Input, 4A Synchronous Step Down Regulator



Features

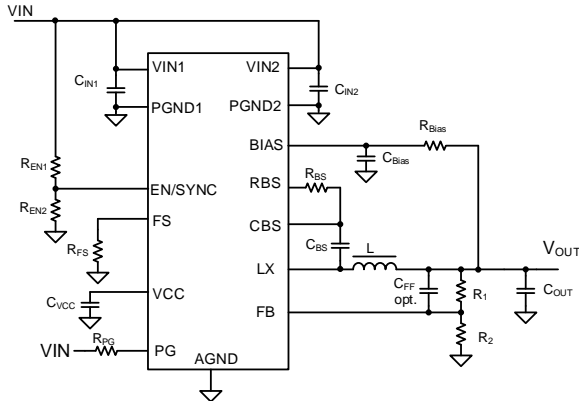
- 4V to 36V Input Voltage Range
- 4A Output Current Capability
- Low RDS(ON) for Internal Switches: 41mΩ Top, 21mΩ Bottom
- Typical 30μA Quiescent Current and 1μA Shutdown Current.
- 300kHz to 2.2MHz Switching Frequency
- Synchronization to External Clock
- Spread Spectrum Function
- Hiccup Mode Output Short-Circuit Protection
- EN On/Off Control with Accurate Threshold
- Cycle-by-Cycle Peak Current Limit
- Power Good Indicator
- 1V ±1% Reference Voltage Over -40°C to 150°C Temperature Range
- QFN3.5×4-14 Package
- Automotive AEC- Q100 Grade 1 Certified

Applications

- IVI
- T-BOX
- Gateway

36V Input, 6A Synchronous Step Down Regulator

SA24406XNQ
SA24406EXNQ



Features

- 4V to 36V Input Voltage Range
- 6A Output Current Capability
- Low $R_{DS(ON)}$ for Internal MOSFETs: 41m Ω Top, 21m Ω Bottom
- 30 μ A Quiescent Current (SA24406 Typical)
- 1 μ A Shutdown Current (Typical)
- 300kHz to 2.2MHz Switching Frequency
- Synchronization to External Clock
- Spread Spectrum Function
- Hiccup Mode Output Short-Circuit Protection
- EN On/Off Control with Accurate Threshold
- Cycle-by-Cycle Peak Current Limit
- Power Good Indicator
- Operating Mode at Light Load
 - SA24406: PFM
 - SA24406E: FCCM
- 1V \pm 1% Reference Voltage Over -40 $^{\circ}$ C to 150 $^{\circ}$ C Temperature Range
- Package: QFN3.5 \times 4-14 with Wettable Flanks
- Automotive AEC- Q100 Grade 1 Certified

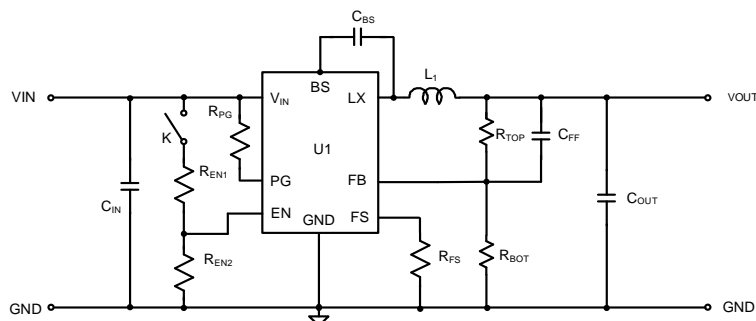
Applications

- IVI
- T-BOX
- Gateway

Buck Regulators

SA24481TLQ/SA24483TLQ/SA24483ETLQ

36V Input, 1/3A Synchronous Step Down Regulator



Features

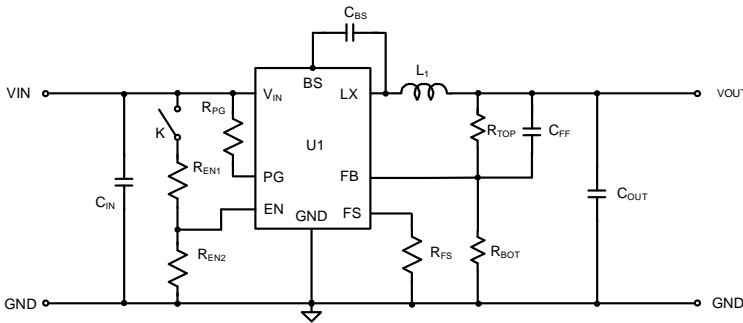
- Input Voltage Range: 4.5-36V
- Low $R_{DS(ON)}$ for Internal Switches (Top/Bottom): 130/75m Ω
- Low quiescent current: $I_Q = 18 \mu A$ (Typ.)
- Internal Compensation
- Internal 1ms Soft-start Limits the Inrush Current
- Adjustable Switching Frequency Range: 300kHz to 2.2MHz
- Light Load Operating Mode
 - SA24481/SA24483: PFM
 - SA24483E: FCCM
- Output Current Capability
 - SA24481: 1A
 - SA24483/SA4483E: 3A
- $\pm 1\%$ 0.6V Reference Over $-40^\circ C \sim 125^\circ C$
- Cycle-by-cycle Peak Current Limitation
- Short Circuit Protection
- Spread Spectrum Function
- Thermal Shutdown and Auto Recovery
- Compact Package: QFN2 \times 2-12
- Automotive AEC-Q100 Grade 1 Qualified

Applications

- IVI
- T-BOX
- Gateway

SA24491TLQ/SA24492TLQ/SA24493TLQ/SA24493ETLQ/SA24493LTLQ

36V Input, 1/2/3A Synchronous Step Down Regulator



Features

- 4.5-36V Input Voltage Range
- Low $R_{DS(ON)}$ for Internal Switches (Top/Bottom): 130/75m Ω
- Low quiescent current: $I_Q = 18 \mu A$ (Typ.)
- Internal Compensation
- Internal 1ms Soft-start Limits the Inrush Current
- Adjustable Switching Frequency Range: 300kHz to 2.2MHz
- Light Load Operating Mode
 - SA24491/SA24492/SA24493/SA24493L: PFM
 - SA24493E: FCCM
- Output Current Capability
 - SA24491: 1A
 - SA24492: 2A
 - SA24493/SA24493E/SA24493L: 3A
- $\pm 1\%$ 0.6V Reference Over $-40^{\circ}C \sim 125^{\circ}C$
- Cycle-by-cycle Peak Current Limit
- Short-Circuit Protection
- Spread Spectrum Function
- Thermal Shutdown and Auto Recovery
- Compact Package: QFN2 \times 2-12
- Automotive AEC- Q100 Grade 1 Qualified

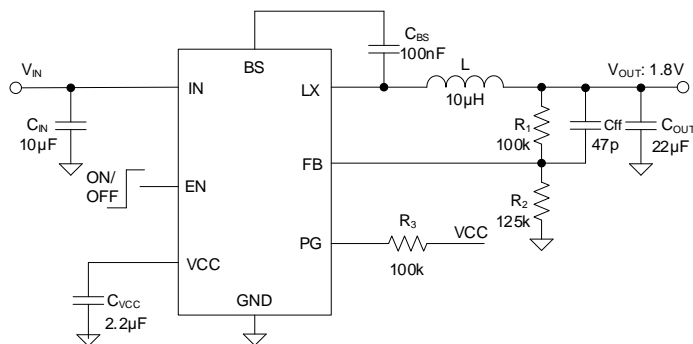
Applications

- IVI
- T-BOX
- Gateway

Buck Regulators

SA24401FCA/SA24401BFCA

Low Quiescent Current, 0.6A, 40V Input Synchronous Step-Down Regulator



Features

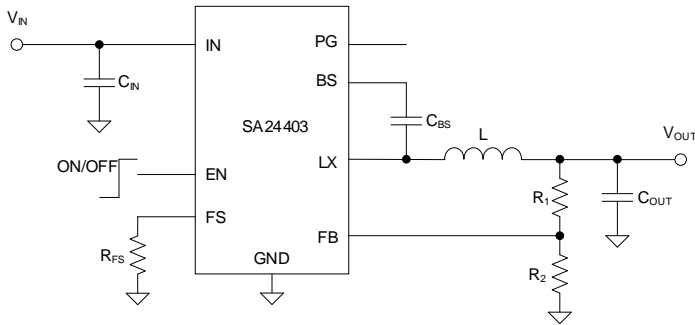
- Input Voltage Range: 4.25V to 40V
- Output Current Capability: 0.6A
- Low $R_{DS(ON)}$ for Internal Switches (Top/Bottom): 225m Ω /150m Ω
- Low Quiescent Current:
 - SA24401: 5 μ A
 - SA24401B: 1.8 μ A
- Switching Frequency:
 - SA24401: 500kHz
 - SA24401B: 2.1MHz
- Internal soft-start Limits the Inrush Current
- Short Circuit Protection
- Thermal Shutdown and Auto Recovery
- Power Good Indicator
- Compact Package: SO8E
- Automotive AEC- Q100 Grade 1 Certified

Applications

- Info, T-box, Gateway, EPS, ETC

4.2V-40V Input , 3.5A High Efficiency Fast Response Synchronous Step Down Regulator

SA24403FCA



Features

- Low $R_{DS(ON)}$ for Internal Switches (Top/Bottom): 115/80m Ω
- 4.2-40V Input Voltage Range
- Internal Compensation
- Internal 1ms Soft-start Limits the Inrush Current
- Adjustable Switching Frequency Range: 300kHz to 2.2MHz
- 3.5A Output Current Capability
- $\pm 2\%$ 0.6V Reference Over $-40^{\circ}\text{C}\sim 125^{\circ}\text{C}$
- Cycle-by-cycle Peak Current Limitation
- Short Circuit Protection
- Thermal Shutdown and Auto Recovery
- RoHS Compliant and Halogen Free
- Compact Package: SO8E
- Automotive AEC- Q100 Grade 1 Qualified

Applications

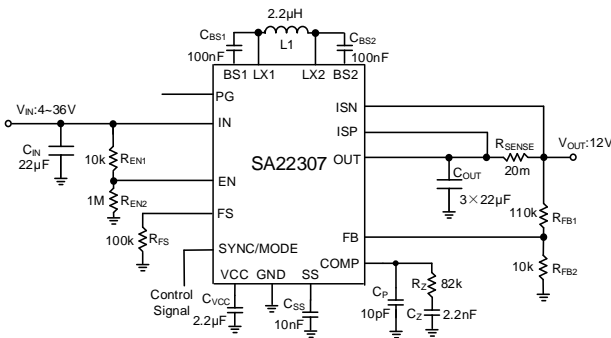
- Info, T-box, Gateway, EPS, ETC
- OBC, DCDC, ABS, ESC
- Cluster
- Lighting



Smart Cockpit

High Efficiency, 4V-36V Input Single Inductor Synchronous Step Up/Down Regulator

SA22307TVA



Features

- 4V to 36V Input Voltage Range
- 3V to 20V Output Voltage Range
- Low $R_{DS(ON)}$ for Internal Switches: 35mΩ
- External Soft-start Limits the Inrush Current
- 1µA shutdown current
- 7A Internal Switch Peak Current Capability
- Programmable Frequency 200kHz~600kHz
- 1.0V±2% Reference over -40°C to 125°C
- Light Load Operating Mode Selection: PSM or FCCM
- Power Good Indicator
- Hiccup Mode for Output Short-circuit Protection
- Output Over Current Protection
- Thermal Shutdown with Auto Recovery
- Compact Package: QFN5×5-30
- Automotive AEC- Q100 Grade 1 Qualified

Applications

- Info, T-Box, Gateway
- ADAS
- Smart Cockpit

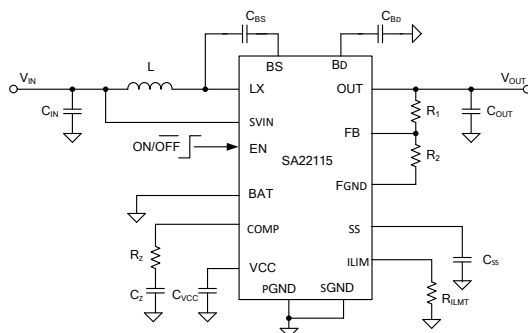
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T-box

High Efficiency, 15A Synchronous Boost Regulator

SA22115VPA



Features

- Wide Input Range:
 - 2.7V to 16V Start-up Voltage
 - 1.2V to 16V Operation Voltage
- 400kHz Pseudo-constant Frequency
- True Shutdown Function
- Low RDS(ON) Internal Switch
 - Main FET: 10mΩ
 - Rectifier FET: 20mΩ
 - Disconnect FET: 30 mΩ
- External Loop Compensation
- Programmable Peak Current Limit Threshold
- Battery Voltage Monitoring
- Programmable Soft-Start Limits the Inrush Current
- Input Voltage UVLO
- Over Temperature Protection
- Output Over Voltage Protection
- RoHS Compliant and Halogen Free
- Compact Package: QFN3×4-15
- Automotive AEC- Q100 Grade 1 Certified

Applications

- Backup Battery
- Info, T-box, Gateway

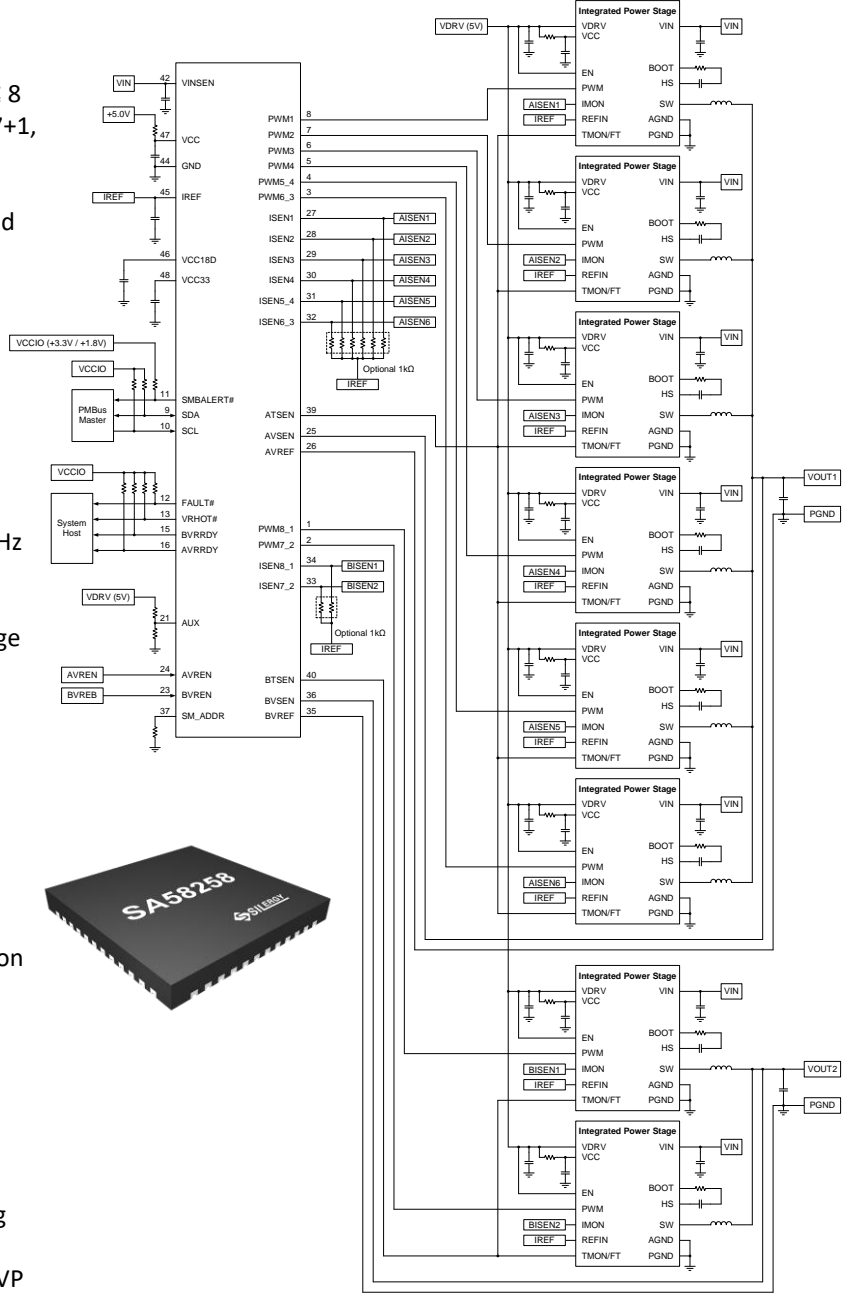
[Back](#)

SA58258QJQ

Dual-Rail N+M≤8 (M≤4) Controller with PMBus

Features

- Supports up to 8 phase
- Programmable phase assignment between two loops; Support $N + M \leq 8$ ($M \leq 4$), with configurations of 8+0, 7+1, 6+2, 5+3, up to 4+4
- Internal NVM to store custom configurations, which can be modified using PMBus
- Configurable autonomous phase add/drop
- Output voltage regulation range: 0.5V to 2.0V (50mV/step)
- PMBus Rev 1.3 compliant serial interface
- Querier for voltage, current, and temperature faults
- Maximum supported bus speed: 1MHz
- Compliant with 1.8V and 3.3V logic levels
- Supports start-up into pre-bias voltage
- Differential output voltage sensing
- DrMOS current sensing
- Adjustable current balancing with programmable offsets for thermal balancing
- Programmable loop compensation
- Programmable DC load-line slope (droop) and offset
- Input voltage (+12V) sensing
- External fault detection and protection capability
- IUVP, IOVP, OUV, OOV
- OOC (Total Current)
- Int. OTP/OTW and DrMOS OTP/OTW
- Open/short voltage sense line detection
- Valley phase current pulse limiting
- Negative phase current pulse limiting
- Phase configuration fault detection
- AUX voltage OVP and AUX voltage UVP
- Under inductor current warning
- AEC-Q100 qualified
- ASIL-D system ready
- Temperature grade 1: -40°C to 125°C
- RoHS compliant and halogen free 48-lead 7mm x 7mm QFN (0.5mm Pin Pitch) package



Applications

- Automotive ADAS CPU Power
- High Performance CPU/ASIC/FPGA Power

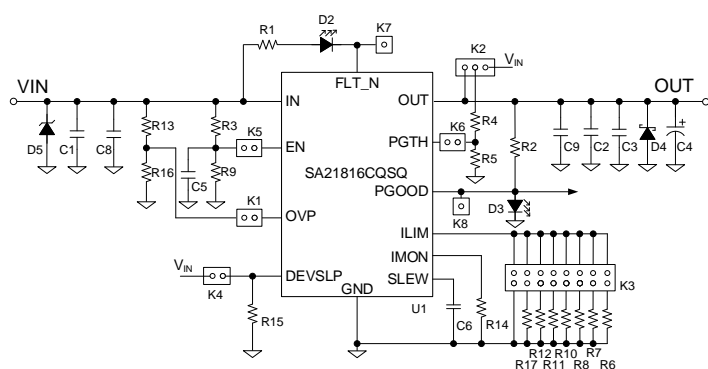


Info

T-Box

2.7V-18V eFuse with True Reverse Blocking

SA21816CQSQ



Features

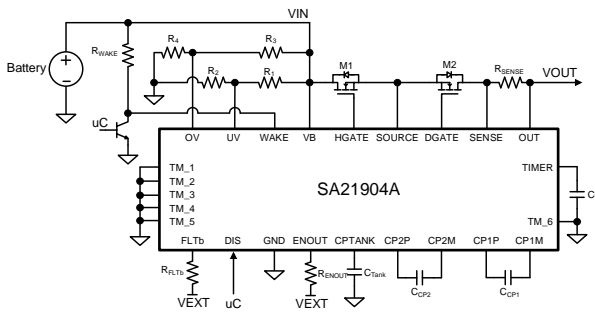
- AEC-Q100 Grade 1 Qualified
- Ultra Low RDS(ON): 46mΩ RON (Typical)
- Adjustable Current Limit: 0.6A to 5.3A
- IMON Current Indicator Output
- Operating IQ: 130μA (VIN = 12V, Typical)
- Reverse Current Blocking
- Programmable Output Slew Rate Control
- Power Good and Fault Outputs
- -40°C to 125°C Junction Temperature Range
- 2.7V - 18V Operating Voltage, 21V Max
- RoHS Compliant and Halogen Free
- Compact Package: QFN 3×4-20

Applications

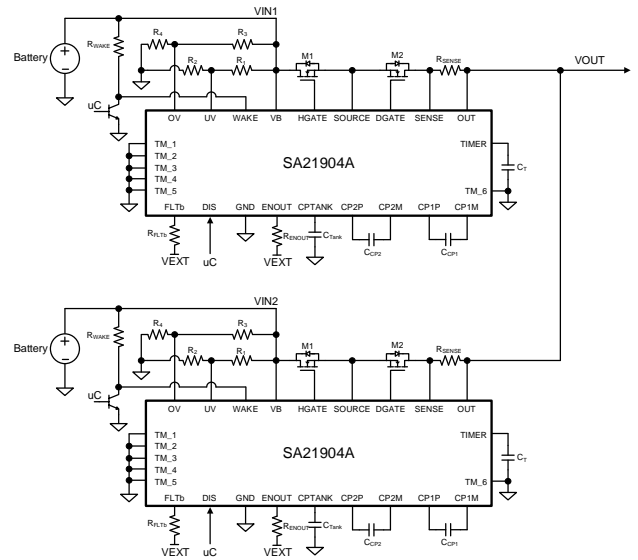
- Automotive Applications
- ADAS (Advanced Driver Assistance Systems)
- Cameras and Radar Sensors
- USB Hubs
- Power MUX
- Power Management Backup

65V Hot swap and ORing Controller with ASIL D

SA21904AEQ



Single Channel Typical Application



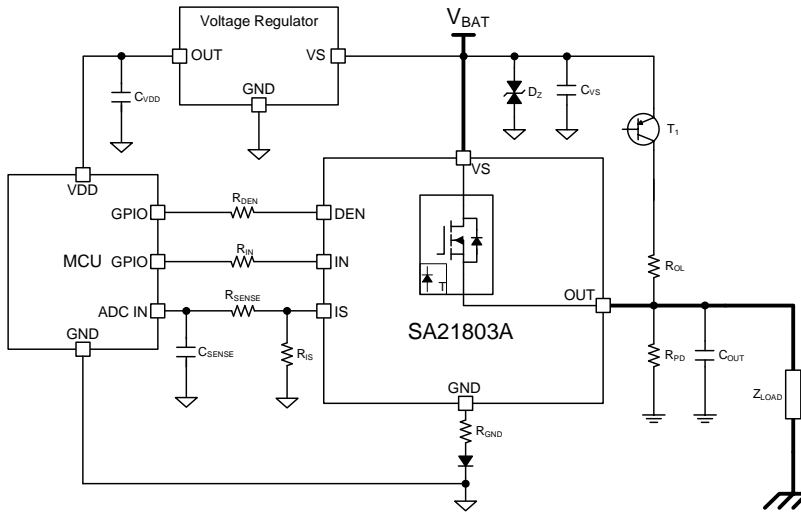
Dual Channel Typical Application

Features

- AEC-Q100 Grade 1 Qualified for Automotive Applications
- Wide Input Voltage Range: 4V to 65V
- Reverse Input Protection: -65V
- 2 External N-Channel MOSFET Predrivers
 - One Hot Swap Feature
 - One ORing Feature
- Very Low Supply Current: 2.2mA@Operation, 50μA@WAKE Low
- Current Limiting for Startup
- Programmable Current Limit Fault Timer
- Integrated Charge Pump
- Input Overvoltage Protection
- Input Undervoltage Protection
- Output Overcurrent Protection
- Complies with the 16750 AC Ripple Test Requirements (50Hz-25kHz)
- Developed According to ISO26262 to Be Used in ASIL D Application
- Package: QFN5×5-32

Applications

- Advanced Driving Assistance System
- Automotive Power Distribution Applications

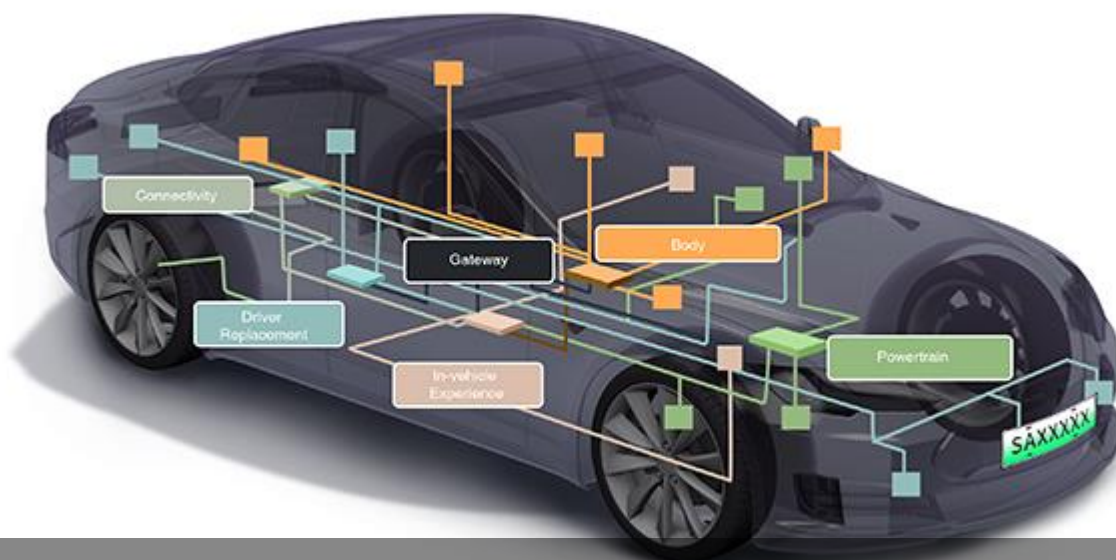


Features

- AEC-Q100/ Q104 Qualified for Automotive Applications
- One Channel Device
- Very Low Shutdown Current
- 3.3V and 5V Compatible Logic Inputs
- Logic Ground Independent from Load Ground
- Very Low Power DMOS Leakage Current in OFF State
- Diagnostic Functions
 - Proportional Load Current Sense
 - Open Load in OFF State
 - Short Circuit to Battery and Ground
 - Over Temperature
 - Stable Diagnostic Signal During Short Circuit
 - Enhanced k_{ILIS} Dependency with Temperature and Load Current
- Protection Functions
 - Stable Behavior during Under Voltage
 - Reverse Polarity Protection with External Components
 - Secure Load Turn-off during Logic Ground Disconnect with External Components
 - Over Temperature Protection with Latch
 - Overvoltage Protection with External Components
 - Voltage Dependent Current Limitation
 - Enhanced Short Circuit Operation
- Package: TSOP14E

Applications

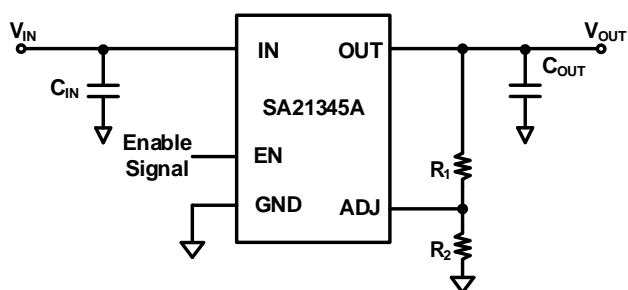
- Suitable for Resistive, Inductive and Capacitive Loads
- Replaces Electromechanical Relays, Fuses and Discrete Circuits
- Most Suitable for Loads with High Inrush Current, Such as Lamps
- Suitable for 12V and 24V Truck and Transportation System



Body

36V, 300mA LDO Regulator

SA21345AFCA



Features

- Wide Input Voltage Range: 4V to 36V
- Low Dropout Voltage (300mV @ 300mA)
- Ultra-low Quiescent Current
- Extremely Low Shutdown Current
- Stability with Tantalum or Ceramic Capacitors
- Excellent Load and Line Regulation
- 300mA Maximum Load Current
- Enable Control Input
- Over Current Protection
- Thermal Shutdown
- Compact SO8E Package
- Automotive AEC- Q100 Grade 1 Certified

Applications

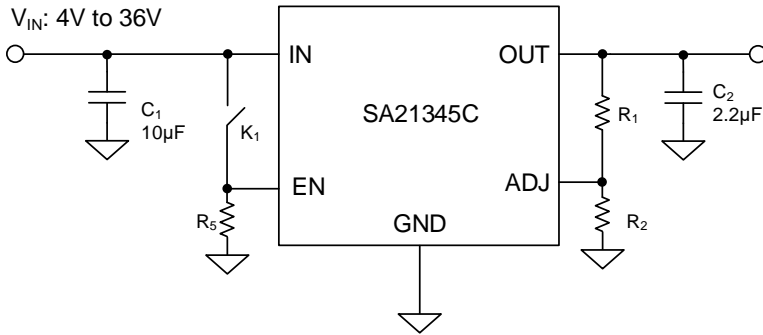
- Info, T-box, Gateway
- Body
- ADAS
- Lidar

[Back](#)

LDO

SA21345CDFD

36V, 300mA LDO Regulator



Features

- Wide Input Voltage Range: 4V to 36V
- 300mA Maximum Load Current
- Low Dropout Voltage of (300mV @ 300mA)
- Low Quiescent Current (10µA typ.)
- Low Shutdown Current (6µA max.)
- Stability with Tantalum or Ceramic capacitors
- Excellent Load and Line Regulation
- Enable Control Input
- Over Current Protection
- Thermal Shutdown
- Packages: DFN2×2-8
- Automotive AEC- Q100 Grade 1 Qualified

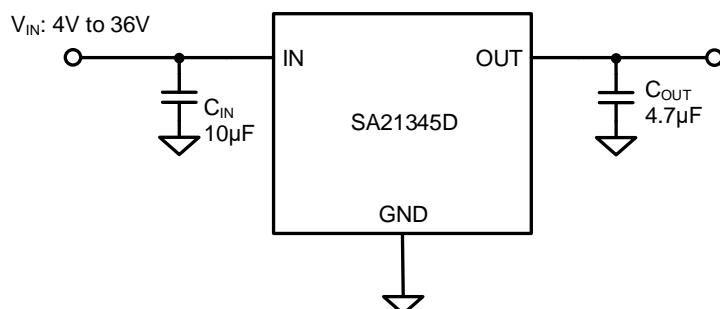
Applications

- Automotive Application
- Battery-Powered Equipment
- Gateway Application
- Remote Keyless Entry Systems
- SMPS Post-regulator/ DC-DC Modules

36V 150mA LDO Regulator

SA21345DAAA

(Test at Room Temperature)



Features

- Wide Input Voltage Range: 4V to 36V
- 150mA Maximum Load Current
- Low Dropout Voltage (150mV @ 150mA)
- Ultra-low Quiescent Current (15 μ A typ.)
- Stability with Tantalum or Ceramic Capacitors
- Excellent Load and Line Regulation
- Over Current Protection
- Thermal Shutdown
- Compact Package :SOT23-5
- Automotive AEC- Q100 Grade 1 Qualified

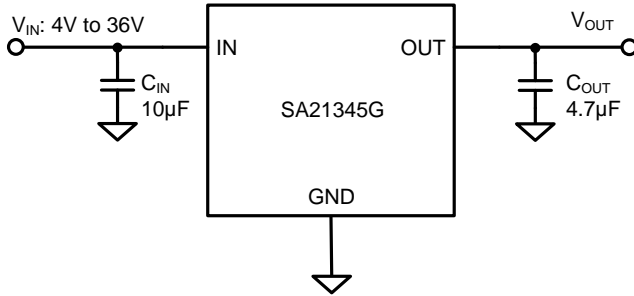
Applications

- Note Book
- Cell Phone
- Automotive LED Lighting ECU
- Automotive Body Modules

LDO

SA21345GFAA

150mA LDO Regulator



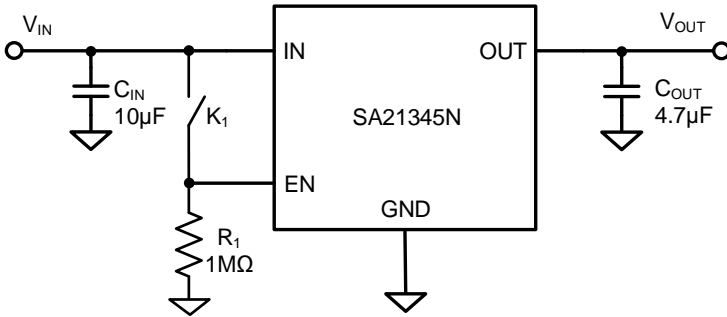
Features

- Wide Input Voltage Range: 4V to 36V
- Low Dropout Voltage (150mV @ 150mA)
- Ultra-low Quiescent Current
- Fixed 5V Output Voltage
- Stability with Tantalum or Ceramic Capacitors
- Excellent Load And Line Regulation
- 150mA Maximum Load Current for SO8
- Over Current Protection
- Thermal Shutdown Protection
- Compact SO8 Package
- RoHS Compliant and Halogen Free
- Automotive AEC- Q100 Grade 1 Certified

Applications

- Info, T-box, Gateway
- Body
- ADAS
- Lidar

300mA LDO Regulator



Features

- Wide Input Voltage Range: 4V to 36V
- Fixed 5V Output Voltage
- Low Dropout Voltage of (300mV@300mA)
- Ultra-low Quiescent Current
- Extremely Low Shutdown Current
- Stability with Tantalum or Ceramic Capacitors
- Excellent Load and Line Regulation
- 300mA Maximum Load Current for SO8E
- Enable Control Input
- Over Current Limit Protection
- Thermal Shutdown Protection
- Compact Package: SO8E
- RoHS Compliant and Halogen Free
- Automotive AEC-Q100 Grade 1 Qualified

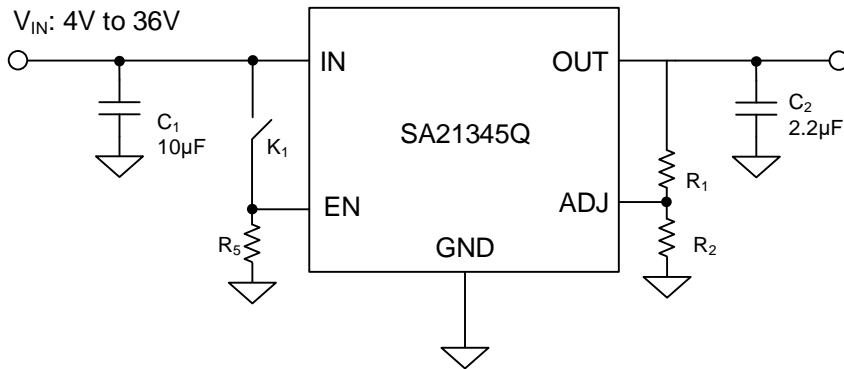
Applications

- Info, T-box, Gateway
- Automotive LED Lighting ECU
- Automotive Body Modules

LDO

SA21345QFCP

36V Input, 300mA LDO



Features

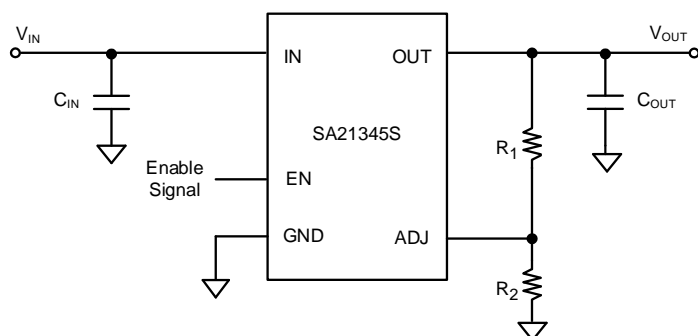
- Wide Input Voltage Range: 4V to 36V
- Low Dropout Voltage (300mV @ 300mA)
- Ultra-low Quiescent Current
- Extremely Low Shutdown Current
- Stability with Tantalum or Ceramic Capacitor
- Excellent Load and Line Regulation
- 300mA Maximum Load Current
- Enable Control Input
- Over Current Protection
- Thermal Shutdown
- Compact Package: SO8E
- Automotive AEC- Q100 Grade 1 Qualified

Applications

- Automotive Application
- Battery-Powered Equipment
- Gateway Application
- Remote Keyless Entry Systems
- SMPS Post-regulator/ DC-DC Modules

36V, 300mA LDO Regulator

SA21345FCP



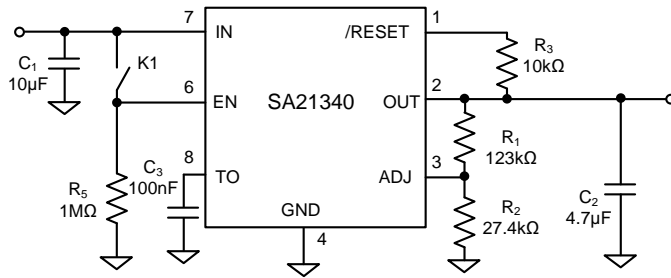
Features

- Wide Input Voltage Range: 4V to 36V
- 300mA Maximum Load Current
- Low Dropout Voltage (300mV@300mA)
- Low Quiescent Current (7 μ A typ.)
- Low Shutdown Current (5 μ A max.)
- Stable with Tantalum or Ceramic Capacitors
- Excellent Load and Line Regulation
- Enable Control Input
- Over Current Protection
- Thermal Shutdown
- Compact SO8E Package
- Automotive AEC-Q100 Grade 1 Qualified

Applications

- Battery Powered Applications
- Automotive Applications
- Gateway Applications
- Remote Keyless Entry Systems
- SMPS Post-Regulator/ DC-DC Modules

LDO

SA21340FCA**300mA, 36V Fast-Response LDO Regulator****Features**

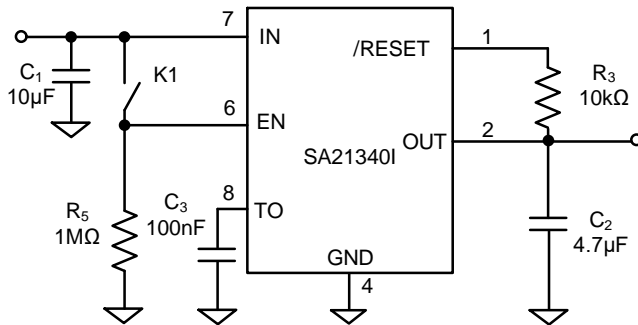
- High-current Capability: 300mA Over Full Temperature Range
- Low-dropout Voltage of 300mV at Full Load 300mA.
- Adjustable Output Voltage
- Low Ground Current
- Over Current Limit Protection
- Output Short Circuit Protection(Hiccup Mode)
- Over Temperature Protection.
- Reset Output with Programmable Timeout Period
- Packages: SO8E
- RoHS Compliant and Halogen Free
- Automotive AEC- Q100 Grade 1 Qualified

Applications

- Info, T-box, Gateway
- Body
- ADAS
- Lidar

36V 300mA LDO with Programmable Reset

SA21340IFCP



Features

- High-current Capability: 300mA Over Full Temperature Range
- Low-dropout Voltage of 300mV at Full Load 300mA
- Fixed 3.3V Output Voltage
- Low Ground Current
- Over Current Limit Protection
- Output Short Circuit Protection (Hiccup Mode)
- Over Temperature Protection
- Reset Output with Programmable Timeout Period
- Packages: SO8E
- RoHS Compliant and Halogen Free
- Automotive AEC- Q100 Grade 1 Qualified

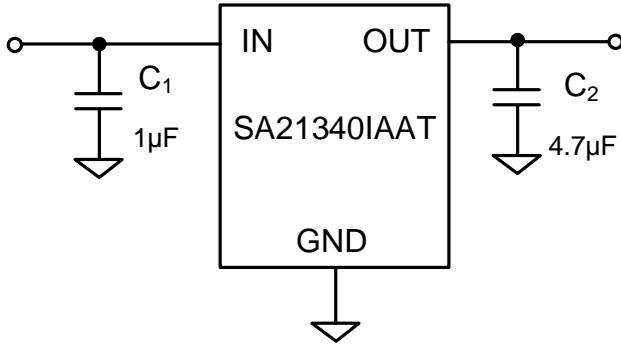
Applications

- Info, T-box, Gateway
- Body
- ADAS
- Lidar

LDO

SA21340IAAT

36V, 150mA Ultra Low Quiescent LDO



Features

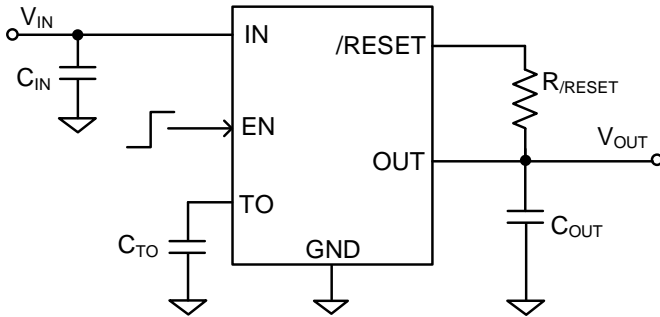
- Wide Input Voltage Range: 4V to 36V
- Fixed Output Voltage: $3.3V \pm 2\%$
- Low-dropout Voltage: 150mV at Full Load 150mA
- Ultra-low Quiescent Current
- Extremely Low Shutdown Current
- Stability with Tantalum or Ceramic Capacitors
- Excellent Load And Line Regulation
- Over-Current Limit Protection
- Output Short Circuit Protection (Hiccup Mode)
- Over-Temperature Protection
- Moisture Sensitivity Level (MSL): 1
- Package SOT23-5
- RoHS Compliant and Halogen Free
- Automotive AEC- Q100 Grade 1 Qualified

Applications

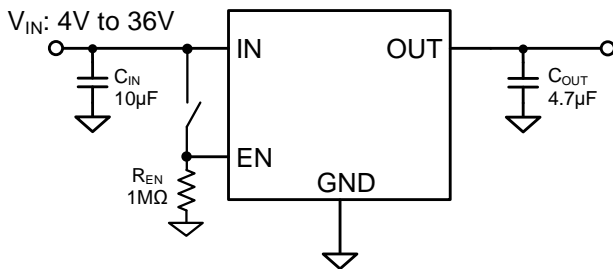
- Note Book
- Cell Phone
- Automotive LED Lighting ECU
- Automotive Body Modules

36V 300mA LDO

SA21340PFCP/SA21340PDAD



SA21340PFCP



SA21340PDAD



Features

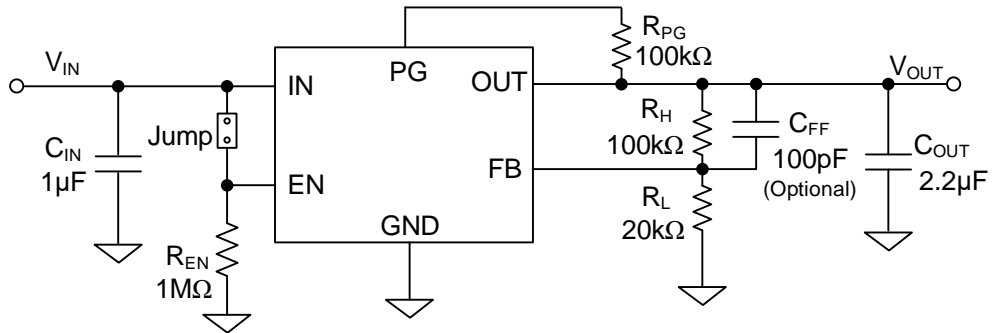
- Wide Input Voltage Range: 4V to 36V
- Fixed 3.3V Output Voltage
- Output Voltage Accuracy: $\pm 2\%$ over Temperature
- Low Dropout Voltage of 300mV at Full Load 300mA
- 300mA Maximum Load Current
- Ultra-low Quiescent Current
- Extremely Low Shutdown Current
- Stable with Tantalum or Ceramic Capacitors
- Excellent Load and Line Regulation
- Enable Control Input
- Over Current Limit Protection
- Output Short-Circuit Protection (Hiccup Mode)
- Over Temperature Protection
- RoHS Compliant and Halogen Free
- Moisture Sensitivity Level (MSL): 1
- SA21340PFCP: Programmable Reset
- Compact Package:
 - ✓ SA21340PFCP: SO8E
 - ✓ SA21340PDAD: DFN3 \times 3-8
- Automotive AEC- Q100 Grade 1 Qualified

Applications

- Industrial/Automotive Applications
- Portable/Battery-Powered Equipment
- Gateway Applications
- Remote Keyless Entry Systems
- Cellular Handsets
- SMPS Post-regulator/ DC-DC Modules
- Medical Imaging

LDO

SA21308A00DED/ SA21308B00DED

Low I_Q , Low Dropout, Automotive 500mA LDO

Features

- Input Voltage Range:
 - SA21308A00DED: 1.62V to 6V
 - SA21308B00DED: 2V to 6V
- Adjustable Output Voltage: 0.55V to 5.5V
- Low Dropout Voltage: 110mV (Typ.) at 500mA (3.3V V_{OUT})
- Power Supply Rejection Ratio (PSRR): 55dB @ 1kHz
- Output Accuracy:
 - $\pm 0.85\%$ at 25°C
 - $\pm 1\%$ from -40°C to 125°C
- Stable with a Minimum of 2.2µF or Larger Ceramic Output Capacitor
- Low Current Consumption: Typical 25µA Quiescent and 0.1µA in Shutdown
- Over Current Limit and Short Circuit Protection
- Over Temperature Protection with Auto Recovery
- Moisture Sensitivity Level (MSL): 1
- Compact DFN2x2-6 Package
- Automotive AEC-Q100 Grade 1 Qualified



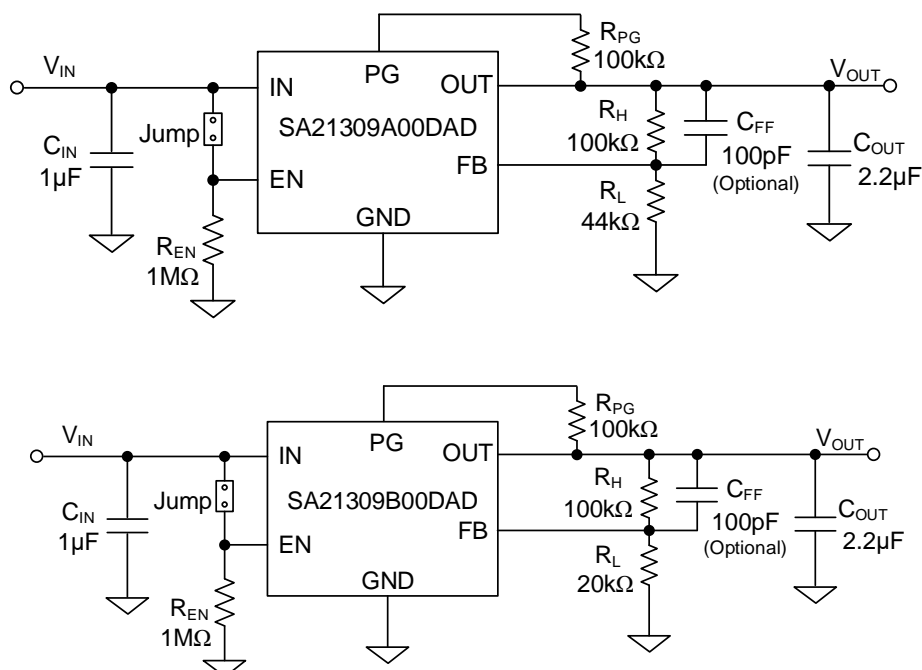
Applications

- Infotainment Power Supplies
- Automotive Cluster Displays
- Cameras
- Telematics Control Units
- General Purpose Automotive



SA21309A00DAD/SA21309B00DAD

Low I_Q , Low Dropout, Automotive 1A LDO



Features

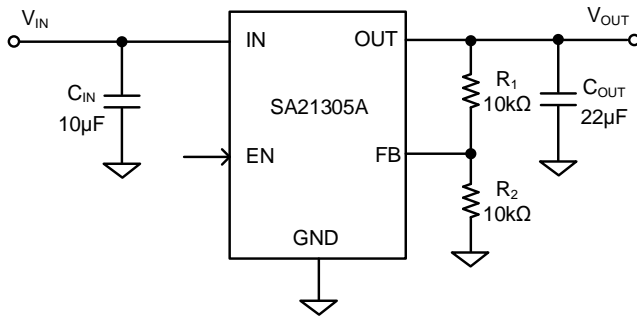
- Input Voltage Range:
 - SA21309A00DAD: 1.5V to 6V
 - SA21309B00DAD: 2V to 6V
- Adjustable Output Voltage : 0.55V to 5.5V
- Low Dropout Voltage:
 - SA21309A00DAD: 240mV(Typ.) at 1A(3.3V V_{OUT})
 - SA21309B00DAD: 220mV(Typ.) @1A(3.3V V_{OUT})
- Power Supply Rejection Ratio (PSRR): 55dB@1kHz
- Output Accuracy:
 - $\pm 0.85\%$ at 25°C
 - $\pm 1\%$ from -40°C to 125°C
- Stable with a Minimum of 2.2µF or Larger Ceramic Output Capacitor
- Low Current Consumption: Typical 25µA Quiescent and 0.1µA at Shutdown
- Over Current Limit and Short Circuit Protection
- Over Temperature Protection with Auto Recovery
- Moisture Sensitivity Level (MSL): 1
- Compact DFN3×3-8 Package
- Automotive AEC-Q100 Grade 1 Qualified



Applications

- Infotainment Power Supplies
- Automotive Cluster Displays
- Cameras
- Telematics Control Units
- General Purpose Automotive

[Back](#)

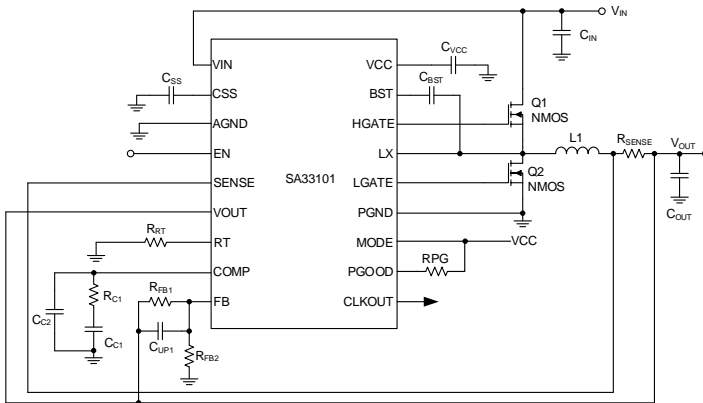
LDO**SA21305AUYS****1350mA Low Dropout Regulator****Features**

- Input Voltage Range: 1.65V to 3.3V
- Output Current up to 1350mA
- PSRR at 1kHz : 55dB(Typ)
- Adjustable Output FB Voltage Accuracy : $\pm 1\%$ @ $T_A=25^\circ\text{C}$
- Drop Output Voltage : Max=0.4V
- Packages CSP 2.4mm \times 2.4mm -36
- RoHS Compliant and Halogen Free
- AEC Q100 Grade 2
- -40°C to $+105^\circ\text{C}$ Ambient Temperature Range

Applications

- Automotive BGA SSD

36V Synchronous Buck Controller



Features

- AEC-Q100-Grade 1 -40°C~125°C
- Wide Input Voltage Ranges from 4.0 V to 36V
- Start-up Input Voltage: 4.5V
- Output Voltage Range from 0.7V to 5.3V
- Fold Back Reference Voltage: 640mV ±1%
- Adjustable Switching Frequency: 250kHz to 1MHz
- Spread Frequency Function
- Adjustable Soft-start Time
- Pre-bias Start-up
- Output Voltage Abnormal Detection, Shows on PGOOD Pin, UVD/OVD
- Cycle by Cycle Current Limit Protection
- Thermal Shut down When $T_j > 160^\circ\text{C}$
- Reliable Protection: SOP/UVD/OVD/OVP/OTP
- Package: SSOP18E

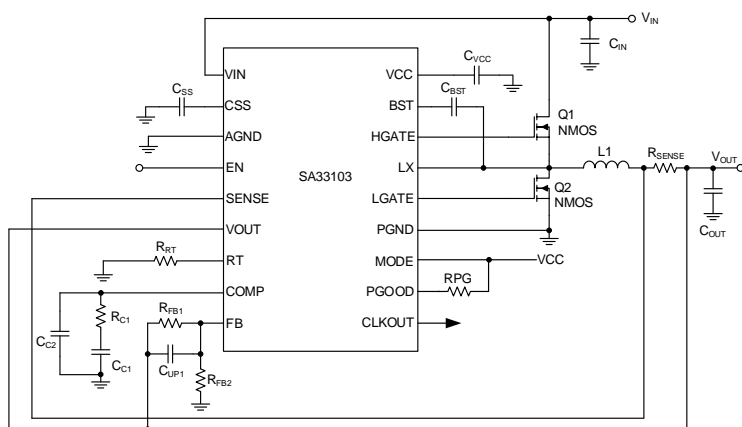
Applications

- DC/DC Converter
- Power Module
- Automotive Power Supply Unit
- Power Source for Control Units Including EV
- Inverter and Charge Controller

Buck Controller

SA33103QCQ

60V Synchronous Buck Controller



Features

- Wide Input Voltage Ranges from 4.0 V to 60V
- Start-up Input Voltage: 4.5V
- Output Voltage Range from 0.7V to 15V
- Fold Back Reference Voltage: $640\text{mV} \pm 1\%$
- Adjustable Switching Frequency: 200kHz to 1MHz
- Spread Frequency Function
- Adjustable Soft-start Time
- Pre-bias Start-up
- Output Voltage Abnormal Detection, Shows on PGOOD Pin, UVD/OVD
- Cycle by Cycle Current Limit Protection
- Thermal Shut down When $T_j > 160^\circ\text{C}$
- Reliable Protection: SOP/UVD/OVD/OVP/OTP
- Package: QFN4×4-24

Applications

- DC/DC Converter
- Power Module
- Automotive Power Supply Unit
- Power Source for Control Units Including EV
- Inverter and Charge Controller

Boost Regulators

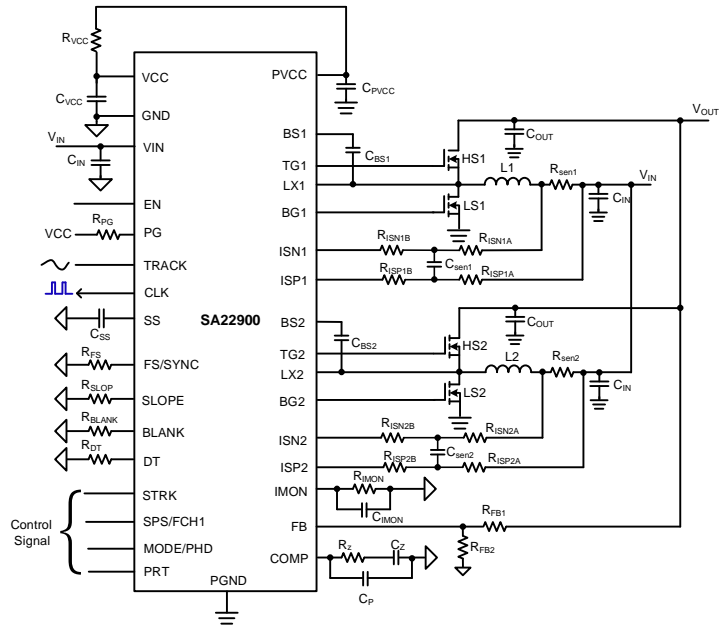
SA22900EQ 50V, Dual-Phase Stackable Synchronous Boost Controller

Features

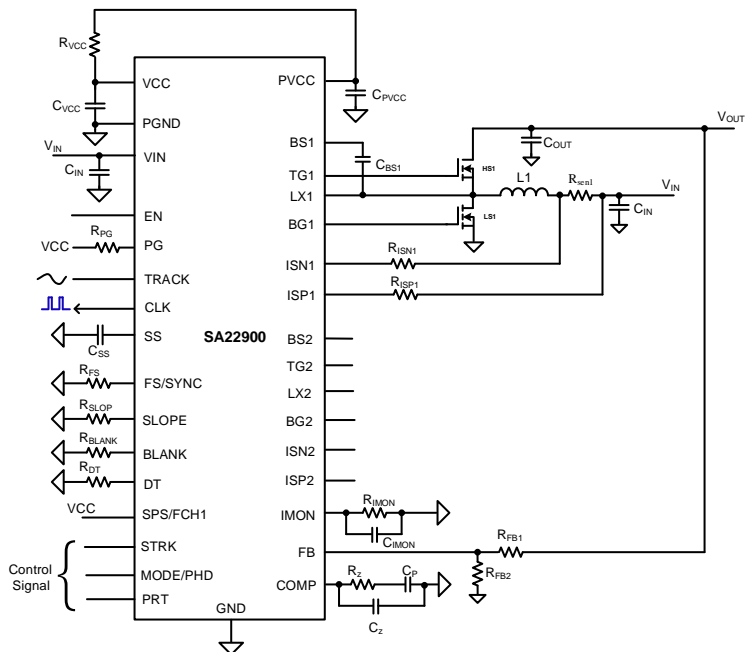
- Wide Input/output Voltage Range: 5V to 50V
- $1.6V \pm 1\%$ Reference Voltage over $-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$
- Selectable 1-, 2-, or 4 (Two Devices Paralleled)
- Interleaved Phase Operation
- Supports Spread Spectrum Function
- Power Good Indicator
- Supports External Synchronization
- Supports Tracking Function
- Integrated N-channel MOSFET Drivers: 5V 2A Sourcing/3A Sinking
- Programmable Frequency Per Phase: 50kHz to 1.1MHz
- Programmable Dead Time and Minimum Duty Cycle
- Light Load Operating Mode Selection: PFM or FCCM
- Selectable Phase Drop and Phase Add Function
- Fully Protected for Over Voltage, Over Current and Over-Temperature
- Selectable Hiccup or Latch-off Fault Response
- RoHS Compliant and Halogen Free
- Compact Package QFN5 \times 5-32
- Automotive AEC- Q100 Grade 1 Qualified

Applications

- Automotive Power Systems
- Audio Amplifiers
- Automotive Boost Applications
- Industrial and Telecommunication Power Supplies



Typical Application Circuit for Dual-phase Operation



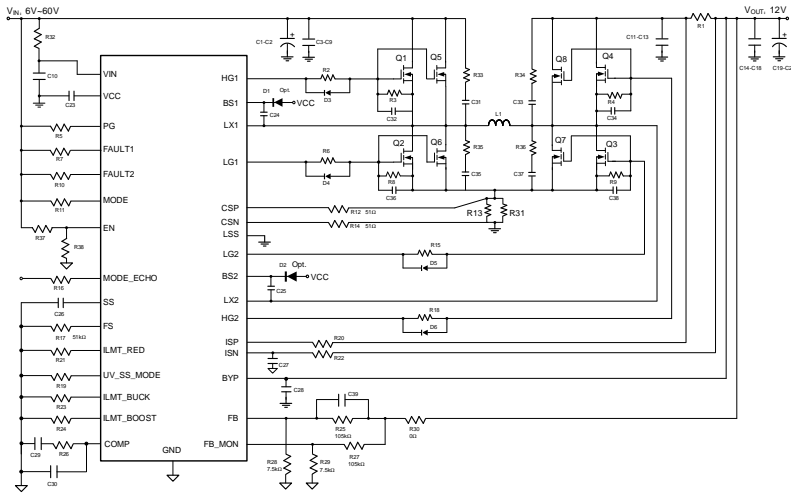
Typical Application Circuit for Single-phase Operation

[Back](#)

Buck-Boost Controller

SA22001AQEQ

60V Synchronous Four-Switch Buck-Boost Controller



Features

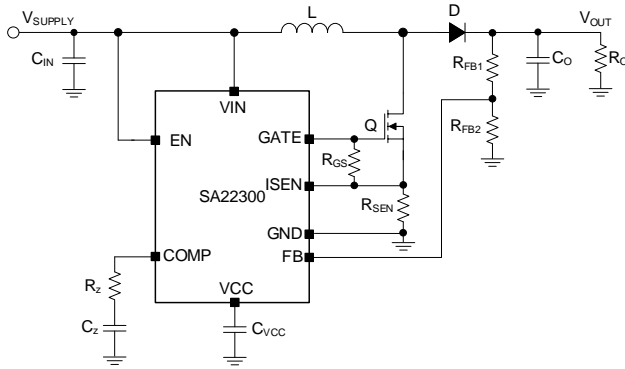
- Four-Switch Single Inductor Architecture
- 6V to 60V Input Voltage Range
- 4.5V to 28V Output Voltage Range
- Peak Drive Current > 3A
- 0.8V \pm 1.5% Reference Voltage over the -40°C to 125°C Temperature Range
- Adjustable Switching Frequency from 150kHz to 400kHz
- Adjustable Soft-Start Time
- PWM or PFM Operation Selectable in Light Load
- Smooth Pre-Biased Startup
- Spread-Spectrum Function
- Power Good Indicator
- Fault Indicator
- CBC Current Limit Protection
- Output Voltage Undervoltage, Overvoltage, and Overcurrent Protection
- Thermal Shutdown
- Package: QFN5 \times 5-32 with Wettable Flanks
- Automotive AEC-Q100 Grade 1 Certified
- Automotive ISO 26262 ASIL-D Certified

Applications

- ADAS

SA22300FAP

36V, Boost/Flyback/Sepic Controller



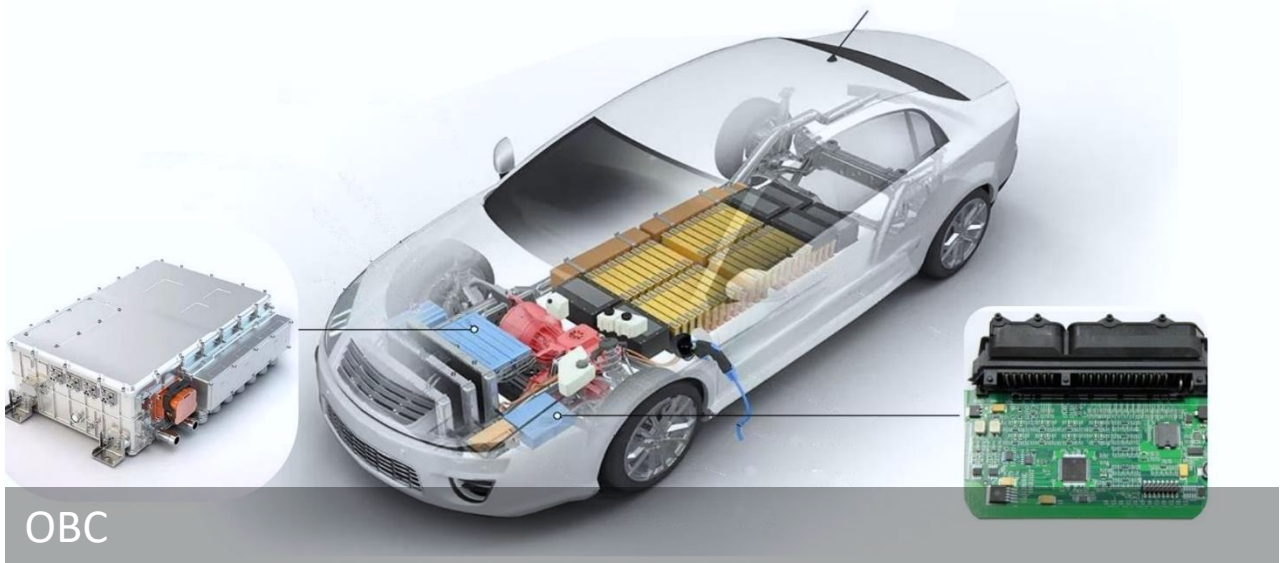
Features

- Wide Input Voltage Range: 3.45V to 36V
- 1.2V ±2% Reference Voltage
- Fixed Frequency Operation
- Internal Soft-Start
- Typical 1.6µA Shutdown Current
- Cycle-by-Cycle Current Limit Protection
- Hiccup-Mode Overcurrent Protection (OCP)
- Hiccup-Mode Short-Circuit Protection (SCP)
- 1.5A Peak Gate Source Current
- 1.5A Peak Gate Sink Current
- Thermal Shutdown
- Package: SOP8
- Automotive AEC- Q100 Grade 1 Certified

Applications

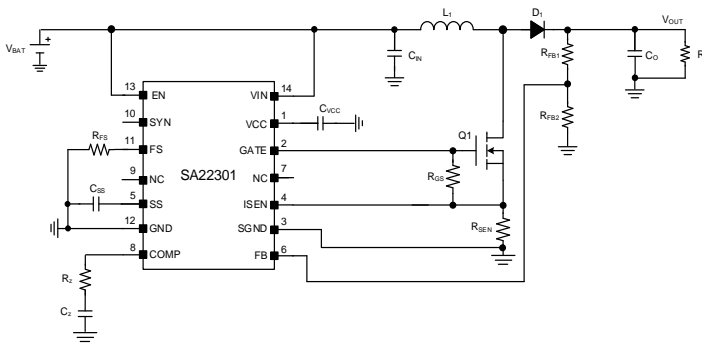
- OBC, DCDC, Traction, BMS
- Smart Cockpit
- LiDAR

Boost/Flyback



SA22301HOP

36V, Boost/Flyback/Sepic Controller



Features

- Wide Input Voltage Range: 4.75V to 36V
- Flexible Switching Frequency Range From 100kHz to 1000kHz
- 2.5V \pm 2% Reference Voltage
- Typical 1.4 μ A Shutdown Current
- External Soft-Start Adjustable by Capacitor
- Cycle-by-Cycle Current Limit Protection
- Hiccup Mode Overcurrent Protection
- 1A Peak Gate Source Current
- 1.3A Peak Gate Sink Current
- Thermal Shutdown
- Package: SSOP14E
- Automotive AEC- Q100 Grade 1 certified

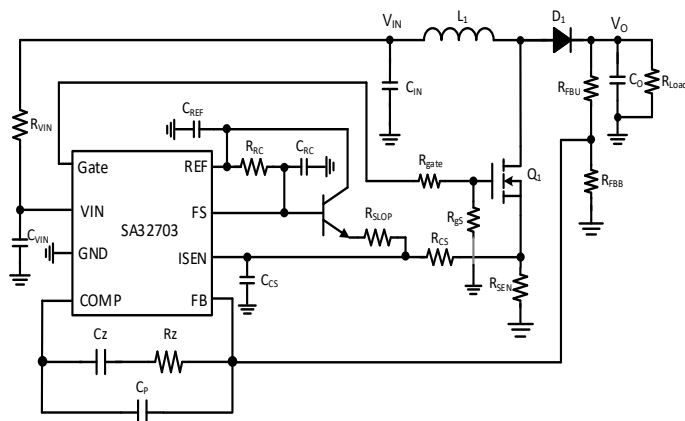
Applications

- OBC, DCDC, Traction, BMS
- Smart Cockpit
- LiDAR

Boost/Flyback

Boost/Flyback Current Mode Controller

SA32703FAP



Features

- AEC-Q100-Grade 1 -40°C~125°C
- 5.0-11V Input Voltage Range
- $\pm 2\%$ Accuracy for REF and FB Reference
- Typical 150- μ A Starting Up Current and 800- μ A Operating Supply Current Exclude MOS Driving Current
- Flexible Frequency and Minimum off Time Set by FS Pin and up to 1 MHz Switching Frequency
- Cycle by Cycle Current Limit(1V) and over Current Limit (1.5V) for ISEN
- Typical 4ms Internal Soft Start and Fault (OCP、OTP、REF_UVLO、VIN_UVLO) Soft-start
- Package: SO8

Applications

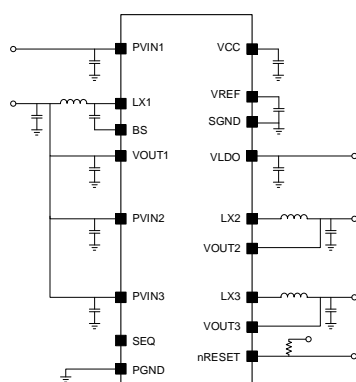
- OBC
- DC/DC
- Traction Inverter



Automotive Camera PMIC

SA47302 Series

Part Number	Buck 1	Buck 2	Buck 3	LDO	nRESET Delay Time
SA47302QDQ	3.8V	1.1V	1.8V	3.3V	2ms
SA47302BQDQ	3.3V	1.2V	1.8V	2.8V	2ms
SA47302CQDQ	3.8V	1.2V	1.8V	3.3V	2ms
SA47302FQDQ	3.3V	1.1V	1.8V	2.9V	2ms



Features

- 4V to 16V Input Voltage Range
- 2.2MHz Fixed Switching Frequency
- Primary Synchronous Buck Converter (Buck 1)
 - Fixed Output Voltage: 3.3V/3.8V (optional)
 - Maximum Continuous Output Current: 1.5A
 - Low $R_{DS(ON)}$ Switches: 220mΩ High Side/120mΩ Low Side
- Secondary Synchronous Buck Converter (Buck 2)
 - Fixed Output Voltage: 1.1V/1.2V (optional)
 - Maximum Continuous Output Current: 1.5A
 - Low $R_{DS(ON)}$ Switches: 220mΩ High Side/180mΩ Low Side
- Secondary Synchronous Buck Converter (Buck 3)
 - Fixed Output Voltage: 1.8V
 - Maximum Continuous Output Current: 1A
 - Low $R_{DS(ON)}$ Switches: 320mΩ High Side/220mΩ Low Side
- Secondary LDO
 - Output Voltage: 2.8V/2.9V/3.3V (optional)
 - Maximum Output Current: 300mA
- Spread Spectrum Frequency Modulation
- AEC-Q100 Grade 1 Qualified
- Compact Package: QFN3×3-16

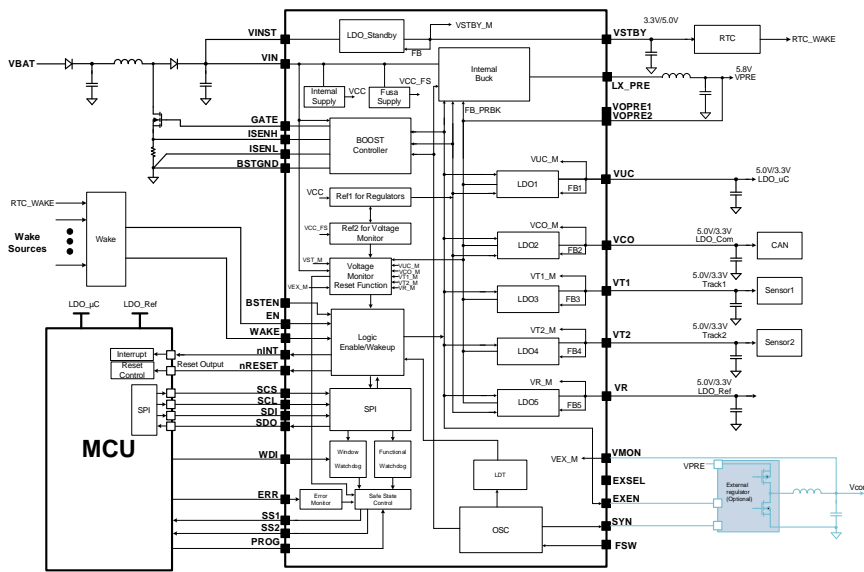
Applications

- Automotive Camera Modules

PMIC

SA47301 Series

Automotive Power Management IC



Part Number	VSTBY	VUC	VR	VCO	VT1	VT2
SA47301QJQ	5V	5V	5V	5V	5V	5V
SA47301BQJQ	3.3V	3.3V	3.3V	5V	3.3V	3.3V
SA47301CQJQ	3.3V	3.3V	3.3V	5V	5V	5V
SA47301DQJQ	3.3V	3.3V	5V	5V	5V	5V
SA47301EQJQ	3.3V	3.3V	3.3V	3.3V	3.3V	3.3V

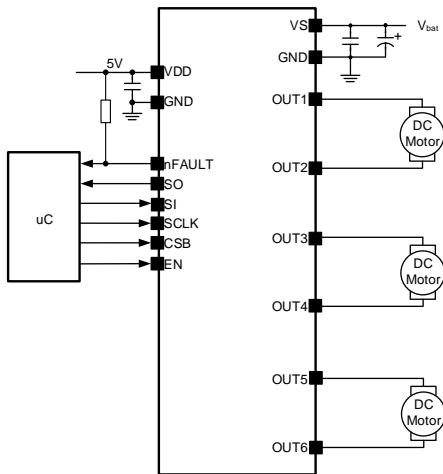
Features

- 3V to 40V Input Voltage Range (6V to 40V if Boost Regulator is not used)
- Integrated Supplies including Pre-Regulator, StandBy-LDO, Post-LDO & Tracker
- Configurable Functional and Window Watchdog
- Provides Enable, Synchronization and a Voltage Monitor for an External Regulator
- Independent Internal Voltage Monitoring Block
- Reset and Interrupt Output
- Two Safe State Outputs with Programmable Delay Time
- 16-bit SPI Communication Interface
- Long Duration Timer (LDT)
- Error Signal Monitoring
- Multiple Wake-Up Sources
- Compact Package: QFN7×7-48, Wettable Flank
- Function Safety Meets ISO 26262 ASIL-D
- AEC-Q100 Qualified

Applications

- Electric Power Steering (EPS)
- Electrical Parking Brake (EPB)
- Transmission Control Unit (TCU)
- Active Suspension
- On-board Charger (OBC)
- Battery Management System (BMS)
- ADAS & Autonomous Driving
- Vehicle Control Unit (VCU)
- Zone Control Unit (ZCU)

Six Half-Bridge Driver with SPI Control



Features

- 6 Half-bridge Outputs
- 4.5V to 32V Operating Voltage
- Up to 1A Output Current for Each Output
- Low-power Sleep Mode
- Compatible with 5V/3.3V System
- Serial Peripheral Interface, up to 5MHz
- Daisy Chain Functionality
- PWM Capable Output for Frequency 80Hz, 100Hz, 200Hz and 2kHz with 8-Bit Duty Cycle Resolution
- Integrated Protection: Overcurrent Protection , Short Circuit Protection, Open Load Detection, Under Voltage Lockout, Over Voltage Protection and Thermal Shutdown
- nFAULT Pin Output
- AEC-Q100 Qualified
- Compact Package:TSSOP24E

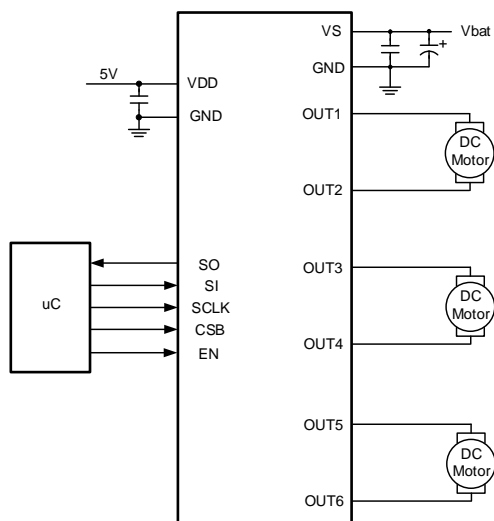
Applications

- Automotive
- LED
- HVAC
- DC Brushed Motors

Motor Driver

SA52116VAQ

Six Half-Bridge Driver with SPI Control



Features

- Six Half-Bridge Drivers
- 0.55A Output Current per Channel@13.5V
- Low Power Mode
- Compatible with 5V/3.3V System
- Serial Peripheral Interface, up to 5MHz
- Fault Reporting
- PWM Capable Outputs for Frequency 80Hz, 100Hz and 200Hz with 8-Bit Duty Cycle Resolution
- Internal Over Current Protection, Short Circuit Protection, Under Load Detection, Under Voltage Lockout, Over Voltage Lockout and Thermal Shutdown
- AEC-Q100 Qualified
- QFN5×5-24 Package

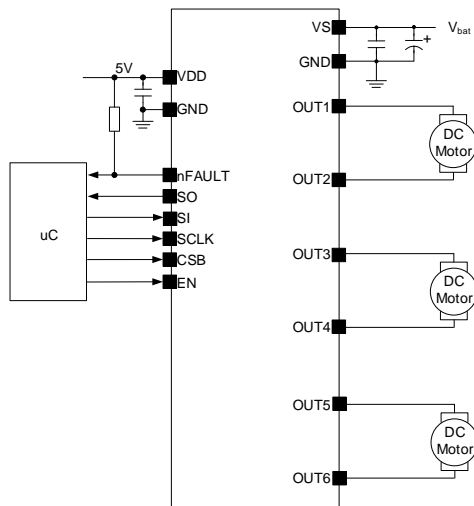
Applications

- Automotive
- Industrial
- HVAC
- DC Brush Motor

Motor Driver

SA52126HHP

Six Half-Bridge Driver with SPI Control



Features

- 6 Half-Bridge Outputs
- Operating Voltage: 4.5V to 32V
- Compatible with a 5V/3.3V System
- Up to 1A Output Current for Each Output
- Low-Power Sleep Mode
- SPI Up to 5MHz
- Daisy Chain Functionality
- PWM Capable Output for Frequencies of 80Hz, 100Hz, 200Hz and 2kHz with an 8-Bit Duty Cycle Resolution
- Integrated Protection Features:
 - Overcurrent Protection
 - Short-Circuit Protection
 - Open Load Detection
 - Undervoltage Lockout
 - Overvoltage Protection
 - Thermal Shutdown
- nFAULT Pin Output
- TSSOP24E Package
- AEC-Q100 Qualified
- MSL Rating: MSL3

Applications

- Automotive
- HVAC
- DC Brushed Motor Drivers
- LEDs

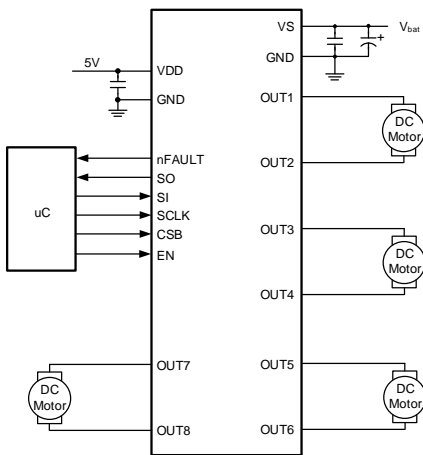
[Back](#)



Rear Mirror

SA52108HHP/SA52108VAQ

Eight Half-H-Bridge Driver with SPI Control



Features

- 8 Half-bridge Outputs
- 4.5V to 32V Operating Voltage
- Up to 1A Output Current for Each Output
- Low-power Sleep Mode
- Compatible with 5V/3.3V System
- Serial Peripheral Interface, up to 5MHz;
- Daisy Chain Functionality
- PWM Capable Output for Frequency 80Hz,100Hz, 200Hz and 2kHz with 8-bit Duty Cycle Resolution
- Integrated Protection: Overcurrent Protection, Short Circuit Protection, Open Load Detection, Under Voltage Lockout, Over Voltage Protection and Thermal Shutdown
- nFAULT Pin Output
- AEC-Q100 Qualified
- Compact Package: TSSOP24E/QFN5×5-24

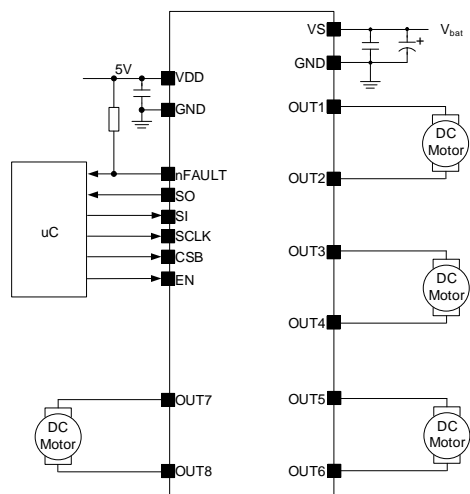
Applications

- HVAC
- Mirror
- BDC, ZCU

[Back](#)

Motor Driver

SA52128HHP/SA52128BHHP Eight Half-Bridge Driver with SPI Control



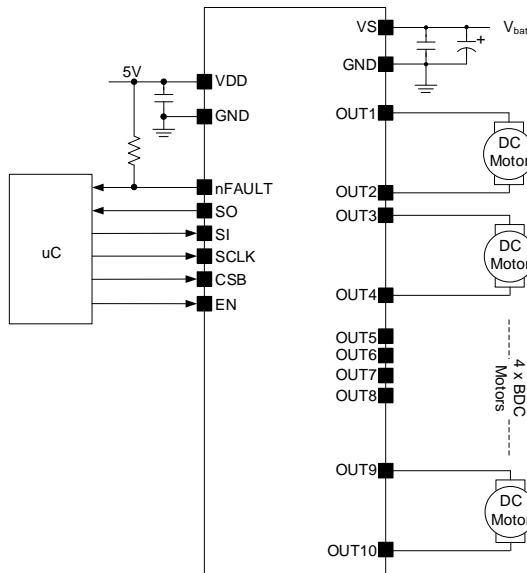
Features

- 8 Half-Bridge Outputs
- Operating Voltage: 4.5V to 32V
- Compatible with a 5V/3.3V System
- Up to 1A Output Current for Each Output
- Low-Power Sleep Mode
- SPI Up to 5MHz
- Daisy Chain Functionality
- PWM Capable Output for Frequencies of 80Hz, 100Hz, 200Hz and 2kHz with an 8-Bit Duty Cycle Resolution
- Integrated Protection Features:
 - Overcurrent Protection
 - Short-Circuit Protection
 - Open Load Detection
 - Undervoltage Lockout
 - Overvoltage Protection
 - Thermal Shutdown
- nFAULT Pin Output
- TSSOP24E Package
- AEC-Q100 Qualified
- MSL Rating: MSL3

Applications

- Automotive
- HVAC
- DC Brushed Motor Drivers
- LEDs

Ten Half-Bridge Driver with SPI Control



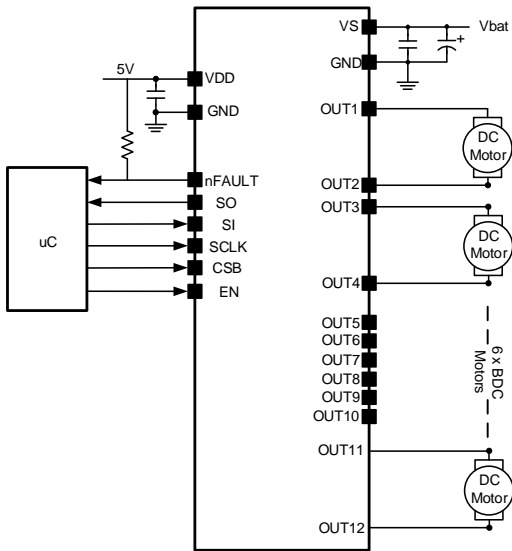
Features

- 10 Half-Bridge Outputs
- Operating Voltage: 4.5V to 32V
- Compatible with a 5V/3.3V System
- Up to 1A Output Current for Each Output
- Low-Power Sleep Mode
- SPI Up to 5MHz
- Daisy Chain Functionality
- PWM Capable Output for Frequencies of 80Hz, 100Hz, 200Hz, 400Hz, 600Hz, 800Hz, 1kHz and 2kHz with an 8-Bit Duty Cycle Resolution
- Integrated Protection Features:
 - Short-Circuit Protection
 - Open Load Detection
 - Undervoltage Lockout
 - Overvoltage Protection
 - Thermal Shutdown
- nFAULT Pin Output
- TSSOP24E Package
- AEC-Q100
- MSL Rating: MSL3

Applications

- Automotive
- HVAC
- DC Brushed Motor Drivers
- LEDs

Twelve Half-H-Bridge Driver with SPI Control



Features

- 12 Half-bridge Outputs
- 4.5V to 32V Operating Voltage
- Up to 1A RMS Output Current for Each Output
- Low-power Sleep Mode
- Compatible with 5V/3.3V System
- Serial Peripheral Interface, up to 5MHz;
- Daisy Chain Functionality
- PWM Capable Output for Frequency 80Hz, 100Hz, 200Hz and 2kHz with 8-bit Duty Cycle Resolution
- Integrated Protection: Overcurrent Protection, Short Circuit Protection, Open Load Detection, Under Voltage Lockout, Over Voltage Protection and Thermal Shutdown
- nFAULT Pin Output
- AEC-Q100 Qualified
- Compact Package: QFN5x5-24

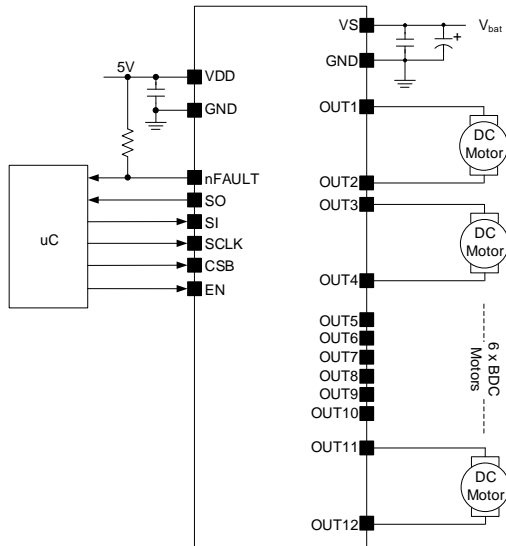
Applications

- HVAC
- Mirror
- BDC, ZCU

Motor Driver

SA52122HHP/SA52122BHP

Eight Half-Bridge Driver with SPI Control



Features

- 12 Half-Bridge Outputs
- Operating Voltage: 4.5V to 32V
- Compatible with a 5V/3.3V System
- Up to 1A Output Current for Each Output
- Low-Power Sleep Mode
- SPI Up to 5MHz
- Daisy Chain Functionality
- PWM Capable Output for Frequencies of 80Hz, 100Hz, 200Hz, 400Hz, 600Hz, 800Hz, 1kHz and 2kHz with an 8-Bit Duty Cycle Resolution
- Integrated Protection Features:
 - Overcurrent Protection
 - Short-Circuit Protection
 - Open Load Detection
 - Undervoltage Lockout
 - Overvoltage Protection
 - Thermal Shutdown
- nFAULT Pin Output
- TSSOP24E Package
- AEC-Q100 Qualified
- MSL Rating: MSL3

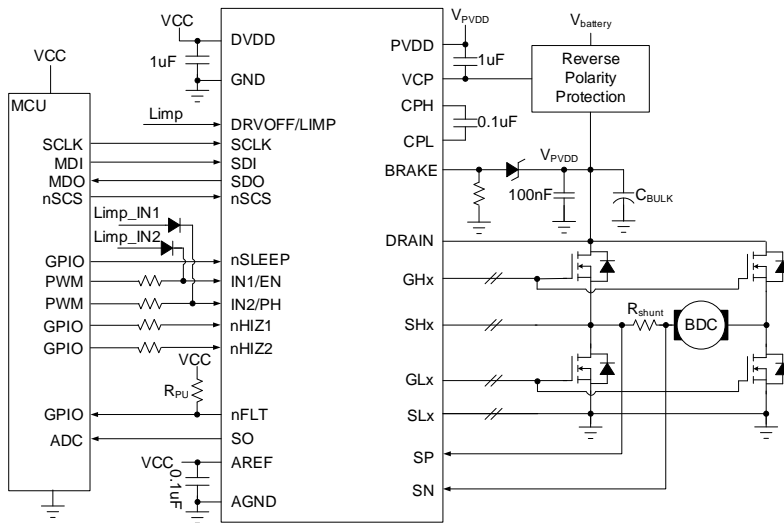
Applications

- Automotive
- HVAC
- DC Brushed Motor Drivers
- LEDs

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H- Bridge Gate Drivers for Automotive Applications

SA52902QEQ



Features

- H-Bridge / Half-Bridge Gate Drivers
 - Double Charge Pump Supports 100% PWM
 - Supports Half-Bridge, H-Bridge, and SPI Control Modes
- Smart Gate Driver Architecture
 - 0.5mA-62mA, 16-level Peak Source/Sink Current Output (SPI Configured)
 - Integrated Dead-Time Handshaking (8-level Configurable)
- Wide Common-Mode Current Shunt Amplifier
 - Supports Inline, High-Side or Low-Side Current Sensing
 - Configurable Gain Settings: 10, 20, 40, 80V/V
 - Adjustable PWM Blanking Scheme
- SPI: Comprehensive Configuration and Diagnostics
- Spread Spectrum Clocking to Reduce EMI
- Integrated Protection Features:
 - Supply and Regulator Voltage Monitors
 - MOSFET VDS Overcurrent and VGS Gate Fault Monitors
 - Dedicated Driver Disable Pin (DRVOFF)
 - Fault Condition Indicator Pin (nFLT)
 - Device Thermal Warning and Shutdown
 - Charge Pump for Reverse Polarity MOSFET
 - Off State Open Load and Short Circuit Diagnostics
 - Sleep-Mode Motor Brake
 - Limp Home Function
- MSL Rating: MSL1
- QFN5x5-32 Package (Wettable)
- AEC-Q100 Qualified

Applications

- Power Seat Modules
- Power Trunk and Lift Gate
- Door Module
- Automotive Brushed DC Motors
- Body Control Modules

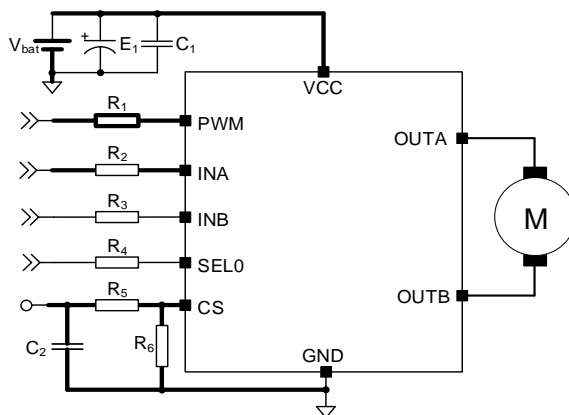
Motor Driver



Door Handle

SA52270FFP

15A H-bridge Motor Driver for Automotive Applications



Features

- Output Current: 15 A
- Undervoltage Lockout
- Overvoltage Clamp
- Thermal Shutdown
- Cross-conduction Protection
- Current Limitation
- Protection against Loss of Ground and Loss of VCC
- Output Short Circuit Protections
- Low Power Standby Mode
- PWM Work Mode
- Current Sense Output
- Diagnostic Function
- AEC-Q100 Grade 1 Qualified
- Compact Package: SOP16

Applications

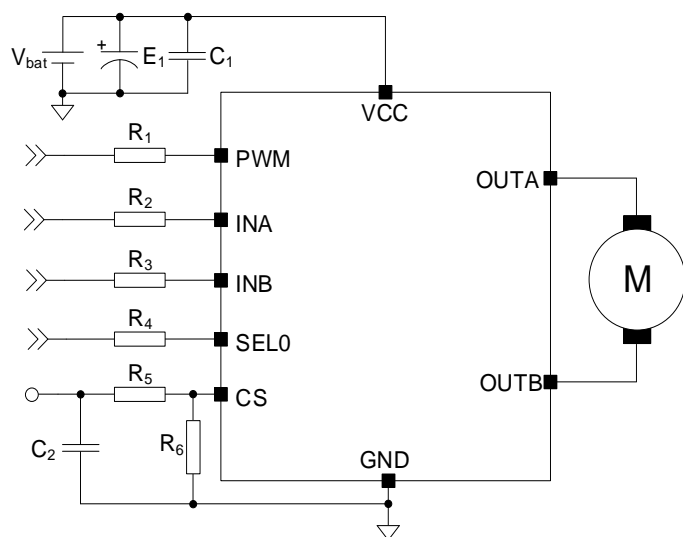
- Door Lock
- Door Handle
- OBC Lock
- BCM

[Back](#)

Motor Driver

SA52270LFFP

40V 12A H-bridge Automotive Motor Driver



Features

- Operating Voltage Range: 4V to 28V
- Output Current: 12A
- Undervoltage Lockout
- Overvoltage Clamp
- Thermal Shutdown
- Cross-Conduction Protection
- Current Limit
- Protection Against Loss of Ground and Loss of VCC
- Output Short Circuit Protection
- Low Power Standby Mode
- PWM Operating Mode
- Current Sense Output
- Diagnostic Function
- SOP16 Package
- AECQ100 Qualified

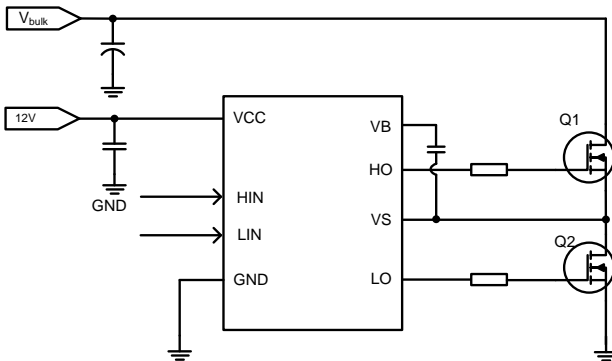
Applications

- Automotive Motor Drivers
- DC Brushed Motor Drivers

Gate Driver



SA52631DAD/SA52631FAP 40V High-side and Low-Side Gate Driver



Features

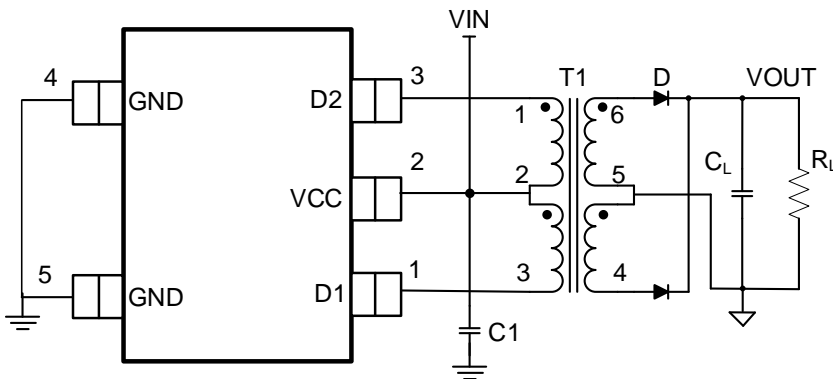
- High Voltage Range up to 40 V
- 0.75A Source and 1.25A Sink Current
- VCC Operation Range from 4.4V to 14V
- CMOS/TTL Compatible
- Fast Propagation Delay Time
- Compact Package: DFN3x3-8/SOP8
- AEC-Q100 Qualified

Applications

- ABS
- ESC
- WPC
- Domain Controller
- Body

SA52731AAT

Transformer Driver for Isolated Power Supplies

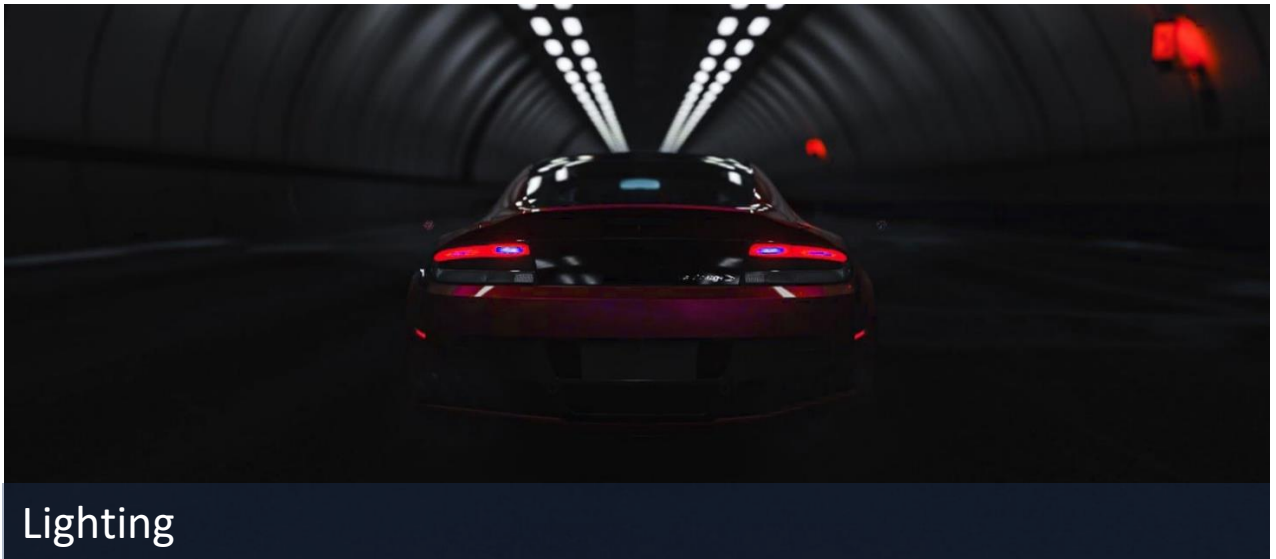


Features

- Single 3.3-V or 5-V Supply
- Push-Pull Driver for Small Transformers
- High Primary-side Current Drive: 500mA
- Spread Spectrum Clocking
- Thermal Shutdown
- Soft Start
- AEC-Q100 Grade1 Qualified
- Compact Package: SOT23-5

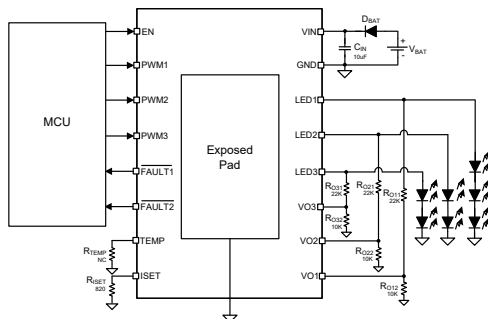
Applications

- BMS
- Isolated Interface Power Supply for CAN, RS-485, RS-422, RS-232, SPI, I2C, Low-Power LAN
- Industrial Equipment
- Medical Equipment



Lighting

28V, 0.15A, 3-channel Linear LED Driver with ON OFF Dimming SA32707HFA



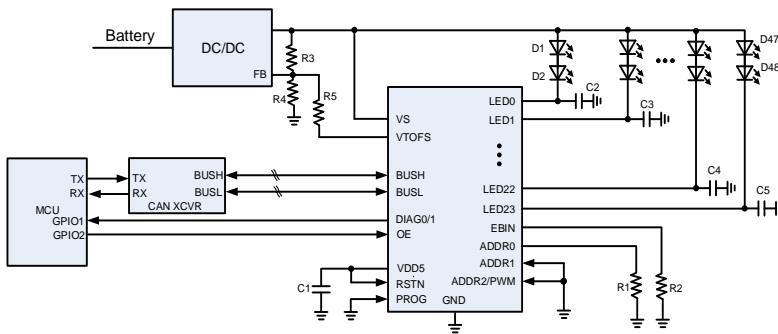
Features

- Wide Input Voltage Range 5V to 28V
- Current Accuracy for Full Temperature Range:
 - $\pm 2.5\%$ per Device when $I_{OUTx} > 30\text{mA}$
 - $\pm 1.5\%$ per Channel when $I_{OUTx} > 30\text{mA}$
- Low Dropout Voltage:
 - Maximum Dropout Voltage: $400\text{mV}@60\text{mA}$
 - Maximum Dropout Voltage: $900\text{mV}@150\text{mA}$
- Thermal Foldback Function
- Parallel Outputs for Higher Current Using Multiple ICs or Multiple Channels of A Single IC
- Short LED Detection with Deglitch Timer
- Single LED Short Detection with Deglitch Timer
- Open LED Detection with Deglitch Timer
- Separate Single LED Short Fault Pin and Open/Short Led Fault pin
- Compact Package: TSSOP16E
- AEC-Q100 Qualified with the Following Results:
 - Device Temperature Grade1: -40°C to 125°C
 - Device HBM ESD All pins $\pm 2000\text{V}$
 - Device CDM ESD Other pins $\pm 500\text{V}$
 - Corner pins (1, 8, 9, and 16) $\pm 750\text{V}$

Applications

- DRL
- Position Light
- Fog Light
- Rear Light
- Turn Light
- Interior light
- OBC Indicator Light

24-Channel LED Driver for Rear Light Application



Features

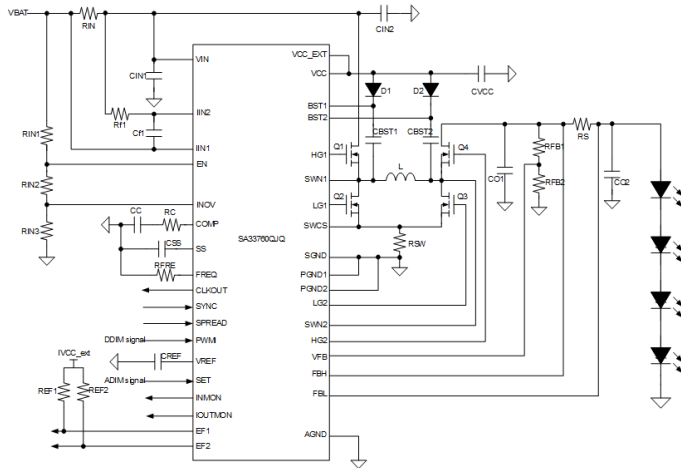
- Supports LED Supply Voltage Range from 4.9V up to 16V
- 2Mbps CAN Physical Bus Interface with UART Protocol
- 10-bit Resolution PWM Generator for 24 Channels
- 100mA Maximum Channel Current
- Adjustable LED Driver Current 100 μ A/step
- Direct PWM Input
- 10-bit ADC for LED Open, Short and System Diagnosis
- Single Lamp Mode Behavior Option
- Automatic Supply and Temperature Dependent LED Current Derating
- LED Channel Individual bin Class Brightness Correction
- External LED bin Class Resistor Evaluation
- Available in AEC-Q100 Grade 1
- MSL3

Applications

- Rear Light for Automotive

55V Buck-Boost Controller for Automotive Front Lighting

SA33760



Features

- AECQ-100 Qualified
- Input Voltage Range from 4.5 V to 55V
- Output Voltage Range from 2.5V to 55V
- Adaptive Switching between Pure Boost, Pure Buck, and Buck-Boost Modes
- Adjustable Switching Frequency 200kHz to 700kHz
- Spread Spectrum Operation
- Input current limit
- Input current and output current monitor
- Analog Dimming and Direct Dimming
- Adjustable Soft-Start Time
- Pre-Bias Startup
- Constant Frequency with Current Mode
- Overvoltage Protection, Open LED Protection, LED Short Protection, Over-temperature Protection
- Package: QFN7×7-48
- MSL Rating: MSL3

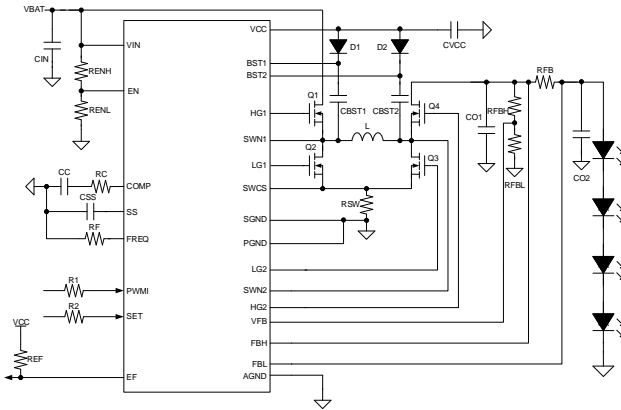
Applications

- Constant Current Buck-Boost for LED
- Constant Current Buck Controller for LED
- Constant Voltage Buck-Boost Controller

LED Driver

SA33761HHP

55V Buck-Boost Controller for Automotive Front Lighting



Features

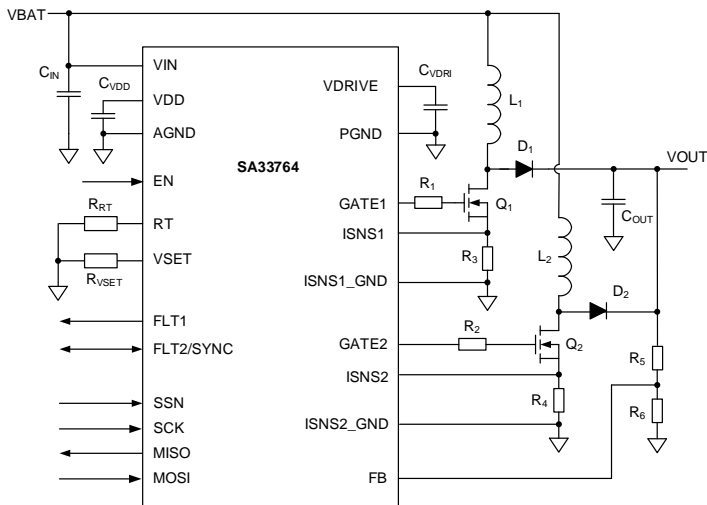
- Wide Input Voltage Range from 4.5 V to 55V
- Wide Output Voltage Range from 2.5V to 55V
- Adaptive Switching between Pure Boost, Pure Buck, and Buck-Boost Modes
- Adjustable Switching Frequency 200kHz to 700kHz
- Spread Spectrum Operation
- Analog Dimming and Direct Dimming
- Adjustable Soft-Start Time
- Pre-Bias Startup
- Constant Frequency with Current Mode
- Overvoltage Protection, Open LED Protection, LED Short Protection, Over temperature Protection
- Package: TSSOP24E
- AEC- Q100 Grade 1 Certified

Applications

- Constant Current Buck-Boost for LED
- Constant Current Buck Controller for LED
- Constant Voltage Buck-Boost Controller

Two-Phase Constant-Voltage Boost Converter With SPI Interface

SA33764



Features

- Wide Operating Input Voltage Range: +4.5V to +40V
- Single-Phase or Two-Phase Output: $\pm 3\%$ Accuracy
- Up to 1-MHz Programmable Switching Frequency with External Clock SYNC Capability
- SPI Communication Interface
- Comprehensive Programmable Fault Protection Circuitry (eg. Current Limit, Overvoltage Protection)
- Limp-Home Mode Ensuring System Safety
- AEC-Q100 Grade 1 Qualified
- Spread Spectrum for Improved EMI
- Soft-Start Timing
- Control Signal to Enable the Device Low Quiescent Current $< 10\mu\text{A}$ (max) when EN = 0
- Operating Ambient Temperature Range: $-40\text{ }^\circ\text{C}$ to $+125\text{ }^\circ\text{C}$
- Compact QFN5x5-32 Package

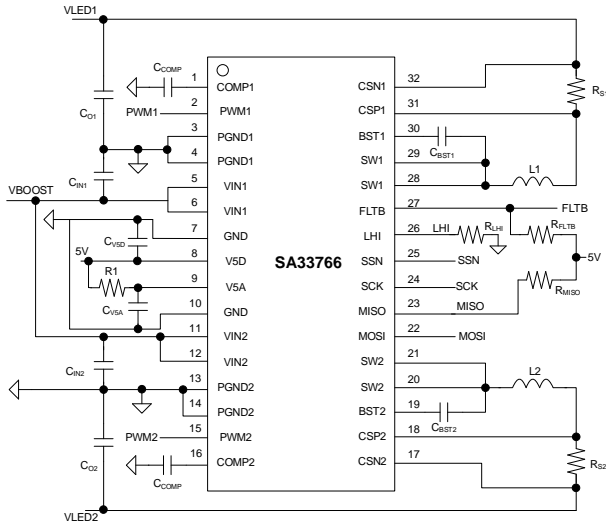
Applications

- High Beam
- Low Beam
- DRL
- Position or Park Light
- Turn Indicator
- Fog Light
- Static Cornering Light

LED Driver

SA33766

Dual Channel Buck Controller for Automotive Lamp



Features

- Input Voltage Range from 4.5V to 60V.
- Independent Dual Channel Constant Current Buck Converter.
- ILED up to 1.6A
- Support 10 Bits Analog Dimming and Internal or External PWM Dimming
- Support LED Voltage from 0V-57V
- SPI Communication Interface
- Stand-alone Mode, Limp-home Mode, Run Mode, Sleep Mode are Available.
- $\pm 3\%$ Current Accuracy at 1.6A
- Short LED, Open LED, Thermal Shut down Protection
- Fast LED Current Response
- Operating Ambient Temperature Range of $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$
- Package TSSOP32E-UP

Applications

- High Beam
- Low Beam
- DRL
- Position or Park Light
- Turn Indicator
- Fog Lights
- Static Cornering

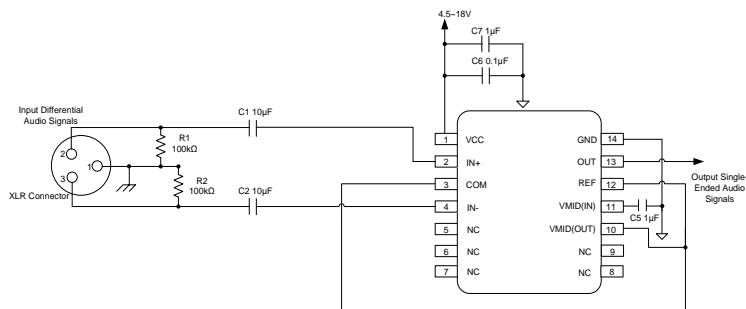
Audio



Smart Cockpit

High Common-Mode Rejection Line Receiver

SA51023HDA



Features

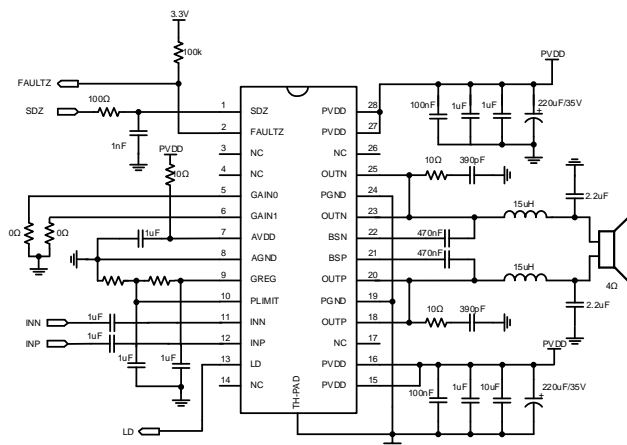
- High Common-mode Rejection: 106dB(Typical)
- High Input Impedance: 1MΩ Differential
- Ultra-low Total Harmonic Distortion + Noise: <0.001%
- Low Quiescent Current: 4.1mA (Typical)
- Short-circuit Protection
- Integrated EMI Filters
- Wide Supply Range: 4.5V to 18V
- Qualified According to AEC-Q100 Grade 1
- -40°C to 125°C Ambient Temperature Range
- Available in Small TSSOP-14 Package

Applications

- Differential Audio Interfaces
- Audio Input Circuitry
- Line Drivers
- Audio Power Amplifiers
- Audio Analyzers
- High-End Audio and Video (A/V) Receivers

SA51024HGA

Analog Class-D AUDIO IC For Automotive Application



Features

- 10W into a 4Ω Load at <1% THD+N from a 12V Supply
- Qualified for Automotive Applications
- AEC-Q100 Qualified with the Following Results
 - Device Temperature Grade 1: -40°C to 125°C Ambient Operating Temperature Range
 - Device HBM ESD Classification Level H2
 - Device CDM ESD Classification Level C3
- Highly Efficient Class-D Operation Eliminating Need for Heat Sink
- Operates from 5.5V to 18V
- Adjustable Power Limit
- Four Selectable, Fixed-gain Settings
- Load Diagnostic Functions
 - Open and Shorted Output Load
 - Output-to-Ground and Output-to-PVDD Shorts
- Comprehensive Click and Pop Suppression
- Space-saving Surface Mount TSSOP28E Package

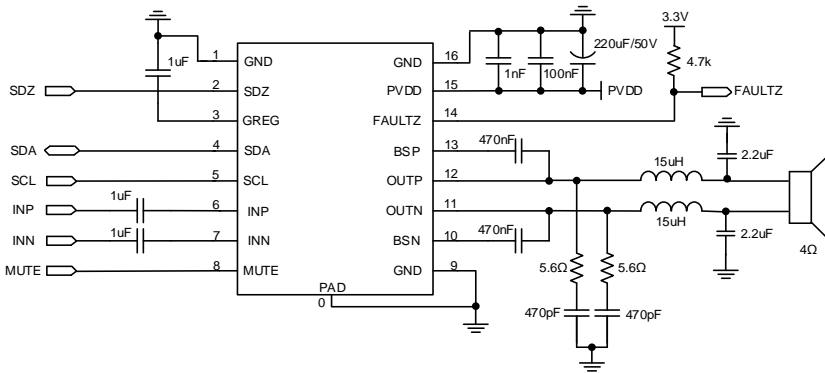
Applications

- Noise Generation for HEV/EV
- Emergency Call Systems (e Call)
- Cluster
- AVAS
- Linear Motor Driver

Audio

Analog Class-D Audio IC For Automotive Application

SA51034HFA /SA51054HFA



Features

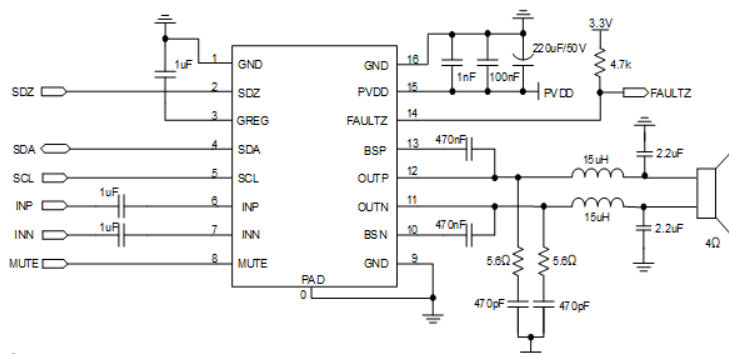
- SA51034: 8W into a 4Ω Load at <0.1% THD+N from a 12V Supply
- SA51054: 22W into a 4Ω Load at <10% THD+N from a 14.4V Supply
- Qualified for Automotive Applications
- AEC-Q100 Qualified with the Following Results:
 - Device Temperature Grade 1: -40°C to 125°C Ambient Operating Temperature Range
 - Device HBM ESD Classification Level H2
 - Device CDM ESD Classification Level C3
- Highly Efficient Class-D Operation Eliminating Need for Heat Sink
- Operates from 4.5V to 18V
- Thermal and Over-Current Protection
- Load Diagnostic Functions:
 - Open and Shorted Output Load
 - Output-to-Ground and Output-to-PVDD Shorts
- Comprehensive Click and Pop Suppression
- Space-Saving Surface Mount TSSOP16E Package

Applications

- Noise Generation for HEV/EV
- Emergency Call Systems (e Call)
- Cluster
- AVAS
- Linear Motor Driver

SA51500HFP

Analog Class-D Audio IC For Automotive Application



Features

- Wide Voltage Range
 - 4.5V to 28V with Under and Over Voltage Protection
 - 40V Load-dump Protection per ISO-16750-2
- High Output Power Capability
 - 8W4 Ω, 0.1% THD+N at 14.4V
 - 12W4Ω, 1% THD+N at 12V
- Excellent Audio performance
 - 0.03% THD+N at 1W4 Ω 12V
 - 102dB A-weighted SNR
- Comprehensive Protection
 - Under Voltage, Over Voltage, Over Temperature, Over Current, DC Detection Protection with Auto Recovery
 - Selectable Power Limit Function for Speaker Protection
- Load Diagnostic Functions
 - Open and Shorted Output Load
 - Output-to-ground and Output-to-PVDD Shorts and Shorted Output Indicator
- AEC-Q100 Qualified with the Following Results:
 - Device Temperature Grade 1: -40°C to 125°C Ambient Operating Temperature Range
 - Device HBM ESD Classification Level H2
 - Device CDM ESD Classification Level C3
- Differential Single-ended Input
- Spread Spectrum and Programmable Edge Rate to Optimize EMC Performance
- Space-Saving Surface Mount TSSOP16E Package

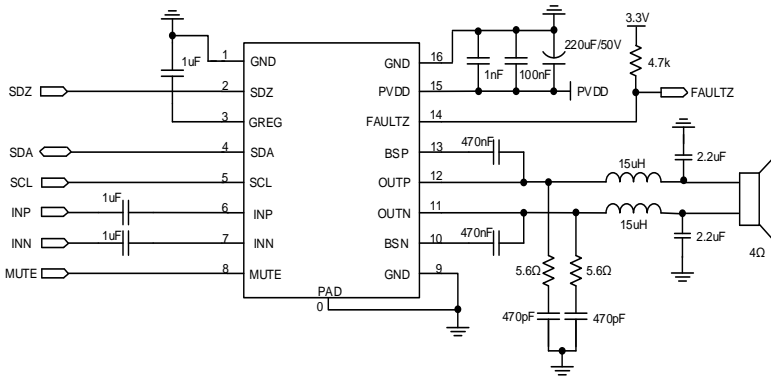
Applications

- Emergency Call Systems (e Call)
- Cluster
- AVAS
- Automotive Telematics

Audio

Analog Class-D Audio IC For Automotive Application

SA51510HFP



Features

- **Wide Voltage Range**
 - 4.5V to 28V with Under and Over Voltage Protection
 - 40V Load-dump Protection per ISO-16750-2
- **High Output Power Capability**
 - 22W4 Ω , 0.1% THD+N at 14.4V
 - 38W8 Ω , 1% THD+N at 28V
- **Excellent Audio performance**
 - 0.03% THD+N at 1W4 Ω 12V
 - 102dB A-weighted SNR
- **Comprehensive Protection**
 - Under Voltage, Over Voltage, Over Temperature, Over Current, DC Detection Protection with Auto Recovery
 - Selectable Power Limit Function for Speaker Protection
- **Load Diagnostic Functions**
 - Open and Shorted Output Load
 - Output-to-ground and Output-to-PVDD Shorts and Shorted Output Indicator
- **AEC-Q100 Qualified with the Following Results:**
 - Device Temperature Grade 1: -40°C to 125°C Ambient Operating Temperature Range
 - Device HBM ESD Classification Level H2
 - Device CDM ESD Classification Level C3
- **Differential Single-ended Input**
- **Spread Spectrum and Programmable Edge Rate to Optimize EMC Performance**
- **Space-Saving Surface Mount TSSOP16E Package**

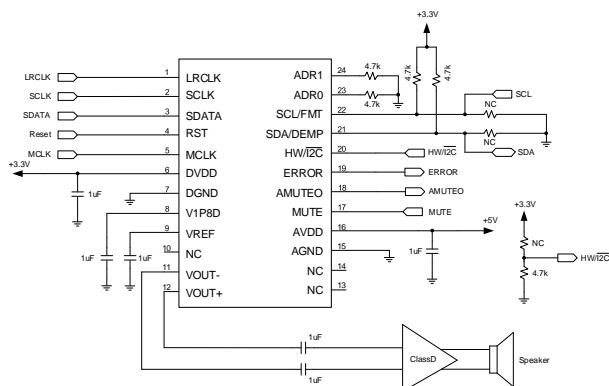
Applications

- Emergency Call Systems (e Call)
- Cluster
- AVAS
- Automotive Telematics

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SA55602HNP

Mono Audio Digital to Analog Converter



Features

- Power supply
 - 5 V for Analog and 3.3 V for Digital
- Large Differential Voltage Output
 - 8.6 VPP at 0dBFS(default)
- Excellent Audio performance
 - -90dB THD+N at 0dBFS
 - 115 dB A-weighted SNR
 - 115 dB Dynamic Range SNR
- Low power consumption
 - Power-Save Mode: 6.5uA AVDD quiescent current
 - Play mode: 1.7mA AVDD quiescent current at fs=48kHz MCLK=512*fs
- Abundant Audio Interface
 - Input Sampling Rates: 8 kHz to 192 kHz
 - I/F Format: I2S, Left-/Right-Justified
 - Input Data Length: 16, 20, 24, 32 Bits
- Flexible Mode Control
 - I2C mode with 4 Slave address
 - Hardware Mode
- Hardware Mode Control
 - Audio I/F Format Select: I2S or Left-Justified
 - Digital De-Emphasis Filter Select: 44.1 kHz or disable
 - Sampling mode is Auto
- Digital Filter
 - Digital De-Emphasis Filter
 - Sharp roll off filter: Passband ripple: ± 0.0018 dB, stop band Attenuation: -75dB
 - Slow roll off filter: Passband ripple: ± 0.001 dB, stop band Attenuation: -112 dB
- Analog Filter
 - Analog Low-Pass Filter Included
- Comprehensive Error Detection and Protection
 - Zero Detection
 - Clock Error Detection
 - Supply Under Voltage Detection
 - Analog Mute by Detected Faults
 - Output Current Limit Protection
- AEC-Q100 Grade1 Qualified
- Compact Package: TSSOP24

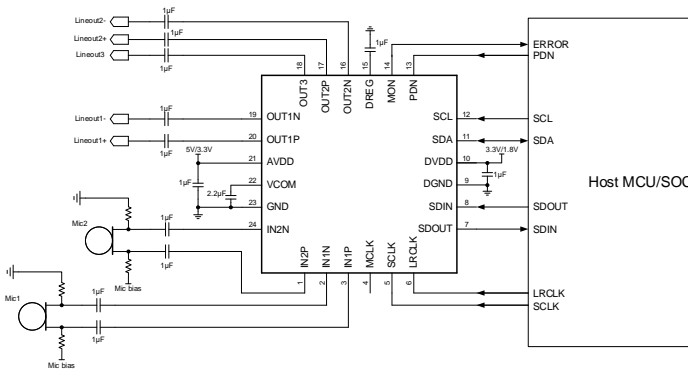
Applications

- Car Audios
- Home Audios

Audio

Analog Class-D Audio IC For Automotive Application

SA55621QCQ



Features

- AEC-Q100 Qualified with Operating Temperature Grade 1
- Power Supplies:
 - 3.3V or 5V Analog Supply
 - 1.8V or 3.3V Digital IO Interface
- Audio DAC:
 - Digital Volume: +12 to -115dB, 0.5dB Per Step, Mute
 - Digital Filters: Sharp/Slow Roll-Off Filter
 - 2 Fully Differential Outputs and 1 Single-Ended Output
 - Differential Voltage Output: 5.8V_{pp} at 3.3V AVDD, 8.7V_{pp} at 5V AVDD
 - 107dB SNR, -83dB THD+N with Fully Differential Output
- Audio ADC:
 - 2 Fully Differential Inputs
 - Input PGA: -18 to +27dB, 3dB Per Step
 - Input Mixer
 - Digital Filters: Narrow Band Voice Filter, Wide Band Voice Filter, Full Band Voice Filter and 2 Optional Bi-Quad Filters
 - Differential Voltage Input: 4.5V_{pp} at 3.3V AVDD, 6.8V_{pp} at 5V AVDD
 - Digital Volume: +24 to -103dB, 0.5dB Per Step, Mute
 - 99dB SNR, -91dB THD+N
- Mic Direct Path Line Driver:
 - Mic Direct Path Boost Gain: 0 to +9dB, 3dB Per Step
 - 2 Fully-Differential Outputs
 - Differential Voltage Output: 5.8V_{pp} at 3.3V AVDD, 8.7V_{pp} at 5V AVDD
 - 108dB SNR, -96dB THD+N with Fully-Differential Output
- Audio Interface:
 - Supports Controller and Target Mode
 - Format: I²S, Left-/Right-Justified, TDM with 4/8/16 Slots
 - Supports Sampling Rates from 8 kHz to 96 kHz
 - Input/output Data Length: 16-bit, 20-bit, 24-bit, 32-bit
 - Slot Width: 16-bit, 24-bit, 32-bit
- I2C Control
- Package Size: QFN4×4-24

Applications

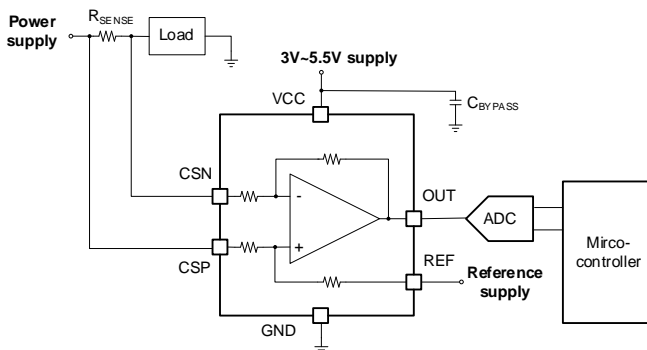
- Emergency Call Systems (e Call)
- Cluster
- AVAS
- Automotive Telematics

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High- or Low-Side, Bidirectional, High Accuracy Current-sense Amplifier

SA59101AHT/SA59102AHA



Features

- Voltage-output, Current-sense Amplifier
- Wide Common Mode Operation Range: $-0.3V \sim 26V$
- Gain=50V/V(SA59101), Gain=100V/V(SA59102)
- Amplifier's Output Referenced to VREF input
- Shunt Input Voltage Range:
 - SA59101: $-40mV$ to $40mV$ ($VCC=5V$, $VREF=2.5V$)
 - SA59102: $-20mV$ to $20mV$ ($VCC=5V$, $VREF=2.5V$)
- Low Offset Voltage:
 - SA59101: $\pm 100\mu V$ (Maximum)
 - SA59102: $\pm 50\mu V$ (Maximum)
- $0.5\mu V/^\circ C$ Offset Drift (Maximum)
- $\pm 0.5\%$ Gain Error (Maximum)
- $10ppm/^\circ C$ Gain Drift (Maximum)
- Quiescent Current: $100\mu A$ (Maximum)
- Packages: SOT363

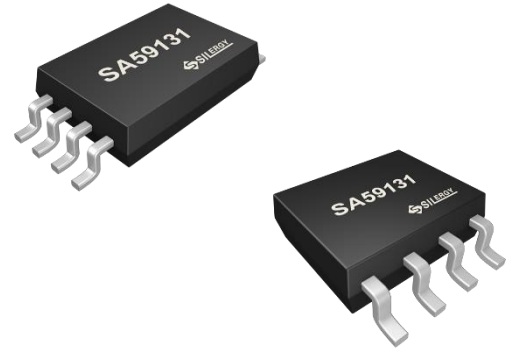
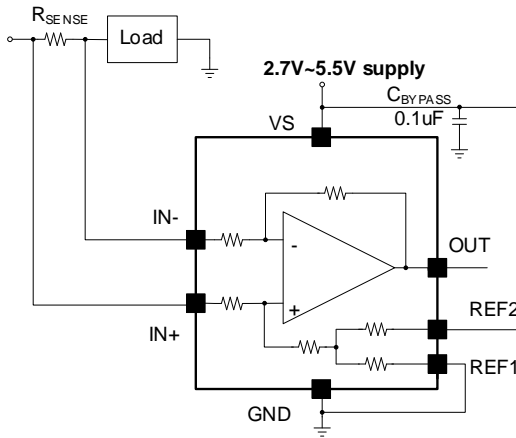
Applications

- Body Control Module
- OBC
- DCDC
- Motor Control

Current Sense

SA59131HMP SA59131FAP

-4V to 80V, High- and Low-Side, Bidirectional, Zero-Drift, Current-Sense Amplifier with Enhanced PWM Rejection



Features

- -4V to 80V Wide Common-Mode Operate Range
- Voltage-output, Current-sense Amplifier
- Enhanced PWM Rejection
- Excellent CMRR:
 - 132dB DC CMRR
 - 93dB AC CMRR at 50 kHz
- High Accuracy:
 - Gain Error: 0.15% (Max)
 - Gain Drift: 2.5ppm/°C (Max)
- Low Offset Voltage:
 - Offset Voltage: $\pm 25\mu\text{V}$ (Max)
 - Offset Drift: 250nV/°C (Max)
- High Bandwidth: 500kHz
- Fixed Gain: 50V/V
- Quiescent Current: 2.4mA (Max)
- AEC-Q100 Grade 1 Qualified
- Package: TSSOP8/ SOP8
- MSL Rating: MSL1(TSSOP8)/ MSL3 (SOP8)

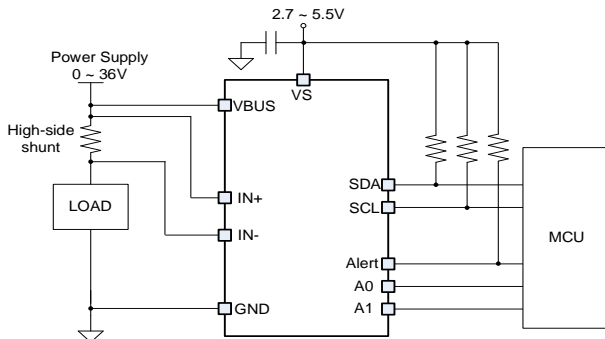
Applications

- Motor Controls
- Actuator Controls
- DC/DC Converters
- Battery Management Systems (BMS)
- eTurbo/ Charger



High- and Low-Side, Bidirectional, Zero-Drift, High-accuracy Current/Power Monitor with Accumulator and Programmable Alert

SA59205FBP



Features

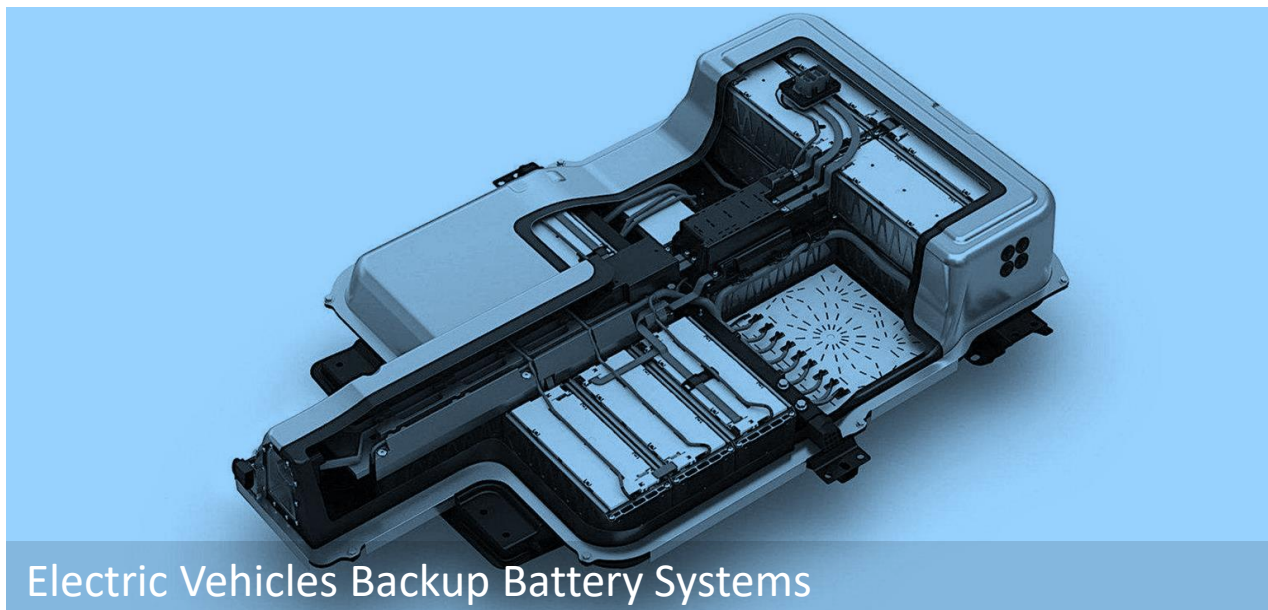
- Monitoring Bus Voltages from 0V to 36V
- High-Side or Low-Side Sensing
- Embedded 16-bit ADC
- Reporting Current, Voltage, and Power
- Integrated Power Accumulator for Average Power Monitoring
- High Accuracy:
 - 0.15% Gain Error (Max)
 - $\pm 10\mu\text{V}$ Shunt Offset (Max)
- Low IB: 1nA (Max)
- Configurable Averaging Options
- Abundant Alert Source Settings
- 1.8V I2C and SMBus Compliant Interface
- 16 Programmable Addresses
- Power Supply: 2.7V to 5.5V
- AEC-Q100 Qualified
- Operating Temperature: $-40^{\circ}\text{C}\sim 125^{\circ}\text{C}$
- Package: MSOP10
- MSL Rating: MSL1

Applications

- Automotive Battery Management Systems
- EV/HEV μA -kA Sense Applications
- DC/DC Converters
- Electronic Control Units

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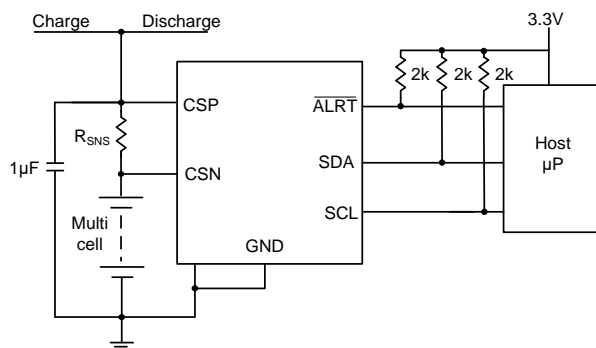
Gauge



Electric Vehicles Backup Battery Systems

SA59202DAA

Multi Cell Battery Gas Gauge



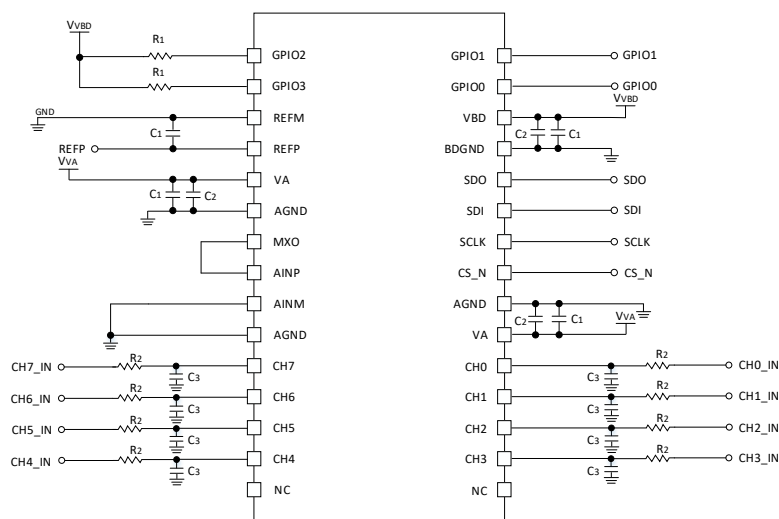
Features

- High Accuracy Coulomb Counter Measures Accumulated Battery Charge and Discharge
- Operation Voltage Range: 3.6V to 25V
- 12-bit ADC Measures Voltage and Current
- 1% Voltage, Current and Charge Accuracy
 - $\pm 64\text{mV}$ Sense Voltage Range for Current ADC
 - High Side Sense for Current ADC
 - Low Value External Current Sense Resistor
- Low Quiescent Current
- Configurable Alert Output/Charge Complete Input
- I2C Interface
- Compact DFN3×3-8 Package
- AEC-Q100 Qualified for Automotive Applications
 - Temperature Grade 2: -40°C to $+105^{\circ}\text{C}$

Applications

- Power Tools
- Portable Equipment
- Electric and Hybrid Electric Vehicles
- Backup Battery Systems

SA89851HLP/SA89853HUP 8- and 16-Channel 12-Bit, 1MSPS, Single-Ended Automotive Analog-to-Digital Converter



Features

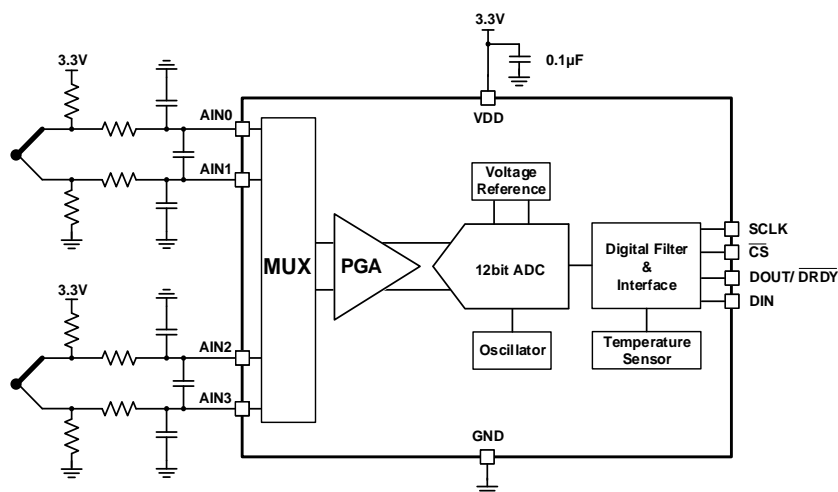
- 8- and 16-Channel, 12-Bit ADC
- Analog Supply Range: 2.7V to 5.25V
- I/O Supply Range: 1.7V to 5.25V
- 1MHz Sample-Rate Device
- Qualified for Automotive Applications
- Two Software or Hardware Selectable Unipolar Input Ranges: 0V to 2.5V or 0V to 5V
- Auto and Manual Channel Selection Modes
- Two Programmable Alarm Levels per Channel
- Individually Configurable GPIOs
- Low Power Dissipation
- Power-Down Feature
- 20MHz SPI-Compatible Serial Interface
- SA89851:TSSOP30
SA89853:TSSOP38
- AEC-Q100 Qualified Grade 1: -40°C to 125°C Ambient Operating Temperature Range

Applications

- Battery-Powered Systems
- Power Supply Monitoring
- Driver Assistance Applications
- HV Traction Inverter Voltage/Temp Monitoring

SA59400FBP

Bidirectional, Zero-Drift, High-accuracy 12bit ADC with Internal Reference and Temperature Sensor



Features

- Wide Supply Range: 2.7V to 5.5V
- Low Current Consumption:
 - Continuous Mode: 350µA
 - Single-Shot Mode: Automatic Power Down
- Programmable Data Rate: 120 SPS to 4630 SPS
- Single-Cycle Settling
- Internal Low-Drift Voltage Reference
- Internal Temperature Sensor:
 - 3°C (Maximum) Error: -40°C to 125°C
- Internal Oscillator
- Internal PGA
- Four Single-Ended or Two Differential Inputs
- MSOP10 Package

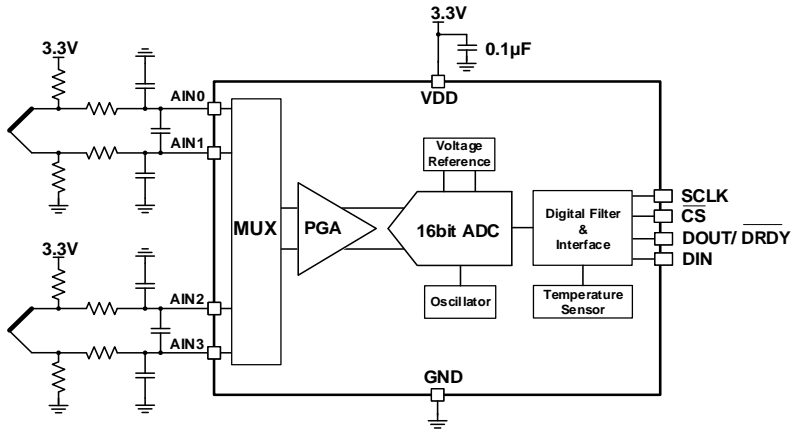
Applications

- BMS
- Automotive Sensor

ADC

SA59401FBP

Bidirectional, Zero-Drift, High-accuracy 16bit ADC with Internal Reference and Temperature Sensor

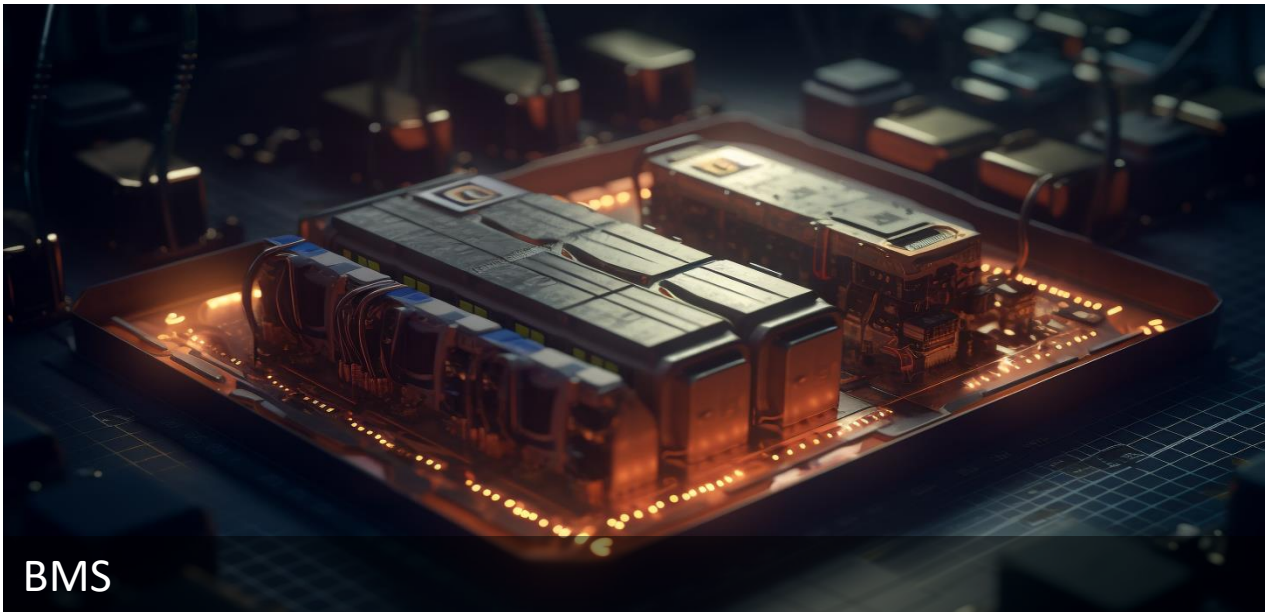


Features

- Wide Supply Range: 2.7V to 5.5V
- Low Current Consumption:
 - Continuous Mode: 350µA
 - Single-Shot Mode: Automatic Power Down
- Programmable Data Rate: 8 SPS to 890 SPS
- Single-Cycle Settling
- Internal Low-Drift Voltage Reference
- Internal Temperature Sensor:
 - 3°C (Maximum) Error: -40°C to 125°C
- Internal Oscillator
- Internal PGA
- Two Differential Inputs
- MSOP10 Package

Applications

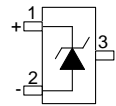
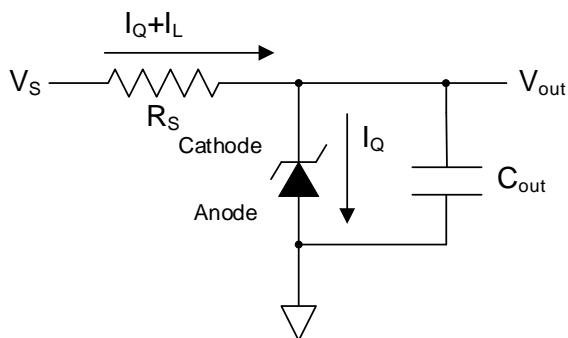
- BMS
- Automotive Sensor



BMS

SA89550 Series

Precision Micro-power Shunt Voltage Reference



Features

- No output Capacitor Required
- Tolerates Capacitive Loads
- Fixed Reverse Breakdown Voltage:
 - SA89550: 5V
 - SA89550B: 4.096V
 - SA89550C: 3.3V
 - SA89550D: 2.5V
 - SA89550E: 2.048V
 - SA89550F: 3.0V
- Output Voltage Tolerance $\pm 0.1\%$ (Maximum)
- Low output noise (10Hz to 10kHz) $38\mu\text{V}_{\text{rms}}$ (Typical)
- Wide Operating Current Range I_{RMIN} to 15mA
- Industrial Temperature Range -40°C to 125°C
- Low Temperature Coefficient ± 43 ppm/ $^{\circ}\text{C}$ (max)
- Small Package: SOT-23
- AEC Q100 Grade 1 Qualified

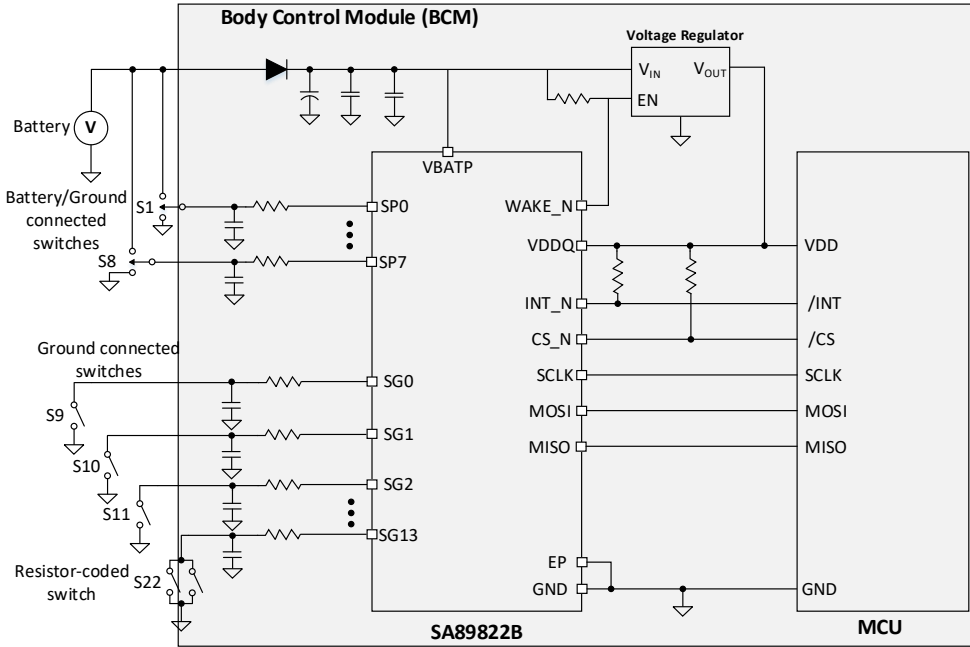
Applications

- BMS
- OBC
- EV/HEV

[Back](#)

22 Channel Multiple Switch Detection Interface
with Adjustable Wetting Current for Automotive Applications

SA89822BQEQ



Features

- Automotive AEC-Q100 Grade 1 Qualified
- Monitor up to 22 Direct Switch Inputs with 8 Inputs Configurable to Monitor Switches Connected to either Ground (SG) or Battery (SB)
- Overvoltage and Undervoltage Warnings
- Switch Inputs Withstand up to 38V and down to -14V
- Five Configurable Wetting Current Settings (1mA, 2mA, 6mA, 8mA and 10mA)
- Integrated Comparator for Status Monitoring
- Wake-up and Interrupt Functions on change-of-switch State
- Normal Mode and Low-power Mode
- Integrated Temperature Monitoring
- Package: QFN5x5-32
- MSL Rating: MSL1



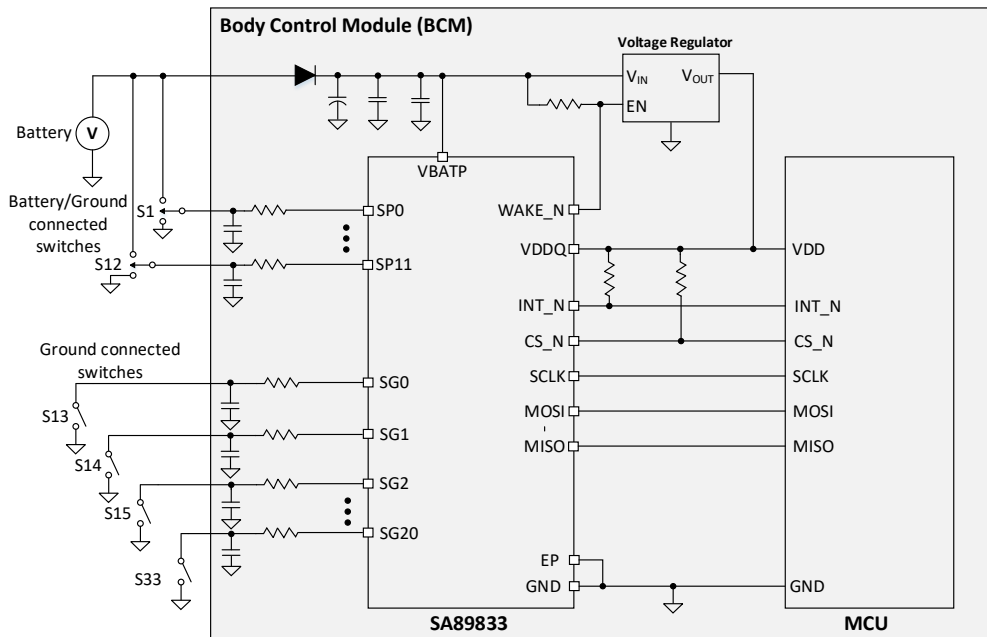
Applications

- Body Control Modules
- Domain Control Modules
- Automotive Lighting
- Heating and Cooling

Multiple Switch Detection Interface

SA89833GCF

33 Channel Multiple Switch Detection Interface with Adjustable Wetting Current for Automotive Applications



Features

- Automotive AEC-Q100 Grade 1 Qualified
- Monitor up to 33 Direct Switch Inputs with 12 Inputs Configurable to Monitor Switches Connected to either Ground (SG) or Battery (SB)
- Overvoltage and Undervoltage Warnings
- Switch Inputs Withstand up to 38V and down to -14V
- Four Configurable Wetting Current Settings (2mA, 6mA, 8mA and 10mA)
- Integrated Comparator for Status Monitoring
- Wake-up and Interrupt Functions on change-of-switch State
- Normal Mode and Low-power Mode
- Integrated Temperature Monitoring
- Package: LQFP7x7-48E
- MSL Rating: MSL3

Applications

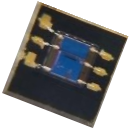
- Body Control Modules
- Domain Control Modules
- Automotive Lighting
- Heating and Cooling



Light Sensor



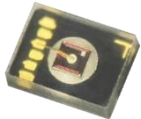
SA88010RS22-J00



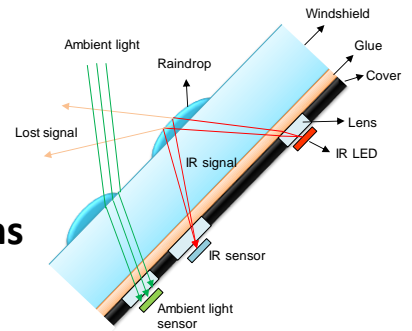
Features

- Package type: Optical DFN
- Dimensions: 2.0mmx1.5mmx0.6mm
- Peak sensitivity occurs with 870nm wavelength
- Fast rising and falling speed
- AEC-Q102 Qualified

SA88011AS22-J00



Silicon PIN Infrared Photodiode



Applications

- Wiper

Ambient Light Sensor

Features

- Package Type: Optical DFN
- Dimensions: 2.0mmx1.5mmx0.6mm
- High Sensitivity at Visible Range
- Spectral Response Close to Human Eyes Photopic Curve
- AEC-Q102 Qualified

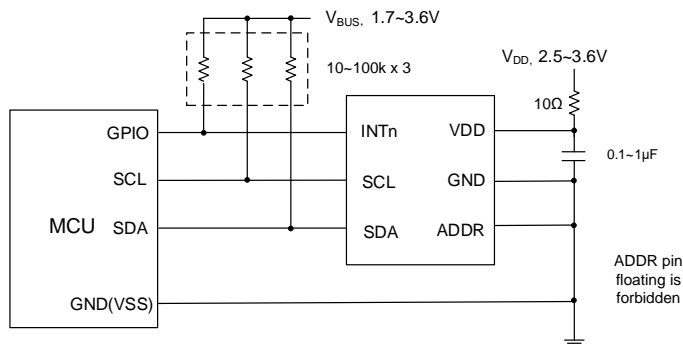
Applications

- Body
- Cluster
- Info

[Back](#)

SA88137AS22-J00

Ambient Light Sensor for Automotive Application



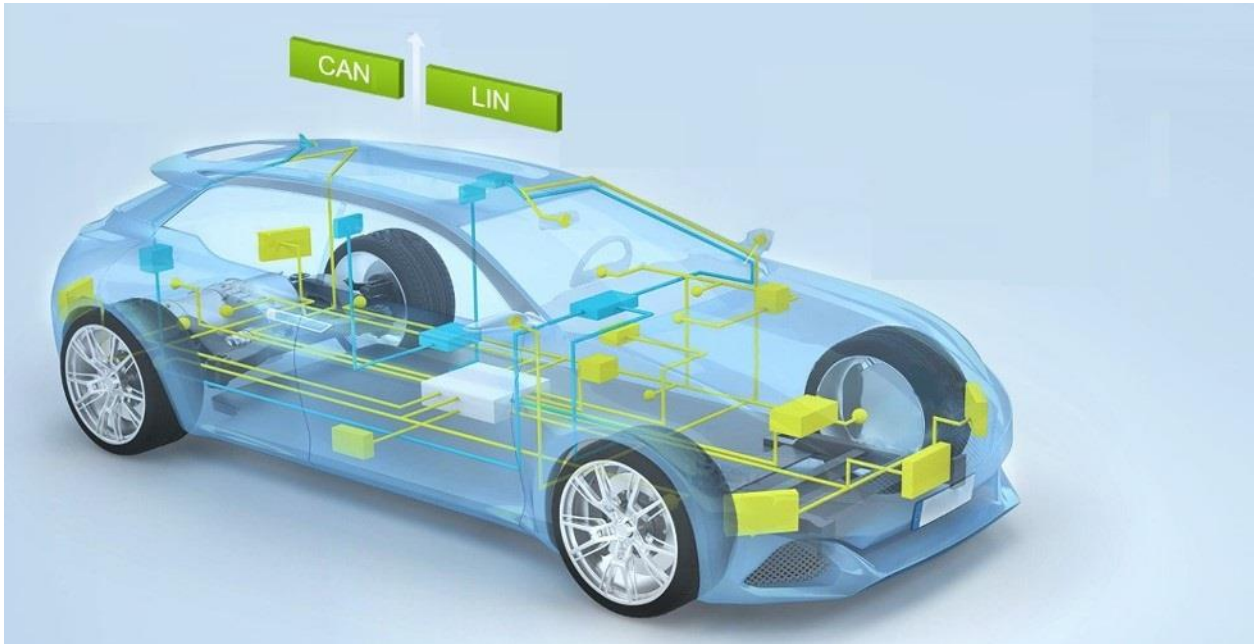
Features

- AEC-Q100 Qualified (Grade 2)
- Electrical Operation Performance:
 - Power Supply Voltage: 2.5V~3.6V
 - Operating Current: 150μA
 - Shutdown Current: Less Than 10μA
 - Operation Temperature: -40°C to +105°C
- Ambient Light Sensing:
 - ALS Channel with Photopic Coating and CLEAR Channel Without Coating
 - Programmable Gain Settings from 256x to 1x
 - Programmable Integration Time Settings Ranging from 25ms to 800ms
- Programmable Sleep Time Between Two Sequential ADC Cycles for Power-Saving
- High Sensitivity 0.0002 Lux/Count at IT=800ms and Gain=256x
- Measurement Range: 0.0002~107k Lux for ALS Channel
- Hardware Interrupt Pin with Programmable Configuration
- BT Substrate with Transparent Molding Compound
- Package Size: 2.0×2.0×0.6mm³

Applications

- HUD
- CID
- CMS

ESD Protection



LIN Bus TVS Protection

SAT01N24AMA



Features

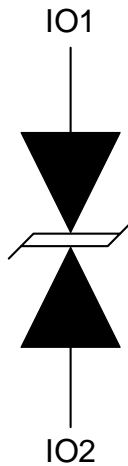
- Transient protection for high-speed data lines
- IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (Air) $\pm 30\text{kV}$ (Contact)
- IEC 61000-4-5 (Surge) 4A (8/20 μs)
- Protects one automotive LIN-bus line
- Low capacitance: 12pF (Typical)
- Low leakage current: 0.01 μA @ VRWM (Typical)
- Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge
- AEC-Q101 Qualified
- SOD-323 package

Applications

- LIN Bus Protection

SAT11N24AMO

LIN Bus TVS Protection



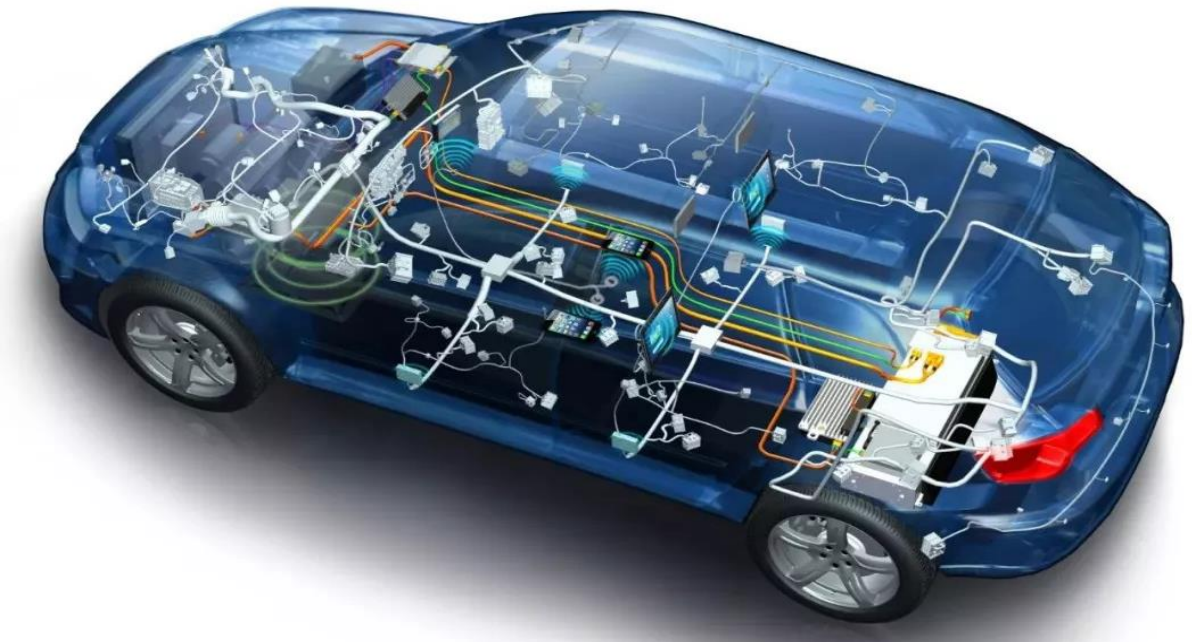
Features

- Transient Protection for Data Lines
 - IEC61000-4-2 (ESD) $\pm 30\text{kV}$ (Air) $\pm 30\text{kV}$ (Contact)
 - IEC61000-4-5 (Surge) 8A (8/20 μs)
- Low Capacitance: 23pF (Typical)
- Low Leakage Current: 0.01 μA at VRWM (Typical)
- AEC-Q101 Qualified

Applications

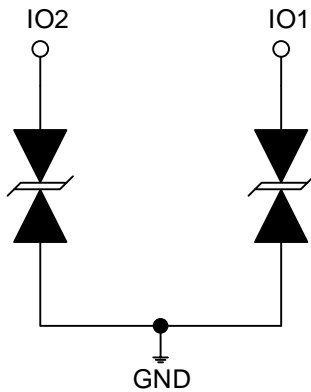
- LIN Bus Protection
- Automotive Applications

ESD Protection



CAN Bus TVS Protection

SAT03N24AOT



Features

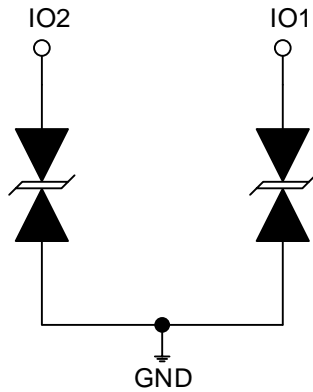
- Operating Voltage: 24V and Below
- Transient Protection for Data Lines
 - IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (Air) $\pm 30\text{kV}$ (Contact)
 - IEC 61000-4-5 (Surge) 4A (8/20 μs)
- Low Capacitance: 12pF (Typical)
- Low Leakage Current: 0.01 μA at VRWM (Typical)
- Can Be Used for Data, Control, or CAN Bus Lines Protection
- AEC-Q101 Qualified

Applications

- CAN/CAN-FD Bus Protection
- Automotive Applications

SAT13N24AOT

CAN Bus TVS Protection



Features

- Transient Protection for Data Lines
- IEC61000-4-2 (ESD) $\pm 30\text{kV}$ (Air) $\pm 30\text{kV}$ (Contact)
- IEC61000-4-5 (Surge) 8A (8/20 μs)
- Low Capacitance: 23pF (Typical)
- Low Leakage Current: 0.01 μA at VRWM (Typical)
- Can Be Used to Protect Data, Control, or CAN Bus Lines
- AEC-Q101 Qualified

Applications

- CAN/CAN-FD Bus Protection
- Automotive Applications

ESD Protection

Ultra-Low Capacitance TVS Protection

SAT21S05DWD



Features

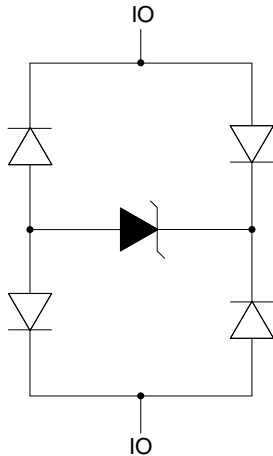
- Operating Voltage: 5V and Below
- Transient protection for high-speed data lines
 - IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (Air) $\pm 30\text{kV}$ (Contact)
 - IEC 61000-4-5 (Surge) 4.5A (8/20 μs)
- Protects One Data, Control or Power Line
- Low Capacitance: 0.5pF (Typical)
- Low Leakage Current: 0.01 μA at VRWM (Typical)
- Low Clamping Voltage
- AEC-Q101 Qualified

Applications

- Serial ATA
- PCI Express
- Desktops, Servers, and Notebooks
- MDDI Ports
- USB 2.0, 3.0 and 3.1
- Display Ports
- HDMI 1.3, 1.4, 2.0 and 2.1
- Digital Visual Interfaces (DVI)
- Automotive Applications

SAT21A05DWD

Ultra-Low Capacitance High-Speed TVS



Features

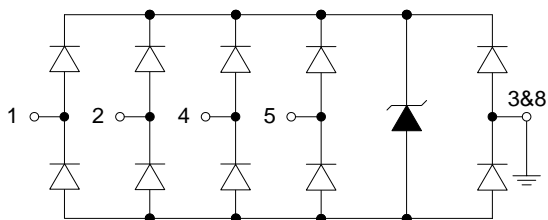
- Operating Voltage: 5V and Below
- Transient Protection for High-Speed Data Lines
 - IEC 61000-4-2 (ESD) $\pm 20\text{kV}$ (Air) $\pm 20\text{kV}$ (Contact)
 - ISO-10605 $\pm 20\text{kV}$ (Air) $\pm 20\text{kV}$ (Contact)
 - IEC 61000-4-5 (Surge) 10A (8/20 μs)
- Ultra-Low Capacitance: 0.25pF
- Low Clamping Voltage
- Not Suitable for VBUS or Other Constant DC Lines
- AEC-Q101 Qualified

Applications

- USB Type-C
- USB2.0&3.x
- HDMI 1.3, 1.4 and 2.0

ESD Protection

SAT46S03DVD



Ultra-Low Capacitance TVS Protection



Features

- Operating Voltage: 3.3V and Below
- Transient Protection for High-speed Data Lines
 - IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (Air) $\pm 30\text{kV}$ (Contact)
 - ISO-10605 $\pm 30\text{kV}$ (Air) $\pm 30\text{kV}$ (Contact)
 - IEC61000-4-5(Surge) 6A (8/20 μs)
- Protect Four High-Speed Data Lines
- Ultra-Low Capacitance: 0.4pF (Typical)
- Low Clamping Voltage
- AEC-Q101 Qualified

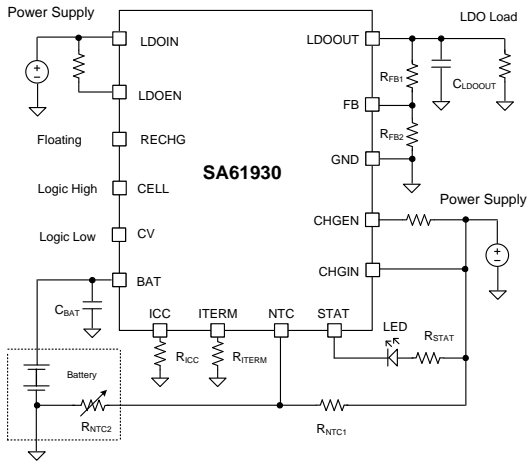
Applications

- USB2.0&3.x, USB Type-C
- HDMI 1.3, 1.4, 2.0 and 2.1
- V-By-One
- Display Ports
- 10G Ethernet Ports
- TV and Set-Top Box
- PCI Express and SATA Ports
- Automotive applications

Battery

SA61930QIA

500mA Linear Regulator and 400mA Linear Charger



Features

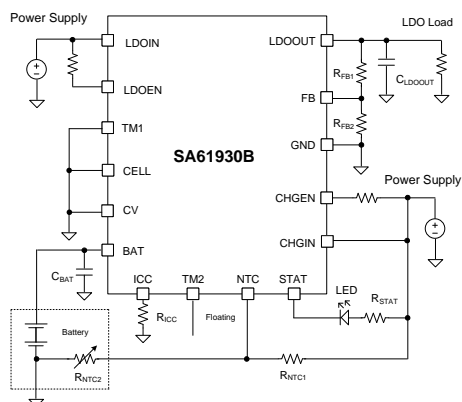
- 4.5V~36V Wide Input Operation Voltage Range
- Integrated a 500mA Linear Regulator with Over Load and Short Circuit Protection
- Integrated a 400mA Linear Charger
- Support 1-cell or 2-cell Li-ion and Li-polymer Batteries
- Support 4.05V, 4.1V and 4.2V Cell Voltage Battery
- $\pm 0.5\%$ Battery Charge Voltage Accuracy
- Programmable Constant Charge Current and Termination Current
- 100mA~400mA Constant Charge Current with $\pm 10\%$ Accuracy
- 20mA~100mA Termination Current with $\pm 20\%$ Accuracy
- Thermal Regulation and Thermal Shutdown
- Compact Package: QFN4 \times 4-16
- AEC-Q100 Grade1 Qualified

Applications

- T-box
- Portable Battery-powered Equipment

500mA Linear Regulator and 100mA Linear Charger for Automotive Battery Backup System

SA61930BQIA



Features

- 4.5V-36V Wide Input Operation Voltage Range
- Integrated a 500mA Linear Regulator with Over Load and Short Circuit Protection
- Integrated a 100mA Linear Charger
- Support up to 2-cell Ni-MH Batteries by Linear Charging
- $\pm 0.5\%$ Battery Charge Voltage Accuracy
- Programmable Constant Charge Current
- 20mA~100mA Constant Charge Current with $\pm 20\%$ Accuracy
- Thermal Regulation and Thermal Shutdown
- Compact Package: QFN4 \times 4-16
- AEC-Q100 Grade1 Qualified

Applications

- T-box
- Portable Battery-Powered Equipment

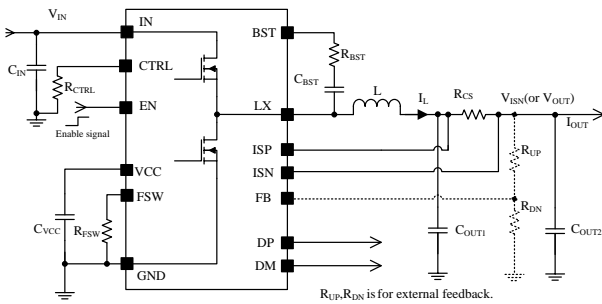
Battery



BUB in T-box

SA61931QCA

4.5- 40V Wide Input, 3A High Efficiency
CV/CC Step-Down Regulator with USB and QC3.0 Handshaking



Features

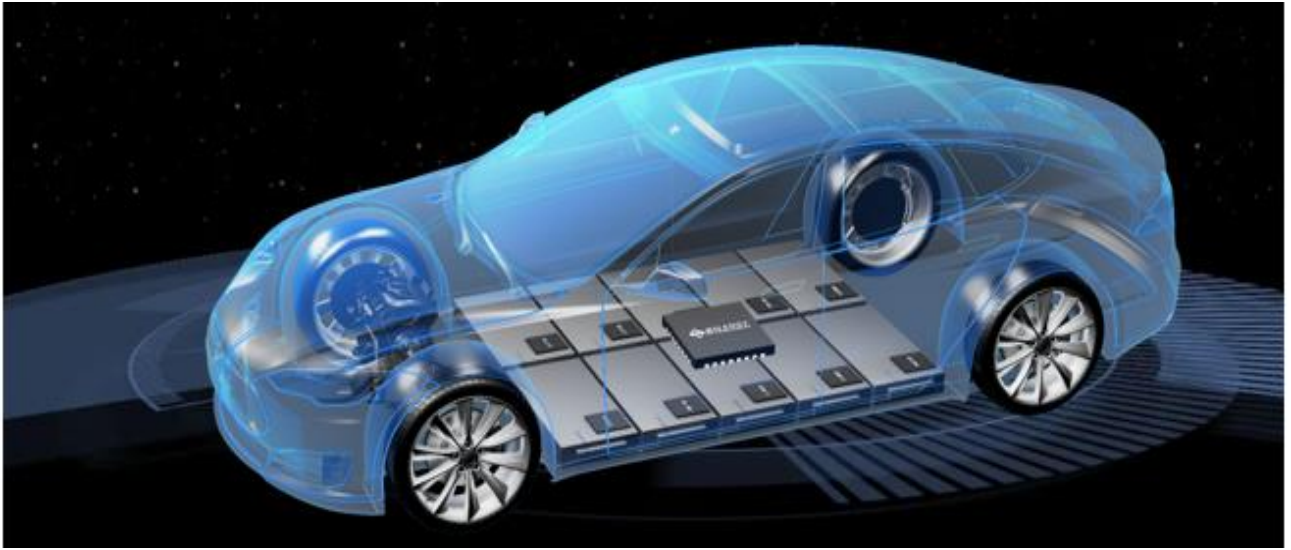
- 4.5-40V Wide Input Voltage Range
- Built in Low $R_{DS(ON)}$ Power Switches
- 60-400kHz Programmable Switching Frequency
- Cable Voltage Drop Compensation
- Output Constant Current Limit
- Maximum 5V/3A Output Power
- Maximum 9V/2A Output Power
- Maximum 12V/1.5A Output Power
- Integrated Soft-start and Compensation
- Hiccup Mode During Output Short
- Input Voltage UVLO and OVP
- Output Over Voltage Protection
- Thermal Shutdown Protection
- Output Apple-divide Mode, DCP and QC3.0 Handshaking
- QC 3.0 Certificate
- 8kV ESD HBM Protection on DP and DM
- AEC-Q100 Grade1 Automotive Qualified
- Compact Package: QFN4x4-24

Applications

- Car Charger
- Cigarette Lighter Adapter
- Other CV/CC Applications

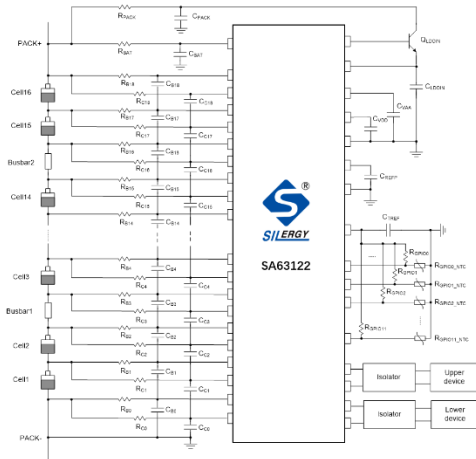
[Back](#)

BMS AFE



SA63122GGF SA63122AGGF

18S Monitor and Passive Cell Balancer for Automotive Battery Management System



Features

- Measure 6 to 18 cells with 16-bit ADC, up to 100V
- 18-channel battery cell or bus bar voltage measurement
 - $\pm 1\text{mV}$ accuracy (1.5V to 4.5V, 25°C)
 - $\pm 3\text{mV}$ accuracy (1.5V to 4.5V, -20°C to 65°C)
 - $\pm 5\text{mV}$ accuracy (-2V to 5V, -40°C to 125°C)
- 12 channels GPIO for battery pack temperature measurement
 - $\pm 0.12\%$ V_{TREF} accuracy (10% V_{TREF} to 90% V_{TREF} , -20°C to 65°C)
 - $\pm 0.24\%$ V_{TREF} accuracy (0 to 100% V_{TREF} , -40°C to 125°C)
- Integrated balance FETs, 300mA per channel
 - Smart thermal management (cell, PCB, die)
 - Auto-pause balance during ADC measurement
 - Online PWM adjustable balance current
 - Offline balance when host is sleep
- Reversely wake host up on OVUV/OTUT when host is sleep
 - Programmable de-bouncing counter
 - Two OTUT thresholds (cell, PCB) for each channel
- Robust daisy-chain communication
 - High speed reading 218 cells within 4.8ms
 - One command smart addressing scheme
 - Optional ring architecture
- GPIOs supports I2C master
- AEC-Q100 grade1: -40°C to +125°C
- ASIL-D Functional Safety-Compliant
- Package: TQFP 10×10 -64E

Applications

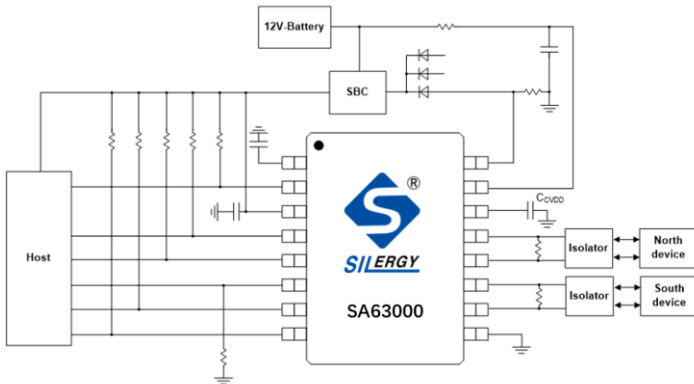
- High-Voltage Battery Stacks
- Electric Vehicles and Hybrid Electric Vehicles
- Backup Battery Systems





SA63000HFP
SA63000AHFP
SA63000BHFP

SPI Communication Transceiver
for Automotive Battery Management System



Features

- 12V/5V Operation Voltage
- ASIL-D Functional Safety-Capable
- SPI Interface: 2MHz-6MHz
- 256-Byte TX FIFO and 32-Byte RX FIFO
- 2 Operating Modes
 - Sleep Mode: Support reversely wake-up host with 5uA quiescent current
 - Active Mode: Support ring architecture communication and asserting fault to inform host
- AEC-Q100 Grade1: -40°C To +125°C
- ASIL-D Functional Safety-Capable
- Package Info: TSSOP16E

Applications

- Battery Management Systems (BMS)
- Electric and Hybrid Vehicles (EV/HEV)

[Back](#)

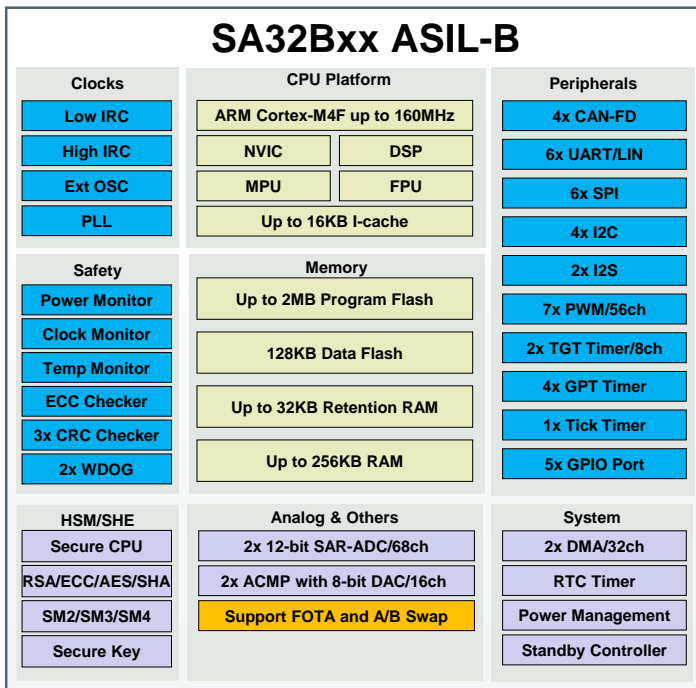
MCU

The SA32 B-series of Arm® Cortex®-M4F based MCUs provides high-reliability solutions for automotive applications with rich peripherals and various package offerings. This series meets AEC-Q100 Grade1 standard and ISO26262 ASIL-B level function safety. With its performance, reliability and function safety design, this series is suited for automotive applications such as BCM, T-Box, OBC, BMS, HVAC, TMS, Cluster, Lighting, etc.

Part Number	CPU	Freq (MHz)	C-Flash (KB)	D-Flash (KB)	SRAM (KB)	CAN	UART/LIN	SPI	Security	Package	Targeted Applications
SA32B12QEQ	M4F	120	128	128	64	1	2	1	SHE	QFN5x5-32	Body Control, Smart Cockpit, T-BOX, OBC, BMS, HVAC, Lighting, WPC, etc.
SA32B12AQEQ	M4F	120	128	128	64	1	2	2	SHE	QFN5x5-32	
SA32B12GFF	M4F	120	128	128	64	3	3	3	SHE	LQFP7x7-48	
SA32B14GFF	M4F	120	256	128	64	3	3	3	SHE	LQFP7x7-48	
SA32B14GDF	M4F	120	256	128	64	3	4	3	SHE	LQFP10x10-64	
SA32B16GFF	M4F	120	512	128	64	3	3	3	SHE	LQFP7x7-48	
SA32B16GDF	M4F	120	512	128	64	3	4	3	SHE	LQFP10x10-64	
SA32B16GEF	M4F	120	512	128	64	3	4	4	SHE	LQFP14x14-100	
SA32B19GEF	M4F	160	1M	128	256	3	4	4	HSM	LQFP14x14-100	
SA32B20GEF	M4F	160	2M	128	256	3	4	4	HSM	LQFP14x14-100	
SA32B20GLF	M4F	160	2M	128	256	4	6	6	HSM	LQFP20x20-144	

➤ **Block Diagram**

➤ **Application**



➤ SA32B Ecosystem



- Documents**
- DS/RM/Errata
 - HW Design Guide
 - Application Notes



- Application Demo**
- T-BOX/BMS/AVAS
 - Rear Lighting
 - AC Compressor



- Evaluation Board**
- General EVB Suit
 - Auto Lighting EVB
 - Auto BMS EVB



- Software Develop Kit**
- SDK Library
 - Safety Library
 - HSM Security Library
 - FOTA & SecureBoot



- AUTOSAR & BSW**
- AUTOSAR MCAL Lib
 - EB Configuration Tool
 - MCAL Configuration Service
 - 3rd Party AUTOSAR OS/BSW



- Debugger & IDE**
- U-LINK/J-LINK/I-JET
 - PEmicro/Lauterbach
 - KEIL/IAR/GHS
 - Vscode+GCC



- MCU Programmer**
- ACROVIEW
 - Maxwiz
 - Pemicro
 - DataIO



- Safety & Cyber Security**
- ISO26262 Certification
 - ISO21434 Certification
 - Safety Manual
 - FMEDA Report

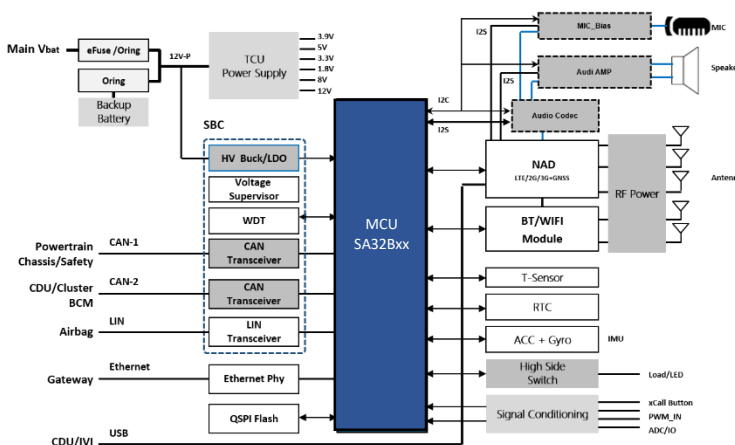


- Quality & Reliability**
- AEC-Q100 Report
 - PPAP Report
 - EMC/LU Report
 - ASPICE Certification

➤ SA32B Target Application: T-Box

Key Features

- Big capacity flash 512KB-2MB;
- Support several low-power modes, the smallest standby current of $\leq 50\mu A$
- Rich peripherals, including LIN/CAN/SPI/UART/PWM, etc.;
- Support high precision analog peripherals, 2x 12-bit/1Mbps SAR ADC (total 32/68 channels), 2x ACMP ;
- Support SHE/HSM, Secure Boot, AES/RSA, SM2/3/4, etc.;
- Multiple Packages, LQFP64/100/144



Silergy Solutions

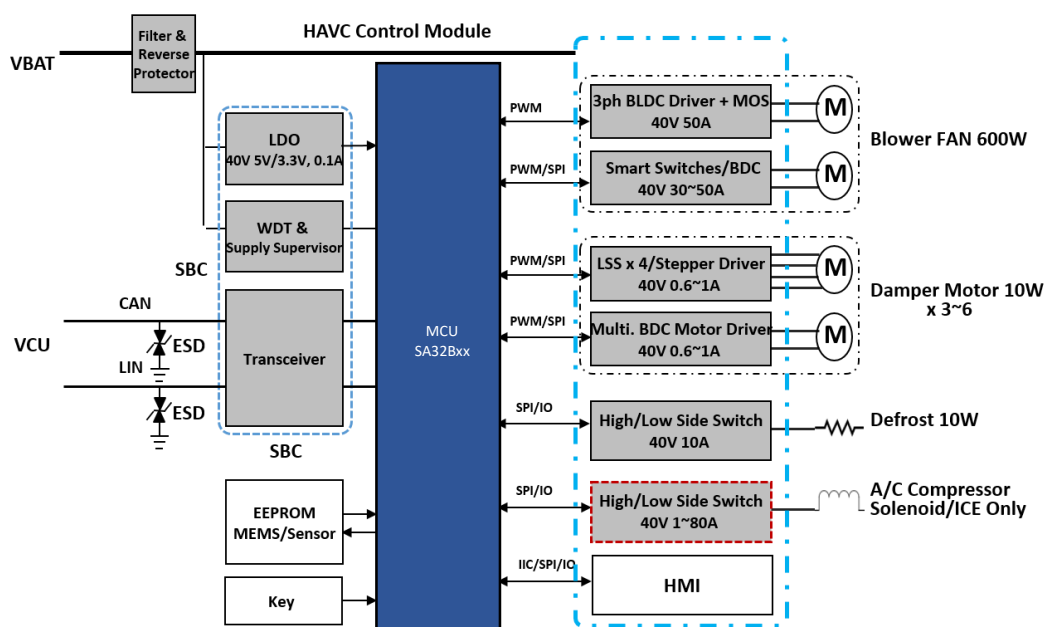
Product	Function	Key Features	Package
SA32B16	MCU	M4F, 120MHz, 512KB Flash, SHE	LQFP64/100
SA32B19/20	MCU	M4F, 160MHz, 1MB/2MB Flash, HSM	LQFP100/144
SA51034	Audio Amp	8W mono Class-D, I ² C	TSSOP16E
SA51500 SA51510	Audio Amp	10W mono Class-D, I ² C, 40V Load Dump 22W mono Class-D, I ² C, 40V Load Dump	TSSOP16E

MCU

➤ SA32B Target Application: HVAC

Key Features

- Big capacity flash 512KB-2MB;
- Support several low-power modes, the smallest standby current of $\leq 50\mu\text{A}$;
- Rich peripherals, including LIN/CAN/SPI/UART/PWM, etc.;
- Support high precision analog peripherals, 2x 12-bit/1Mbps SAR ADC (total 32/68 channels), 2x ACMP ;
- Support SHE/HSM, Secure Boot, AES/RSA, SM2/3/4, etc.;
- Multiple Packages, LQFP64/100/144



Silergy Solutions

Product	Function	Key Features	Package
SA32B16	MCU	M4F, 120MHz, 512KB Flash, SHE	LQFP48/64/100
SA32B19/20	MCU	M4F, 160MHz, 1MB/2MB Flash, HSM	LQFP100/144
SA52108	Motor Driver	8-half bridge driver	TSSOP24E
SA52112	Motor Driver	12-half bridge driver	QFN5x5-24
SA21345A	LDO	36V, 300mA LDO	SO8E

➤ SA32B Target Application: LV BMS

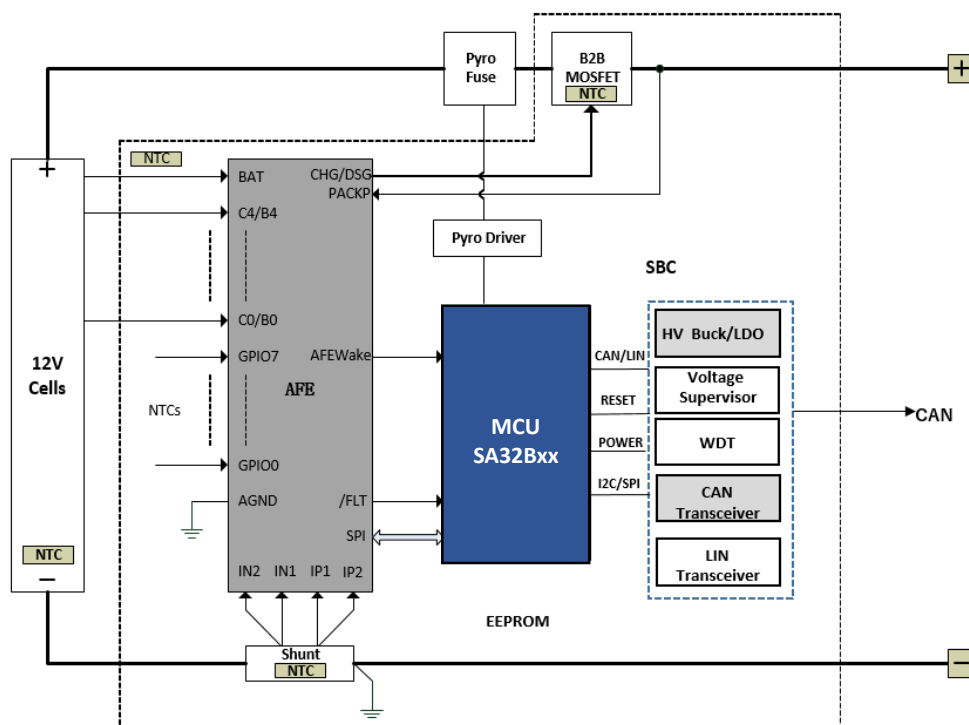
Key Features

SA32B Series

- Big capacity flash 512KB-2MB;
- Support several low-power modes, the smallest standby current of $\leq 50\mu\text{A}$;
- Rich peripherals, including LIN/CAN/SPI/UART/PWM, etc.;
- Support high precision analog peripherals, 2x 12-bit/1Mbps SAR ADC (total 32/68 channels), 2x ACMP ;
- Support SHE/HSM, Secure Boot, AES/RSA, SM2/3/4, etc.;
- Multiple Packages, LQFP64/100/144

AFE and Bridge

- 4s AFE;
- ASIL-D Compatible in Active Mode



Silergy Solutions

Product	Function	Key Features	Package
SA32B16	MCU	M4F, 120MHz, 512KB Flash, SHE	LQFP48/64/100
SA32B19/20	MCU	M4F, 160MHz, 1MB/2MB Flash, HSM	LQFP100/144
SA63654	AFE	4S AFE, ASIL-D compatible	QFN40

➤ SA32B Target Application: Rear Lighting

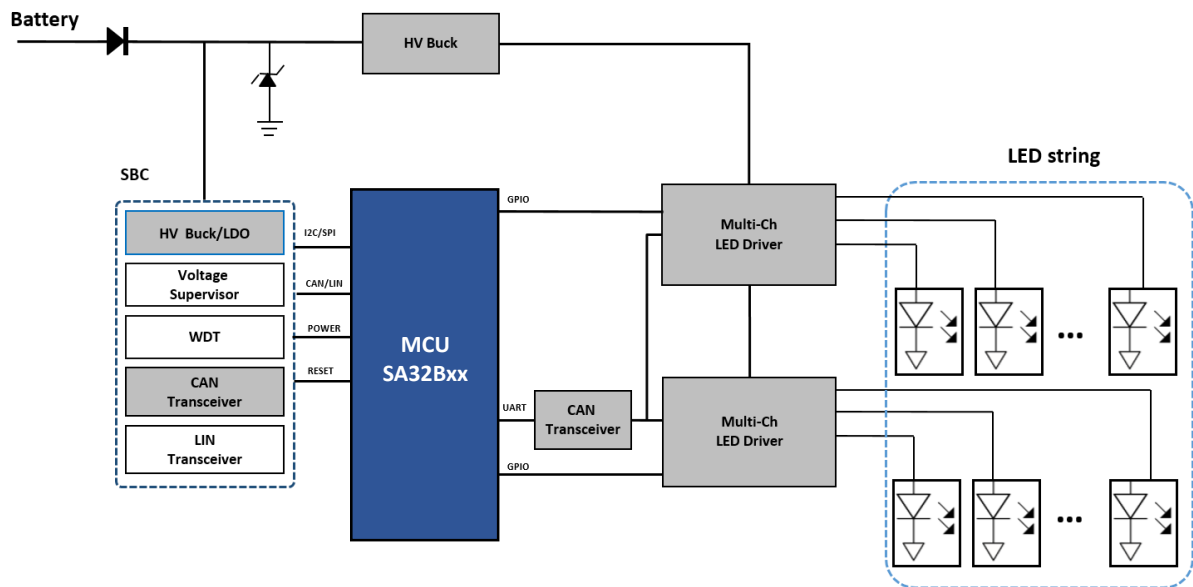
Key Features

SA32A/B Series

- Big capacity flash 64-256KB;
- Support several low-power modes, the smallest standby current of $\leq 6\mu\text{A}$;
- Rich peripherals, including LIN/CAN/SPI/UART/PWM, etc.;
- Support high precision analog peripherals;
- Multiple Packages, QFN32, LQFP48/64;

24-Channel LED driver

- 24 Chn, each channel support up to 100mA current;
- Up to 2Mbps UART Over CAN to improve EMI
- Support Cascade connection by multiple chips.



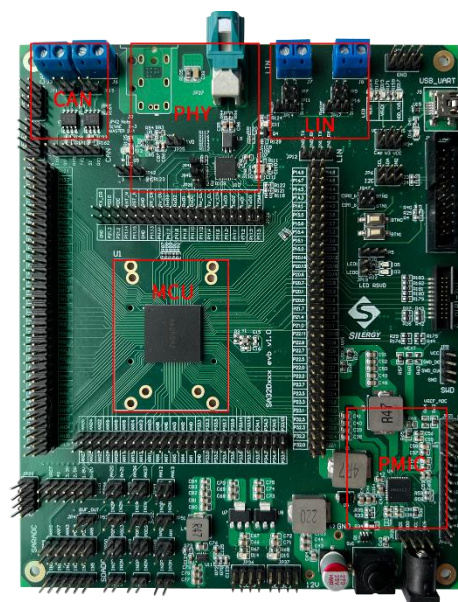
Silergy Solutions

Product	Function	Key Features	Package
SA32A12/10	MCU	M0, 72/64MHz, 128/64KB Flash	LQFP64/48, QFN32
SA32B14/12	MCU	M4F, 120MHz, 256/128KB, Flash, SHE	LQFP64/48, QFN32
SA32774	LED Driver	24 CHN, Max current 100mA for each CHN	QFN48

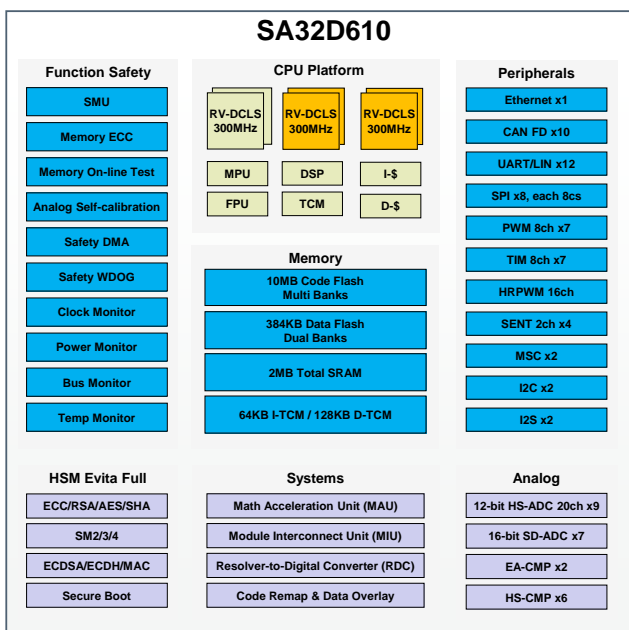
SA32D610/408 is a high performance and high robust MCU designed for Automotive market. This chip supports lockstepped multi-core architecture, large on-chip Flash and SRAM memory, EVITA Full level HSM security engine, and rich kinds of peripherals. It's also incorporated with miscellaneous redundant designs to meet the function safety standards of ISO26262 ASIL-D level. With multi-core performance and ASIL-D level function safety, this chip is well suit for applications like Zone/Domain Control, Traction Inverter, BMS, EPS, ADAS, Smart Cockpit, OBC/DCDC/PDU, etc.

Part Number	CPU	Freq (MHz)	C-Flash (KB)	D-Flash (KB)	SRAM (KB)	CAN	UART/LIN	SPI	Security	Package	Targeted Applications
SA32D408NLG	RSIC-V	300	8M	384	1344	10	12	8	HSM	BGA17x17-292	Traction inverter, 400V/800V BMS, ZCU, ONE-BOX, ADAS, etc.
SA32D610NLG	RSIC-V	300	10M	384	2048	10	12	8	HSM	BGA17x17-292	
SA32D610NMG	RSIC-V	300	10M	384	2048	10	12	8	HSM	BGA21x21-373	

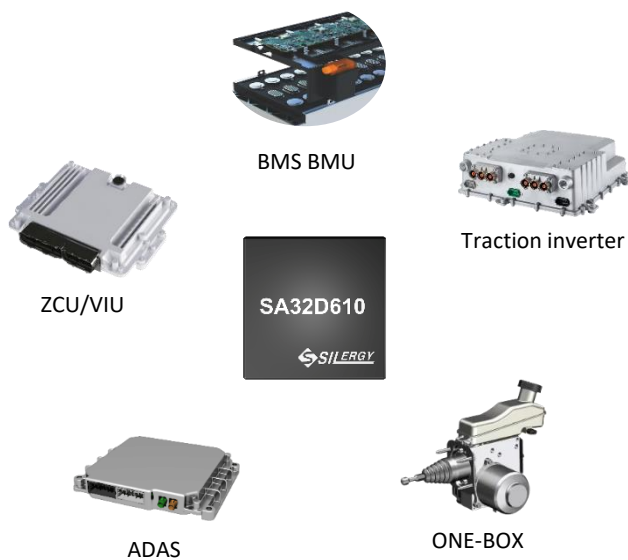
- 6x high performance RISC-V CPU, support configurable lockstep/split mode, max Frequency 300MHz, up to 6KDMIPS with five core mode
- 10MB Code Flash, 2MB SRAM and 384KB dedicated Data Flash, support FOTA upgrade and A/B Swap
- HSM security engine with EVITA Full level, support SHA/AES/RSA/ECC, SM2/3/4, TRNG, Secured Key Storage and Unique ID, support Secure Boot and MAC Authentication
- 10x CAN-FD and 1x Ethernet MAC, 1Gbps, support RGMII/RMII interface
- 9x 12-bit High Speed ADCs rate to 2Msps, each with up to 20 external channels
- 7x 16-bit High Accuracy Sigma-Delta ADCs
- 8x High Speed Comparators
- 16ch High Resolution PWM Timers, support 195ps high resolution
- Package: BGA373, BGA292



➤ Block Diagram



➤ Application



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Contact Us

Silergy Corp. was founded by a group of technology innovators and business leaders with an average 30 years' experience. We design innovative mixed-signal and analog ICs that utilize our industry-leading process technologies. Widely used in automotive, industrial, consumer, computing and communication devices, our products are designed to improve efficiency and to conserve or measure energy use.

Silergy Corp is a Cayman Island company with its operations headquarters in Hangzhou, China. The company stock is traded on Taiwan Stock Exchange (TWSE: 6415).

We are committed to providing industry-leading performance at an affordable solution cost.

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