

A798x, A597x switching regulators for car power management



Complete offer of compact monolithic buck switching regulators for automotive applications up to 38 V and 3 A

To satisfy the specific requirements of the automotive market, ST offers a comprehensive portfolio of monolithic buck asynchronous regulators, qualified in compliance with AEC-Q100 specifications. The low $R_{DS(on)}$ (typical value of 200 m Ω) and the fast conduction times of the power element, combined with the high switching frequency (programmable up to 1 MHz), ensure the best trade-off between application efficiency and compactness. The high thermal performance of SO8 and HSOP8 packages, together with their compactness make them ideal solutions for in-vehicle applications.

KEY FEATURES

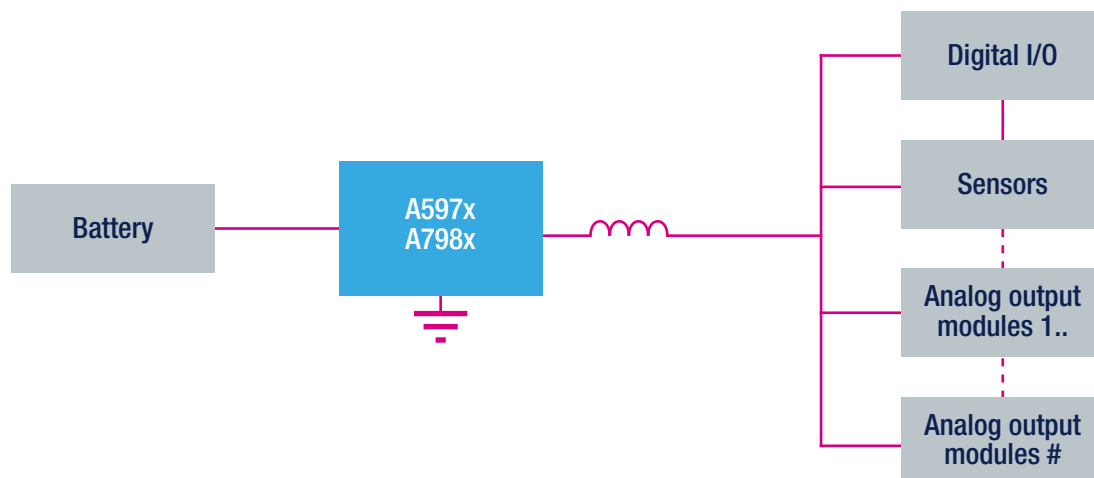
- AEC-Q100 qualified
- Operating input voltage range from 4 to 38 V
- Output voltage can be adjustable from 0.6 V
- Up to 3 A DC output current
- 250 kHz to 1 MHz programmable switching frequency
- Synchronization function
- Inhibit/Enable for zero current consumption
- P-MOS high-side with 100 % duty cycle for cold crank events
- Voltage feed-forward
- Zero load current operation

- Overcurrent, overvoltage and thermal protection
- Small SO-8 and HSOP8 packages

IDEAL FOR

- Body: air conditioning, wiper control, power windows, seat control and car alarms
- Car infotainment: car radios, navigation systems and telematics boxes
- Power train: engine cooling and management and throttle driving
- Safety and chassis: airbag systems, anti-lock brakes, traction control, electric power steering and suspension

BLOCK DIAGRAM



DEVICE SUMMARY

Part number	Package	Min. input voltage (V)	Max. input voltage (V)	Absolute maximum rating (V)	Min. input voltage (V)	Max. output current (A)	Typ. quiescent current (mA)	Inhibit / Enable Pin	Soft-start	Switching frequency (Hz)	External switching frequency (Hz)
A5975D	PowerSO-8	4	36	40	1.235	3	2.5	INH	N	250	250 - 700
A5975AD	PowerSO-8	4	36	40	1.235	2.5	2.5	INH	N	500	500 - 700
A5974D	PowerSO-8	4	36	40	1.235	2.5	2.5	INH	N	250	250 - 700
A5974AD	PowerSO-8	4	36	40	1.235	2	2.5	INH	N	500	500 - 700
A5973D	PowerSO-8	4	36	40	1.235	2	2.5	INH	N	250	250 - 700
B5973D	PowerSO-8	4	36	40	1.235	2	2.5	INH	N	250	250 - 700
A5973AD	PowerSO-8	4	36	40	1.235	1.5	2.5	INH	N	500	500 - 700
A5972D	SO-8	4	36	40	1.235	1.5	2.5	No	N	250	250 - 700
A5970D	SO-8	4	36	40	1.235	1	2.5	INH	N	250	250 - 700
A5970AD	SO-8	4	36	40	1.235	1	2.5	INH	N	500	500 - 700
A7986A	PowerSO-8	4.5	38	45	0.6	3	2.4	EN	Y	250 - 1000	250 - 1000
A7985A	PowerSO-8	4.5	38	45	0.6	2	2.4	EN	Y	250 - 1000	250 - 1000
A6902D	SO-8	8	36	40	1.235	1	2.5	No	N	250	-

