

AST1S3x family

Power optimization for post-regulated automotive systems



Up to 6 A, 5.5 V monolithic synchronous step-down DC-DC converters

Advanced navigation and telematics applications require highly-efficient, high-current DC-DC conversion from an intermediate rail in a cascade connection. ST is addressing this market with a new family of synchronous DC-DC converters dedicated to 3.3 V and 5 V buses, allowing a very high power density.

This family offers a compact and innovative solution for the latest generation of infotainment systems.

KEY FEATURES

- Input voltage range: up to 5.5 V
- Output current: up to 6 A
- Switching frequency: up to 2.3 MHz
- Synchronous rectification
- Low RDS(on)
- Full embedded protection

KEY BENEFITS

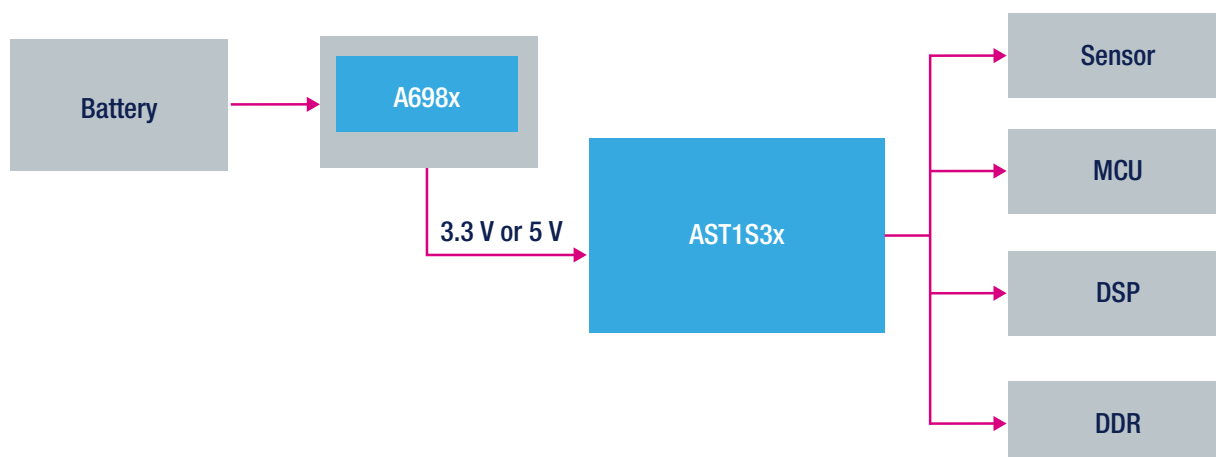
- High robustness and reliability
- High design flexibility
- Low BOM cost
- High efficiency
- Power saving

MAIN APPLICATIONS

- Infotainment systems
- Telematics platforms
- Multimedia connectivity
- Camera modules



BLOCK DIAGRAM



DEVICE SUMMARY

Part number	AST1S31	AST1S31HF	AST1S33	AST1S36
Package	DFN 3x3 8L	DFN 3x3 8L	QFN 3x3 16L	QFN 3x3 16L
Input voltage range (V)	2.8 to 4	2.8 to 4	2.9 to 5.5	2.9 to 5.5
Maximum output current (A)	3	3	3	6
Operating quiescent current (mA)	0.63	0.63	1	1
RDS(on) HS/LS (Ω)	70/55	70/55	15/15	15/15
Output voltage range (V)	0.8 to V_{IN}	0.8 to V_{IN}	0.6 to 0.9 V_{IN}	0.6 to 0.9 V_{IN}
Switching frequency (MHz)	1.5	2.3	0.5/1/2	0.5/1/2
External switching frequency (kHz)	n.a.	n.a.	up to 2000	up to 2000
Other features	Enable pin, power good	Enable pin, power good	Enable pin, adjustable soft start, power good	Enable pin, adjustable soft start, power good
Operating junction temperature (Tj°C)	-40, 150	-40, 150	-40, 150	-40, 150
Low-noise/low-consumption selection mode	n.a.	n.a.	Yes	Yes

