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

MAIN APPLICATIONS
• Infotainment systems
• Telematics platforms
• Multimedia connectivity
• Camera modules

KEY BENEFITS
• High robustness and reliability
• High design flexibility
• Low BOM cost
• High efficiency
• Power saving

www.st.com/car-radio
### Block Diagram

```
Battery  | A698x  | AST1S3x  |
        | 3.3 V or 5 V |
AST1S31 | AST1S31HF | AST1S33 | AST1S36 |
        | Package    | Input voltage range (V) | Maximum output current (A) | Operating quiescent current (mA) | RDS(on) HS/LS (Ω) | Output voltage range (V) | Switching frequency (MHz) | External switching frequency (kHz) | Other features | Operating junction temperature (Tj°C) | Low-noise/low-consumption selection mode |
        | DFN 3x3 8L | 2.8 to 4 | 3 | 0.63 | 70/55 | 0.8 to V_{\text{in}} | 1.5 | n.a. | Enable pin, power good | -40, 150 | n.a. |
        | DFN 3x3 8L | 2.8 to 4 | 3 | 0.63 | 70/55 | 0.8 to V_{\text{in}} | 2.3 | n.a. | Enable pin, power good | -40, 150 | n.a. |
        | QFN 3x3 16L | 2.9 to 5.5 | 3 | 1 | 15/15 | 0.6 to 0.9 V_{\text{in}} | 0.5/1/2 | up to 2000 | Enable pin, adjustable soft start, power good | -40, 150 | Yes |
        | QFN 3x3 16L | 2.9 to 5.5 | 6 | 1 | 15/15 | 0.6 to 0.9 V_{\text{in}} | 0.5/1/2 | up to 2000 | Enable pin, adjustable soft start, power good | -40, 150 | Yes |
```

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