

Gen. 3 Automotive MOSFET

SGT MOSFET with Excellent Figure-of-Merit



PANJIT's third-generation Shielded-Gate Trench (SGT) MOSFETs are engineered for high-frequency DC/DC converters and automotive-grade reliability. Qualified to AEC-Q101 standards and rated for junction temperatures up to 175°C, these devices are ideal for demanding applications such as electric power steering (EPS), onboard DC/DC converters, and other critical power control systems. Featuring an outstanding figure of merit ($R_{DS(on)} \times Q_g$), excellent avalanche capability, and superior switching performance, PANJIT's SGT MOSFETs support compact, efficient, and thermally robust designs across a variety of power topologies, including LLC, PSFB, synchronous buck, and boost converters.

► Key Features

- Third-generation shielded-gate trench technology
- Extremely low figure of merit ($FOM=R_{DS(on)} \times Q_g$)
- Optimized for fast switching and minimal voltage spiking
- AEC-Q101 qualified and PPAP-capable

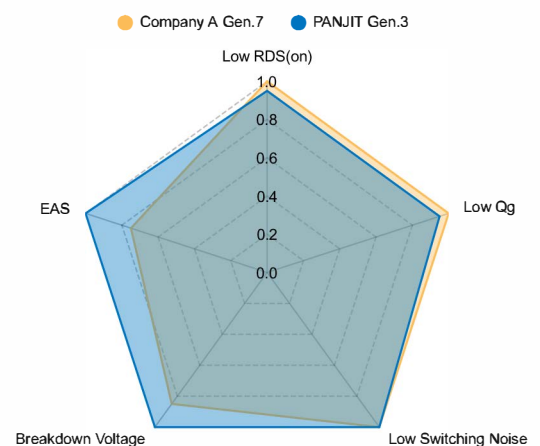
► Target Applications

- Motor drivers
- DC/DC modules
- Synchronous rectification

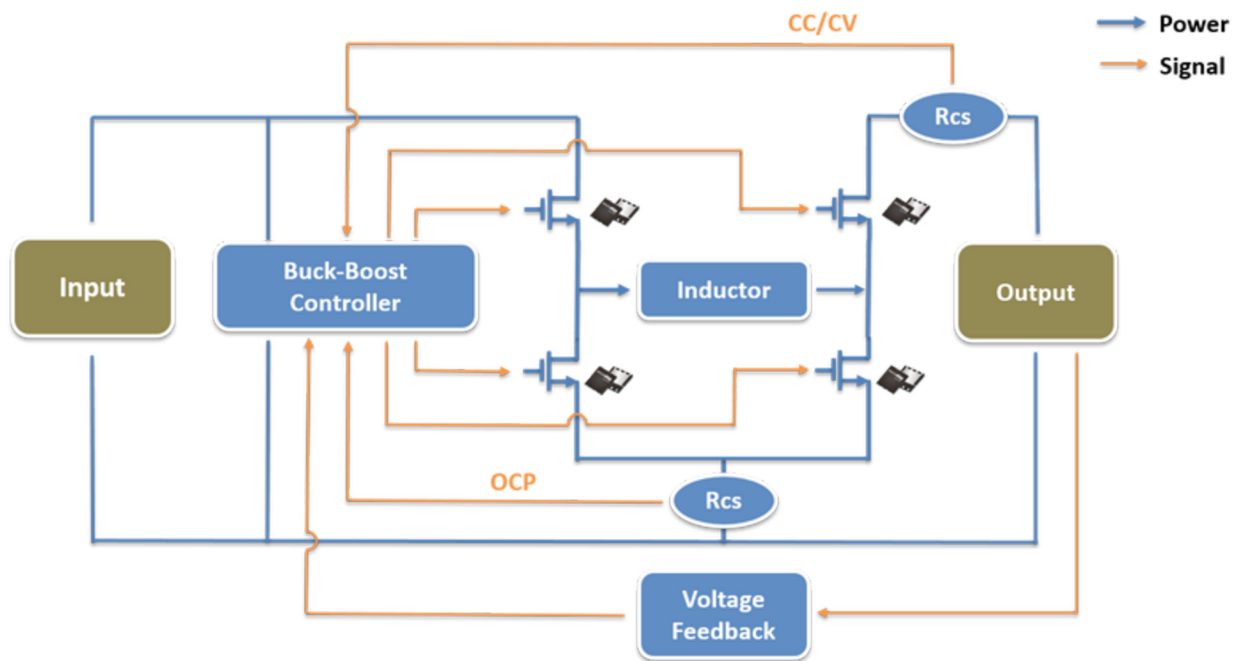
► Automotive-Grade MOSFET Roadmap

	2025	2026	2027
150 V			Under development Specifications TBD
100 V		$R_{DS(on)}$: Lowest @ 2.8 mΩ Package: DFN5060	
80 V		$R_{DS(on)}$: Lowest @ 1.3 mΩ Package: DFN5060	
60 V		Under development Specifications TBD	
40 V	$R_{DS(on)}$: Lowest @ 0.48 mΩ Package: DFN5060		

► Performance Comparison

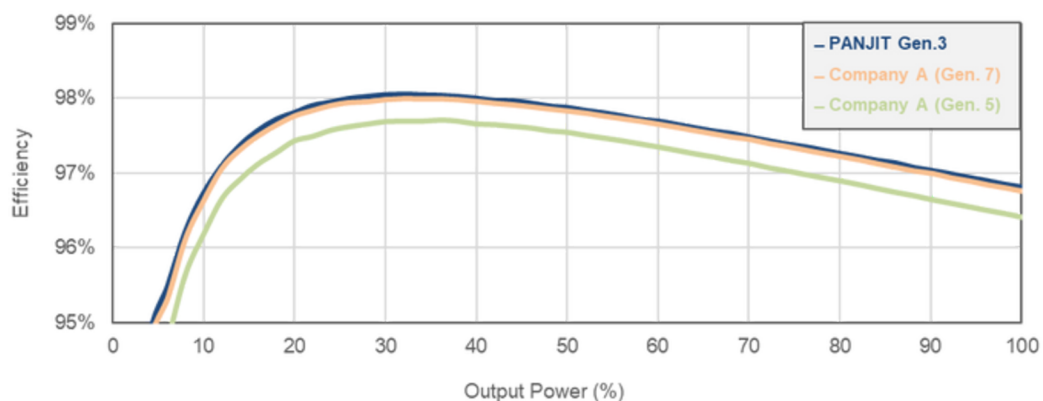


➤ Block Diagram of the Buck-Boost Converter



➤ Output Power vs. Efficiency Performance Comparison

300 W Buck (24 V to 12 V/25 A)
400 KHz operating frequency



288 W Boost (12 V to 24 V/12 A)
400 KHz operating frequency

