



SA110

400 V, ≥ 250 kHz Silicon Carbide Half H-Bridge Module



12-PIN POWER SIP PACKAGE (DP STYLE)

Footprint 31 mm x 30 mm

FEATURES

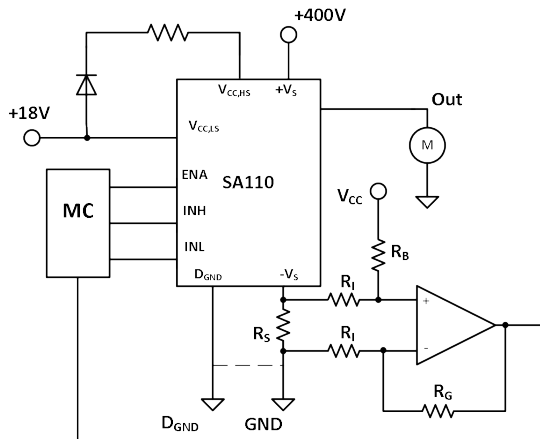
- High continuous output current – 28 A
- High supply voltage – 400 V
- Fast switching frequency – ≥ 250 kHz
- Integrated with digitally controlled gate drive drive
- Under-voltage lock-out and active Miller clamping

Product Overview

The SA110 is Apex Microtechnology's first high current, high voltage half H-bridge to utilize Silicon Carbide (SiC) MOSFETs with integrated gate drive. SiC MOSFETs provide a reduction in power loss compared to the more commonly used silicon or IGBT options. Benefits include reduced switching losses, lower conduction losses, and a low dependency of $R_{DS(on)}$ over temperature. The SA110 features integrated gate drive and control logic, a very high 400 kHz MAX switching frequency, and 28 A of continuous output current in the A grade variant. This hybrid is offered in a 12-pin PSIP package to provide a compact footprint and is designed with under-voltage lock-out and active Miller clamping protection features. With integration of the gate drive, switching behavior speeds are improved as parasitic impacts are reduced and easier to control. Silicon Carbide, along with the integrated gate drive, make SA110 the best choice for solutions where focus is on over temperature performance, high efficiency, and compact design.

Typical Applications

Designers can use the SA110 for applications in industrial, avionics, and military market segments. Example applications include sonar, brushless DC motor drivers, and DC/AC inverters.



Typical Brushless DC Motor Circuit

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Product Specifications - Key Parameters

Specification Parameter	Symbol	Max	Unit
Supply Voltage, Total	$+V_S$	400	V
Gate Driver Supply Voltage, relative to SiC MOSFET drain	$+V_{CC}$	22 (rel.)	V
Output Current, source, sink, peak, within SOA		40	A
Output Current, continuous		28	A
On-resistance, per MOSFET, Typical		30	mOhm
Power Dissipation, internal, continuous, per MOSFET	P_D	75	W
Switching Frequency, per phase		400	kHz