



**SURFACE MOUNT WITH HEAT TAB ON TOP 52-PIN QFP PACKAGE STYLE**

Body 20mm x 20mm

## Features

- Continuous output current - 32A
- Supply voltage - 650V
- 1MHz switching frequency
- Increased thermal efficiency - case temperature range from  $-40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$
- Internal Power Dissipation: 56W
- Surface mount package with top-side heatsinking
- Integrated gate drive with under-voltage lockout and active Miller clamping

# SA111PQ

## 650V, 32A Silicon Carbide Half-Bridge Power Module

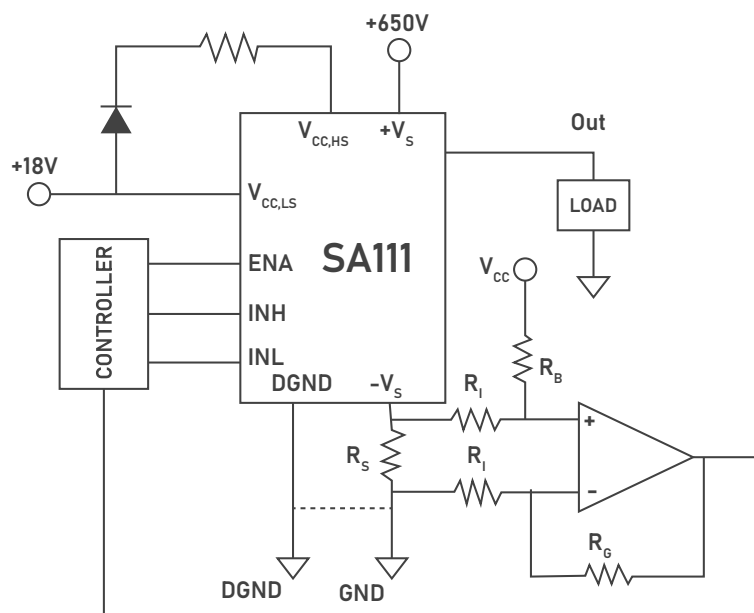
### Product Overview

Created with Silicon Carbide (SiC) technology and leading-edge package design, the SA111 is expanding the boundaries of thermal efficiency and power density in analog modules. In a surface mount package and with a body of just 20mm x 20mm, the SA111 can provide continuous output currents of 32A, manage supply voltages of up to 650V, and achieve switching frequencies of up to 1MHz\*. This thermally efficient package utilizes top-side heat sinking, allowing the user to maximize board layout. The SA111's Silicon Carbide MOSFETs enable the device to withstand higher thermal stress, managing junction temperatures of up to  $175^{\circ}\text{C}$ . The SA111 SiC power module offers a fully integrated solution allowing for increased device control and protection, featuring an integrated gate driver, under-voltage lockout, and active Miller clamping.

\*Within SOA

### Typical Applications

With the surface mount package style and exceptionally compact size, designers are afforded the ability to maximize board real estate, allowing for the use of multiple devices in circuit designs with high power requirements. A wide range of target applications include MRI gradient coil-drive, magnetic bearings, motor drive, test equipment, server-fans, Power Factor Correction (PFC), and AC/DC and DC/DC converters.



Typical Half-Bridge with Current Sense

# SA111PQ

650V, 32A Silicon Carbide Half-Bridge Power Module

## Product Specifications - Key Parameters

Specification Parameter	Symbol	Max	Unit
Supply Voltage, total	$+V_S$	650	V
Gate Driver Supply Voltage, relative to SiC MOSFET drain	$+V_{CC,LS}$	22 (rel.)	V
Output Current, source, sink, peak, within SOA		50	A
Output Current, continuous		32	A
On-Resistance, per MOSFET, Typical		30	m $\Omega$
Power Dissipation, internal, continuous, per MOSFET	$P_D$	56	W
Switching Frequency, within SOA		1000	kHz
Input Voltage, logic level		$+V_{CC,LS}$	V

Temperature: 25°C

POWER, PERFORMANCE, VALUE



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