

Description

Silicon Carbide (SiC) Schottky Diodes use a completely new technology that provides superior switching performance and higher reliability compared to Silicon. No reverse recovery current, temperature independent switching characteristics, and excellent thermal performance sets Silicon Carbide as the next generation of power semiconductor. System benefits include highest efficiency, faster operating frequency, increased power density, reduced EMI, and reduced system size & cost.

Features

- Max Junction Temperature 175°C
- Avalanche Rated 49 mJ
- High Surge Current Capacity
- Positive Temperature Coefficient
- Ease of Paralleling
- No Reverse Recovery/No Forward Recovery
- AEC-Q101 Qualified and PPAP Capable

Applications

- Automotive BEV-EV
- Automotive HEV-EV Onboard Chargers
- Automotive HEV-EV DC-DC Converters

MOSFET MAXIMUM RATINGS ($T_C = 25^{\circ}C$ unless otherwise noted)

Symbol	Parameter		Ratings	Unit
V _{RRM}	Peak Repetitive Reverse Voltage		650	V
E _{AS}	Single Pulse Avalanche Energy (Note 1)		49	mJ
IF	Continuous Recti- fied Forward Current	@ T _C < 25°C	23.6	A
		@ T _C < 140°C	10	
I _{F, Max}	Non–Repetitive Peak Forward	$T_{C} = 25^{\circ}C, 10 \ \mu s$	600	А
	Surge Current	T _C = 150°C, 10 μs	554	
I _{F, SM}	Non–Repetitive Forward Surge Current, T _C = 25°C	Half–Sine Pulse, t _p = 8.3 ms	45	A
P _{tot}	Power Dissipation	$T_{C} = 25^{\circ}C$	75	W
		T _C = 150°C	12.5	
T _J , T _{STG}	Operating and Storage Temperature Range		-55 to +175	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. E_{AS} of 49 mJ is based on starting $T_J = 25^{\circ}C$, L = 0.5 mH, $I_{AS} = 14$ A, V = 50 V.

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