

Silicon Carbide Power Schottky Diode Chip

Features

- 1200 V Schottky rectifier
- 250 °C maximum operating temperature
- Temperature independent switching behavior
- Superior surge current capability
- Positive temperature coefficient of V_F
- Extremely fast switching speeds
- Superior figure of merit Q_C/I_F



Maximum Ratings at $T_J = 250\text{ °C}$, unless otherwise specified

Parameter	Symbol	Conditions	Values	Unit
Repetitive peak reverse voltage	V_{RRM}		1200	V
Continuous forward current	I_F	$T_C \leq 215\text{ °C}$	5	A
RMS forward current	$I_{F(RMS)}$	$T_C \leq 215\text{ °C}$	8	A
Operating and storage temperature	T_J, T_{stg}		-55 to 250	°C

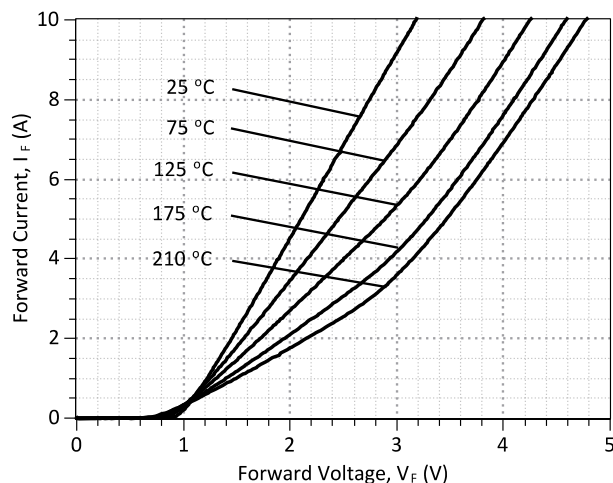
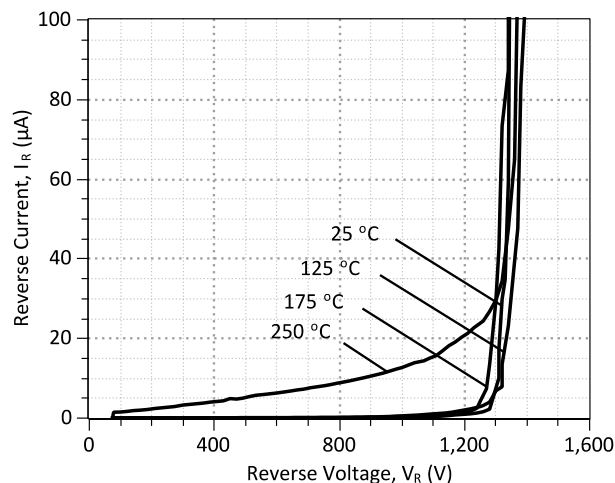
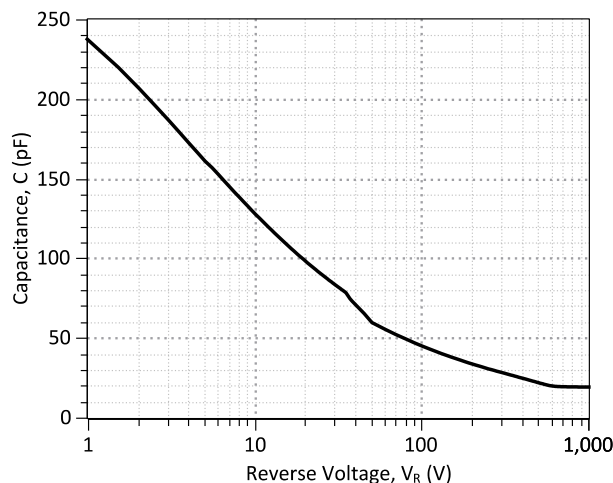
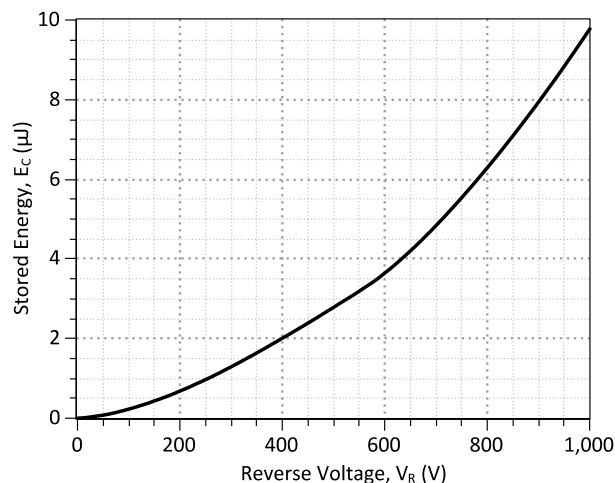
Electrical Characteristics at $T_J = 250\text{ °C}$, unless otherwise specified

Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Diode forward voltage	V_F	$I_F = 5\text{ A}, T_J = 25\text{ °C}$ $I_F = 5\text{ A}, T_J = 210\text{ °C}$		2.1 3.5		V
Reverse current	I_R	$V_R = 1200\text{ V}, T_J = 25\text{ °C}$ $V_R = 1200\text{ V}, T_J = 250\text{ °C}$		0.9 20.8	10 150	μA
Total capacitive charge	Q_C	$I_F \leq I_{F,MAX}$ $dI_F/dt = 200\text{ A}/\mu\text{s}$ $T_J = 210\text{ °C}$	$V_R = 400\text{ V}$ $V_R = 960\text{ V}$		17 29	nC
Switching time	t_s		$V_R = 400\text{ V}$ $V_R = 960\text{ V}$		< 25	ns
Total capacitance	C	$V_R = 1\text{ V}, f = 1\text{ MHz}, T_J = 25\text{ °C}$		237		pF
		$V_R = 400\text{ V}, f = 1\text{ MHz}, T_J = 25\text{ °C}$		25		
		$V_R = 1000\text{ V}, f = 1\text{ MHz}, T_J = 25\text{ °C}$		20		

Thermal Characteristics

Thermal resistance, junction - case	R_{thJC}	Assuming TO-276 package	1.38	°C/W
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*For chip size and metallization, please refer to the mechanical datasheet (must have a non-disclosure agreement with GeneSiC Semiconductor).


Figure 1: Typical Forward Characteristics

Figure 2: Typical Reverse Characteristics

Figure 3: Typical Junction Capacitance vs Reverse Voltage Characteristics

Figure 4: Typical Switching Energy vs Reverse Voltage Characteristics

Revision History

Date	Revision	Comments	Supersedes
2012/04/03	0	Initial release	

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 43670 Trade Center Place Suite 155
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