



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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High Temperature Silicon Carbide Power Schottky Diode

V_{RRM}	=	1200 V
V_F	=	1.7 V
I_F	=	0.75 A
Q_C	=	11 nC

Features

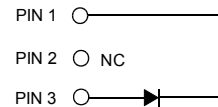
- 1200 V Schottky rectifier
- 250 °C maximum operating temperature
- Electrically isolated base-plate
- Zero reverse recovery charge
- Superior surge current capability
- Positive temperature coefficient of V_F
- Temperature independent switching behavior
- Lowest figure of merit Q_C/I_F
- Available screened to Mil-PRF-19500

Advantages

- High temperature operation
- Improved circuit efficiency (Lower overall cost)
- Low switching losses
- Ease of paralleling devices without thermal runaway
- Smaller heat sink requirements
- Industry's lowest reverse recovery charge
- Industry's lowest device capacitance
- Ideal for output switching of power supplies
- Best in class reverse leakage current at operating temperature

Package

- RoHS Compliant



TO – 257 (Isolated Base-plate Hermetic Package)

Applications

- Down Hole Oil Drilling, Geothermal Instrumentation
- High Temperature DC/DC Converters
- High Temperature Motor and Servo Drives
- High Temperature Inverters
- High Temperature Actuator Control
- Military Power Supplies
- Ideal for Aerospace and Defense Applications

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	$T_C \leq 225\text{ °C}$	0.75	A
RMS forward current	$I_{F(RMS)}$	$T_C \leq 225\text{ °C}$	1.3	A
Surge non-repetitive forward current, Half Sine Wave	$I_{F,SM}$	$T_C = 25\text{ °C}$, $t_p = 10\text{ ms}$	8	A
Non-repetitive peak forward current	$I_{F,max}$	$T_C = 25\text{ °C}$, $t_p = 10\text{ }\mu\text{s}$	tbd	A
i^2t value	$\int i^2 dt$	$T_C = 25\text{ °C}$, $t_p = 10\text{ ms}$	tbd	A^2S
Power dissipation	P_{tot}	$T_C = 25\text{ °C}$	24	W
Operating and storage temperature	T_j, T_{stg}		-55 to 250	$^{\circ}\text{C}$

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

Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Diode forward voltage	V_F	$I_F = 0.75\text{ A}$, $T_j = 25\text{ °C}$		1.74		V
		$I_F = 0.75\text{ A}$, $T_j = 210\text{ °C}$		2.8		
Reverse current	I_R	$V_R = 1200\text{ V}$, $T_j = 25\text{ °C}$		0.1	10	μA
		$V_R = 1200\text{ V}$, $T_j = 275\text{ °C}$		6.6	30	
Total capacitive charge	Q_C	$I_F \leq I_{F,MAX}$ $dI_F/dt = 200\text{ A}/\mu\text{s}$ $T_j = 210\text{ °C}$	$V_R = 400\text{ V}$	6		nC
			$V_R = 960\text{ V}$	11		
Switching time	t_s		$V_R = 400\text{ V}$ $V_R = 960\text{ V}$	< 17		ns
Total capacitance	C	$V_R = 1\text{ V}$, $f = 1\text{ MHz}$, $T_j = 25\text{ °C}$		66		pF
		$V_R = 400\text{ V}$, $f = 1\text{ MHz}$, $T_j = 25\text{ °C}$		10		
		$V_R = 1000\text{ V}$, $f = 1\text{ MHz}$, $T_j = 25\text{ °C}$		8		

Thermal Characteristics

Thermal resistance, junction - case	R_{thJC}	9.52	$^{\circ}\text{C}/\text{W}$
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Mechanical Properties

Mounting torque	M	0.6	Nm
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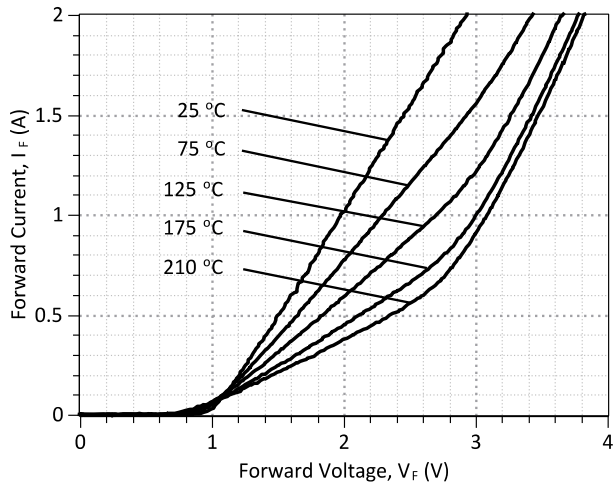


Figure 1: Typical Forward Characteristics

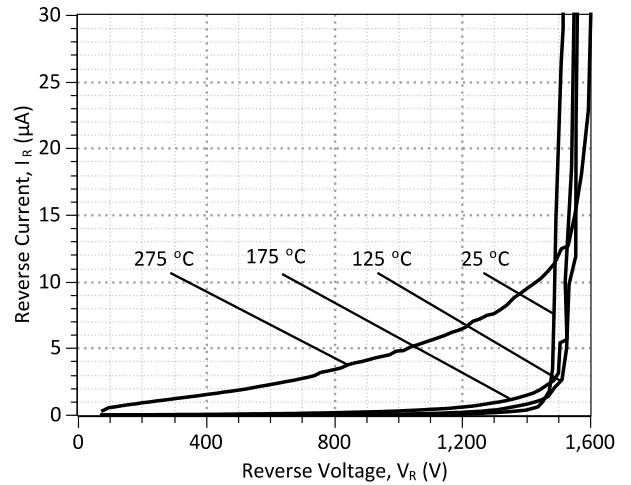


Figure 2: Typical Reverse Characteristics

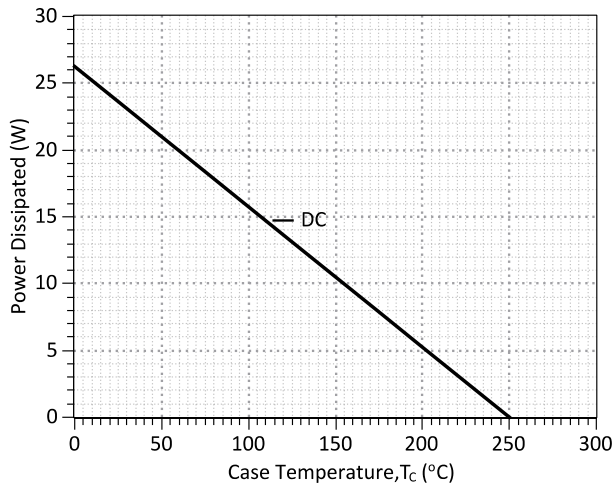
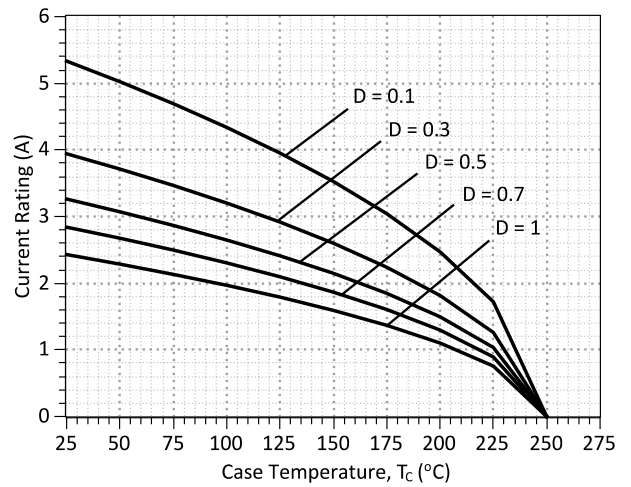


Figure 3: Power Derating Curve



**Figure 4: Current Derating Curves ($D = t_p/T$, $t_p = 400 \mu s$)
(Considering worst case Z_{th} conditions)**

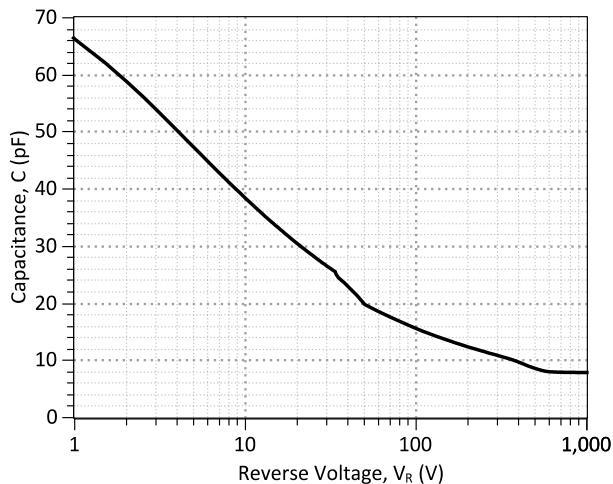


Figure 5: Typical Junction Capacitance vs Reverse Voltage Characteristics

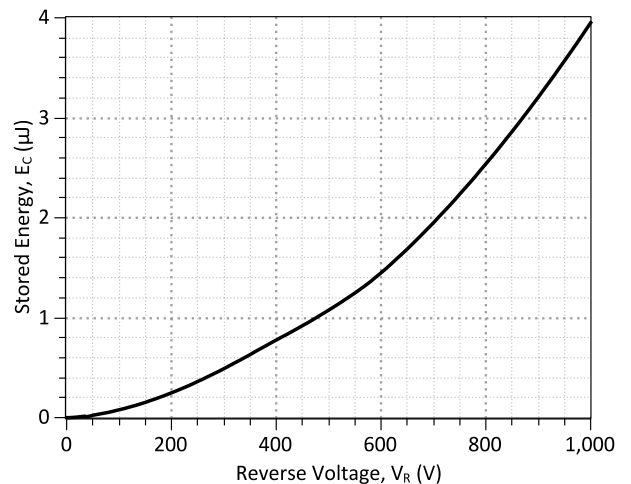


Figure 6: Typical Switching Energy vs Reverse Voltage Characteristics

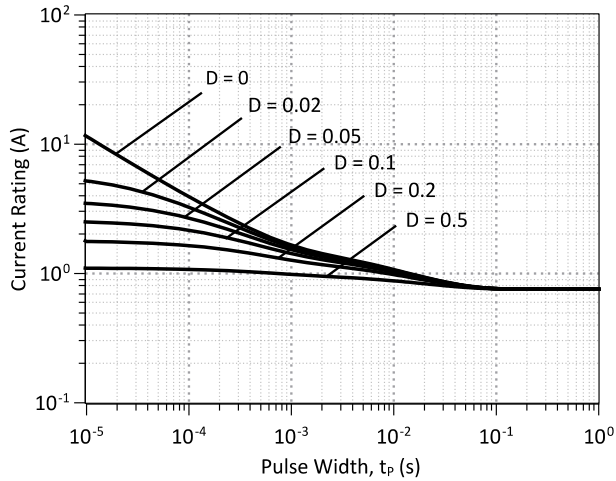


Figure 7: Current vs Pulse Duration Curves at $T_c = 225\text{ }^\circ\text{C}$

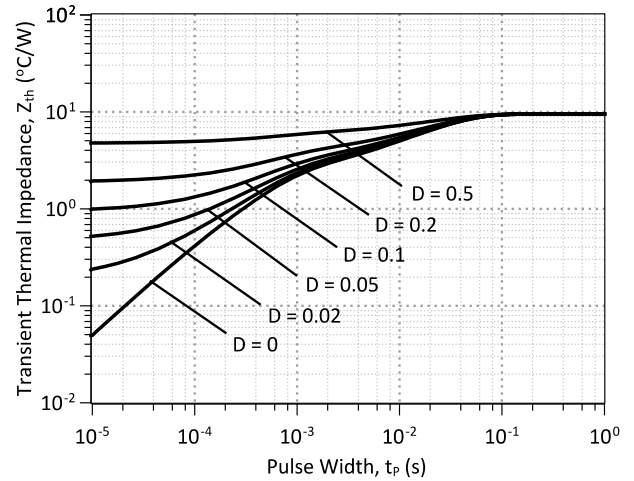
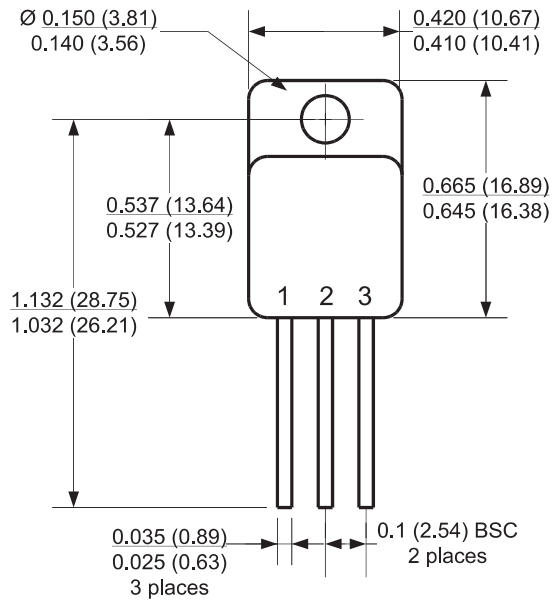


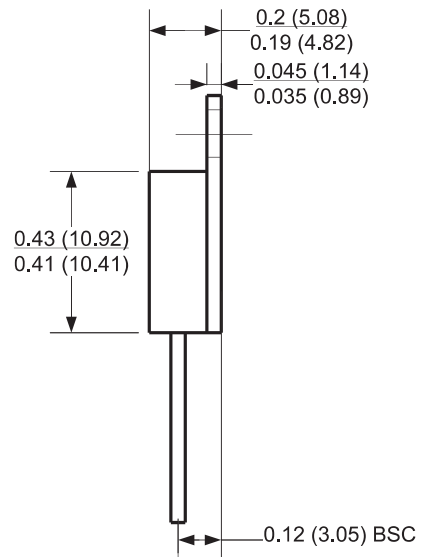
Figure 8: Transient Thermal Impedance

Package Dimensions:

TO-257



PACKAGE OUTLINE



NOTE

1. CONTROLLED DIMENSION IS INCH. DIMENSION IN BRACKET IS MILLIMETER.
2. DIMENSIONS DO NOT INCLUDE END FLASH, MOLD FLASH, MATERIAL PROTRUSIONS

Revision History

Date	Revision	Comments	Supersedes
2012/04/24	0	Initial release	

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