

MSB06065G1

650V Silicon Carbide Schottky Diode

Features

- 650-Volt Schottky Rectifier
- Shorter recovery time
- High-speed switching possible
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on VF

Benefits

- Higher safety margin against overvoltage
- Improved efficiency all load conditions
- Increased efficiency compared to Silicon Diode alternatives
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway
- Essentially No Switching Losses

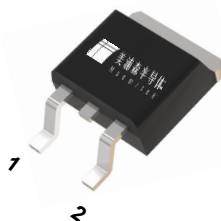
Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Drives
- PD Power
- Charging Pile Power
- PV Inverterg

Package

Type : TO-263

1、 Cathode 2、 Anode



Absolute Maximum Ratings

$T_C = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	MSB06065G1	Units
VRRM	Repetitive Peak Reverse Voltage	650	V
VRSM	Surge Peak Reverse Voltage	650	V
VDC	DC Blocking Voltage	650	V
IF	Continuous Forward Current @ $T_C=150^\circ\text{C}$	6	A
IFRM	Repetitive Peak Forward Surge Current @ $T_C=25^\circ\text{C}$ $t_p = 10\text{ ms}$, Half Sine Wave	40	A
IFSM	Non-Repetitive Peak Forward Surge Current @ $T_C=25^\circ\text{C}$ $t_p = 10\text{ ms}$, Half Sine Wave	65	A
IF,Max	Non-Repetitive Peak Forward Surge Current @ $T_C=25^\circ\text{C}$, $t_p = 10\text{ us}$, pulse	520	A
Ptot	Power Dissipation @ $T_C=25^\circ\text{C}$ @ $T_C=110^\circ\text{C}$	111 48	W
TJ , Tstg	Operating Junction and Storage Temperature	-55 to +175	$^\circ\text{C}$

Package Marking

Part Number	Top Marking	Package	Packing Method	MOQ	QTY
MSB06065G1	MSB06065G1	TO-263	Tape	800	4000

Electrical Characteristics

$T_C = 25^\circ\text{C}$ unless otherwise noted

Symbol	Test Conditions	Test Conditions	Min	Typ	Max	Unit
VF	Forward Voltage	IF=6A, TC=25° C IF=6A, TC=175° C	-	1.3 1.6	1.7 2.0	V
IR	Reverse Current	VR=650V, TC=25° C VR=650V, TC=175° C	-	1 10	5 50	μA
QC	Total Capacitive Charge	VR =400V TJ = 25° C $Q_c = \int_0^{t_f} C (V) dv$	-	17	-	nC
C	Total Capacitance	VR =0V, TJ = 25° C, f=1MHz VR =200V, TJ = 25° C, f=1MHz VR =400V, TJ = 25° C, f=1MHz	-	332 33 28	-	pF
EC	Capacitance Stored Energy	VR=400V	-	4.3	-	μJ

Thermal Characteristics

Symbol	Parameter	Typ	Unit
RθJC	Thermal Resistance from Junction to Case	0.55	°C/W

Typical Characteristics

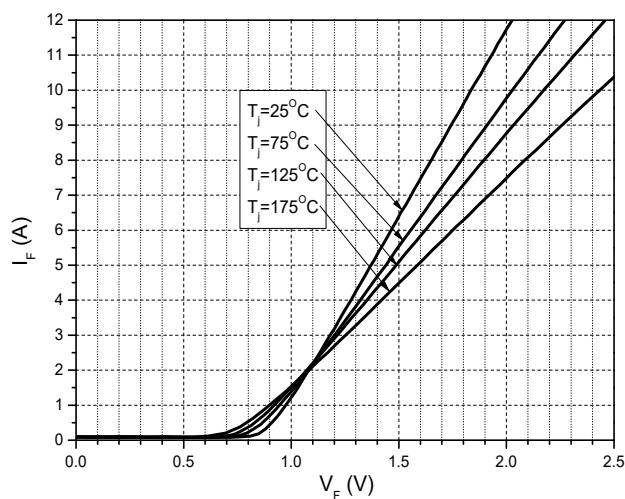


Figure 1. Forward Characteristics

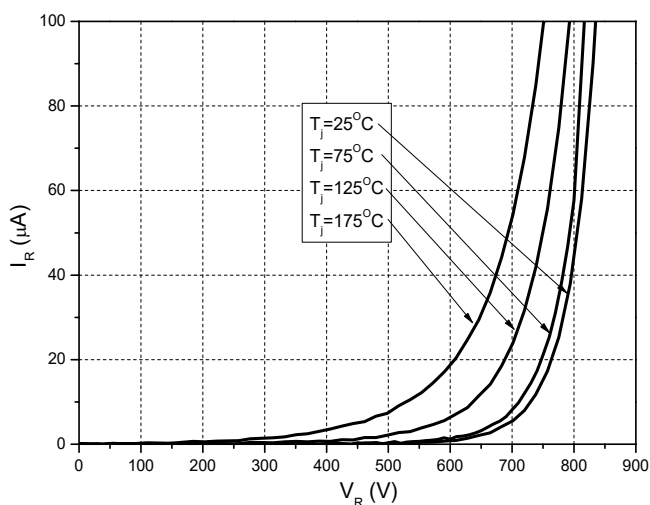


Figure 2. Reverse Characteristics

Typical Characteristics

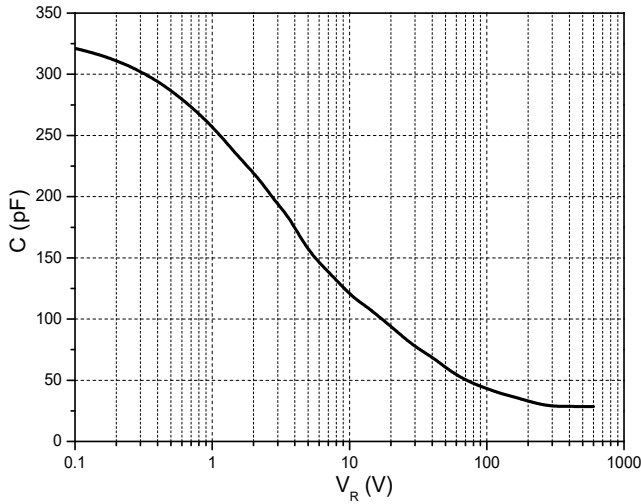


Figure 3. Capacitance vs. Reverse Voltage

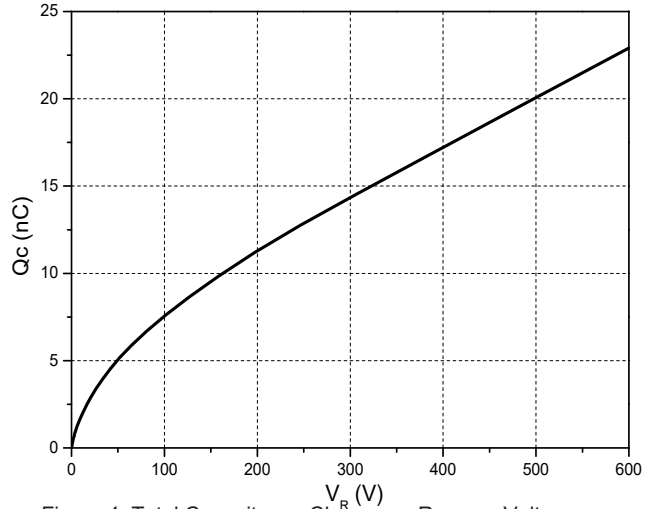


Figure 4. Total Capacitance Charge vs. Reverse Voltage

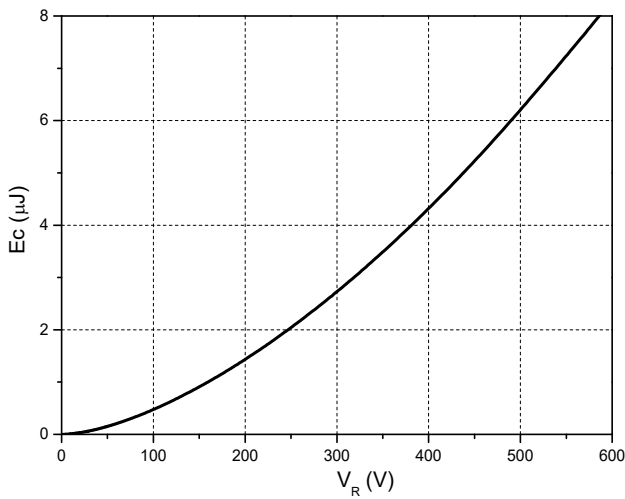


Figure 5. Capacitance Stored Energy

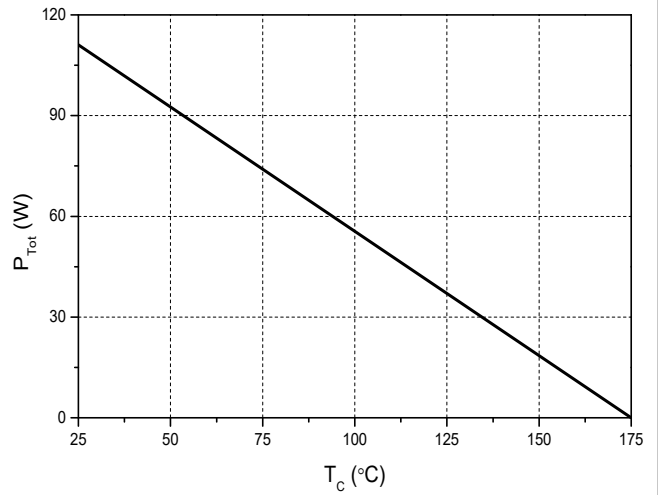


Figure 6. Power Derating

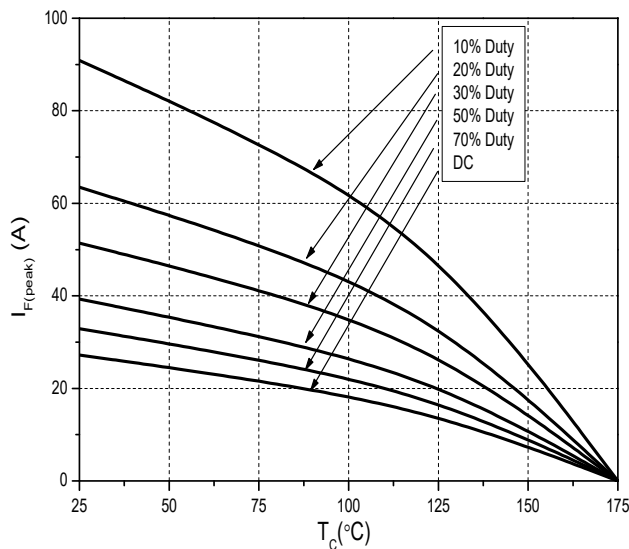
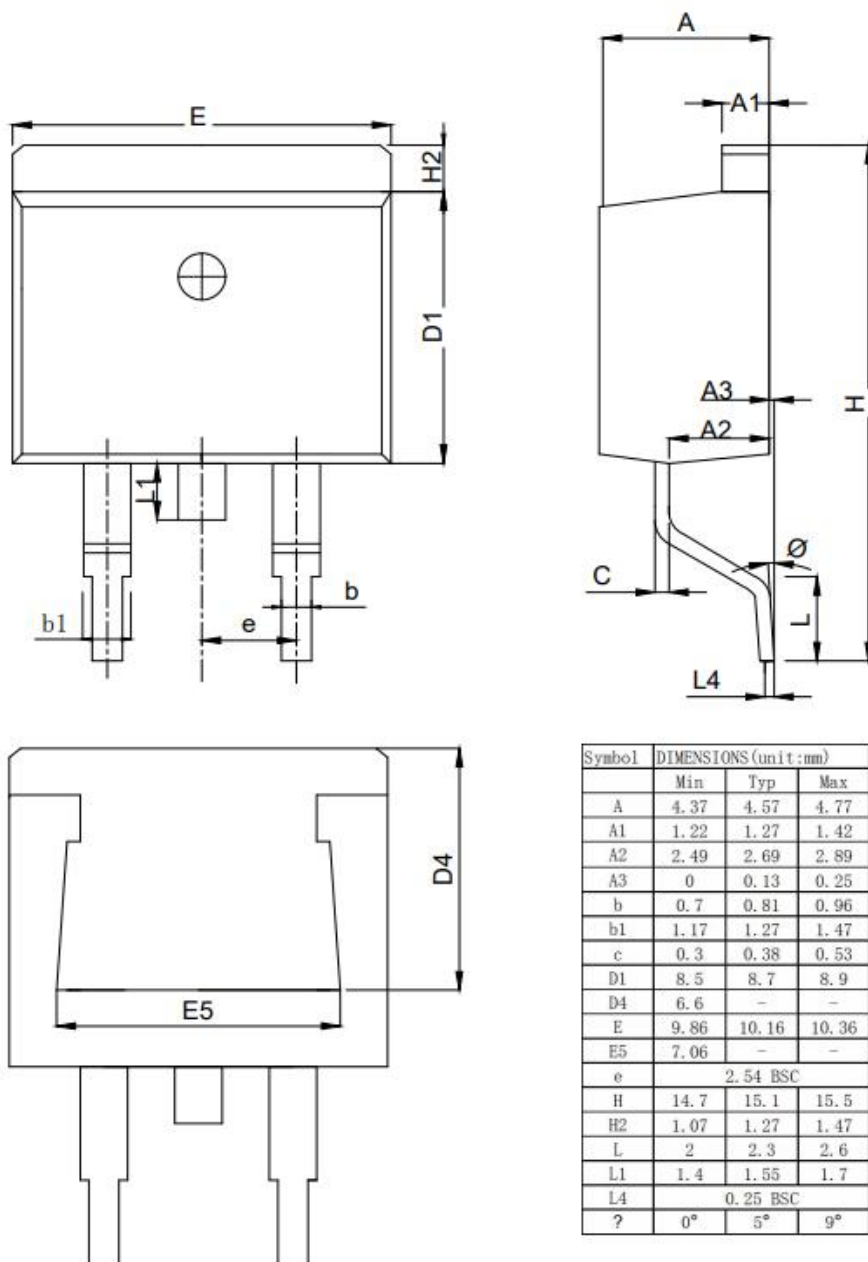


Figure 7. Current Derating

TO-263 OUTLINE



NOTE:

- 1The plastic package is not marked as smooth surface $R_a=0.1$;Subglossy surface $R_a=0.8$
- 2.Undeclared tolerance ± 0.25 ,Unmarked fillet $R_{max}=0.25$

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