美浦森半导体
M s e m i t e k

Halogen Free

RoHS LEAD FREE

MSNP04065G1
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

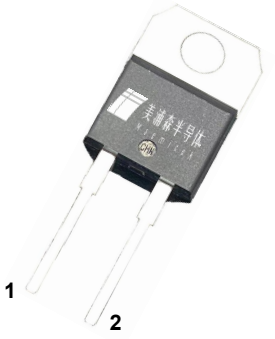
Benefits

-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
-Essentialy No Switching Losses

Applications

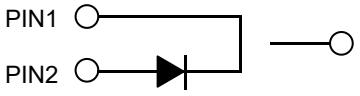
-Switch Mode Power Supplies
- Server/Telecom Power Supplies
-Industrial Power Supplies
-Solar Inverters

Package



Type : TO-220 -2lead

1、Cathode 2、Anode



Absolute Maximum Ratings

T_C = 25℃ unless otherwise noted

Symbol	Parameter	MSNP04065G1	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 @Tc=150℃	4.8	A
IFRM	Repetitive Peak Forward Surge Current @TC=25℃ tp = 10 ms, Half Sine Wave	20	A
IFSM	Non-Repetitive Peak Forward Surge Current @TC=25℃ tp= 10 ms, Half Sine Wave	26	A
IF,Max	Non-Repetitive Peak Forward Surge Current @TC=25℃, tp= 10 us，pulse	200	A
Ptot	Power Dissipation @Tc=25℃ @Tc=110℃	76.5 33.2	W
TJ , Tstg	Operating Junction and Storage Temperature	-55 to +175	˚C

Package Marking

Part Number	Top Marking	Package	Packing Method	MOQ	QTY
MSNP04065G1	MSNP04065G1	TO-220C-2L	Tube	1000	5000

Electrical Characteristics

T_C = 25° C unless otherwise noted

Symbol	Test Conditions	Test Conditions	Min	Typ	Max	Unit
VF	Forward Voltage	IF=4A, TC=25° C IF=4A, TC=175° C	-	1.5 1.8	1.8 2.0	V
IR	Reverse Current	VR=650V, TC=25° C VR=650V, TC=175° C	-	1 12	20 100	μA
QC	Total Capacitive Charge	VR =400V TJ = 25° C Qc= $\int_0^{Vr} C\ (V)\ \mathrm{dv}$	-	9.5	-	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	-	185 19.0 16.7	-	pF
EC	Capacitance Stored Energy	VR=400V	-	2.4	-	μJ

Thermal Characteristics

Symbol	Parameter	Typ	Unit
RθJC	Thermal Resistance from Junction to Case	1.96	℃/W

Typical Characteristics

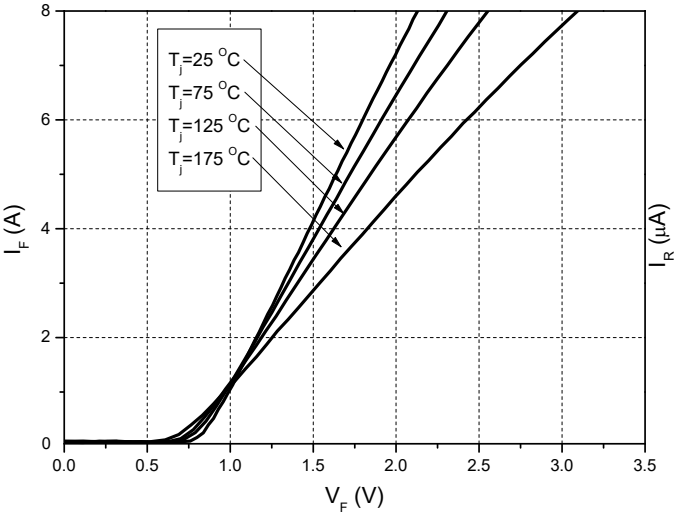


Figure 1.Forward Characteristics

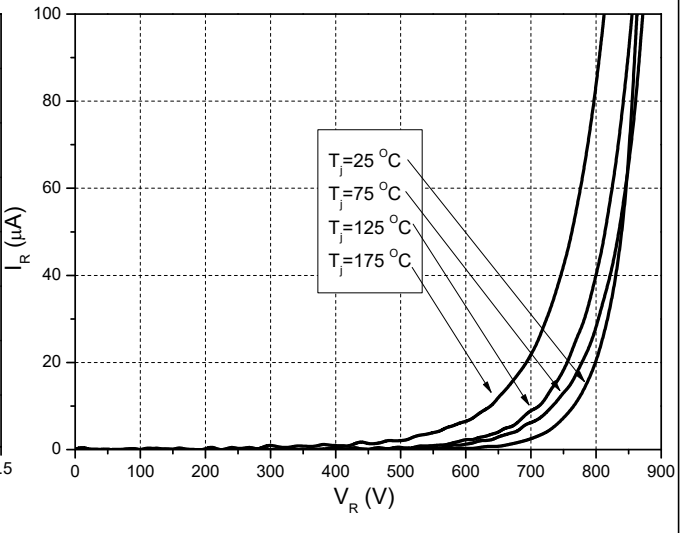


Figure2. Reverse Characteristics

Typical Characteristics

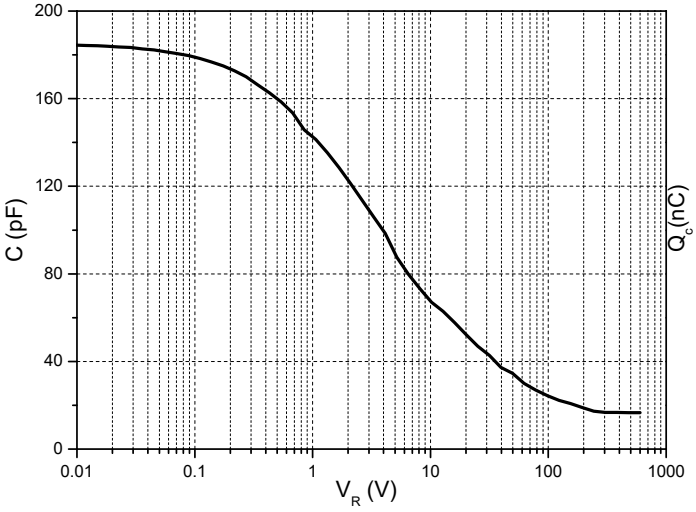


Figure 3. Capacitance vs. Reverse Voltage

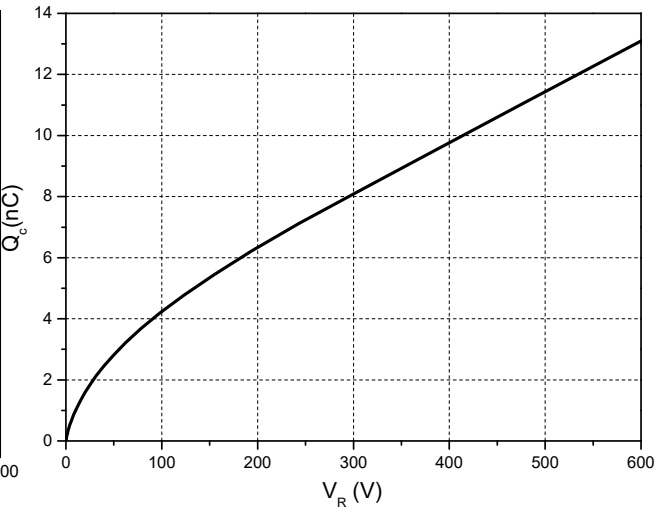


Figure 4. Total Capacitance Charge vs. Reverse Voltage

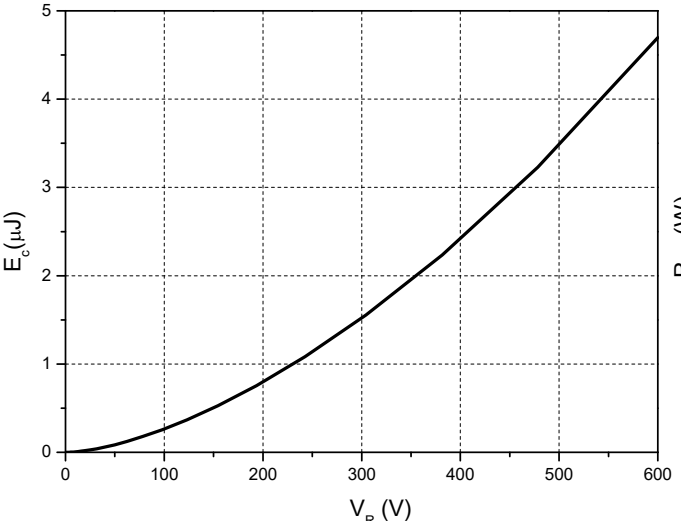


Figure 5. Capacitance Stored Energy

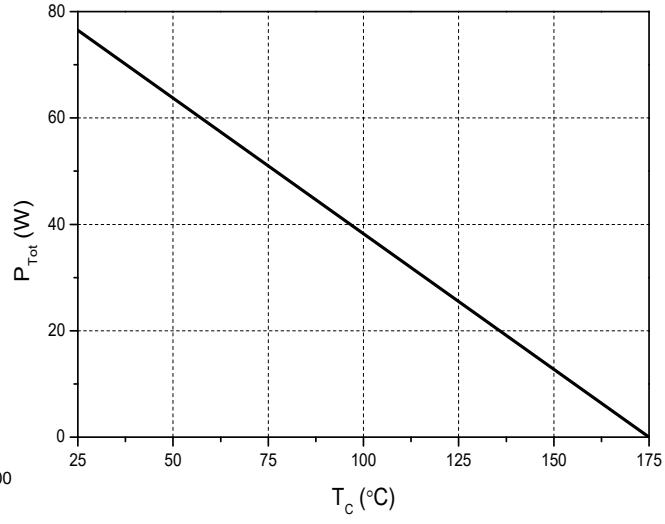


Figure 6. Power Derating

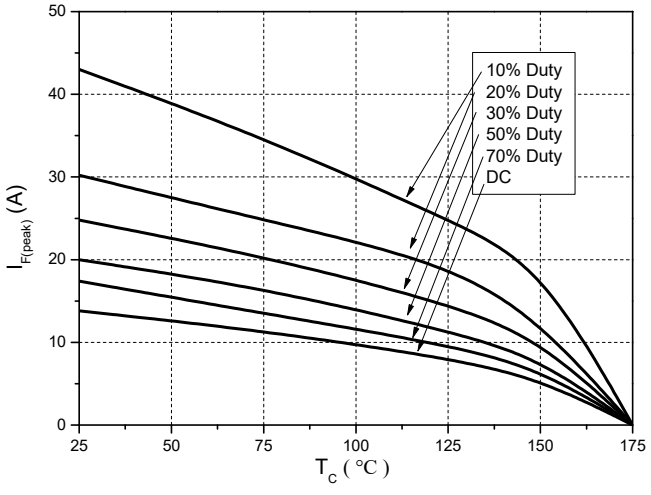


Figure 7.Current Derating

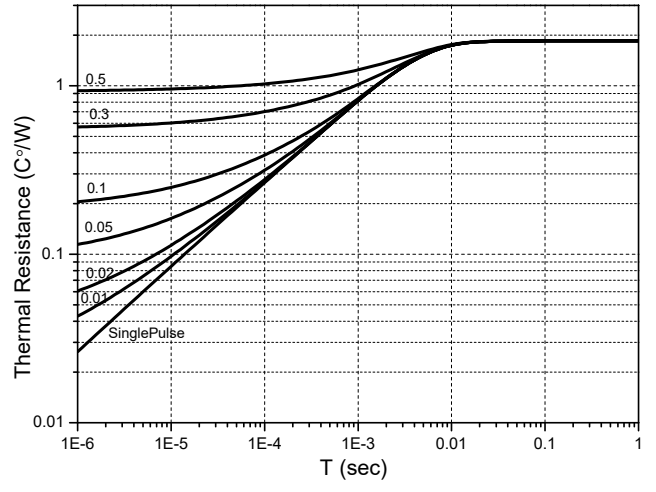
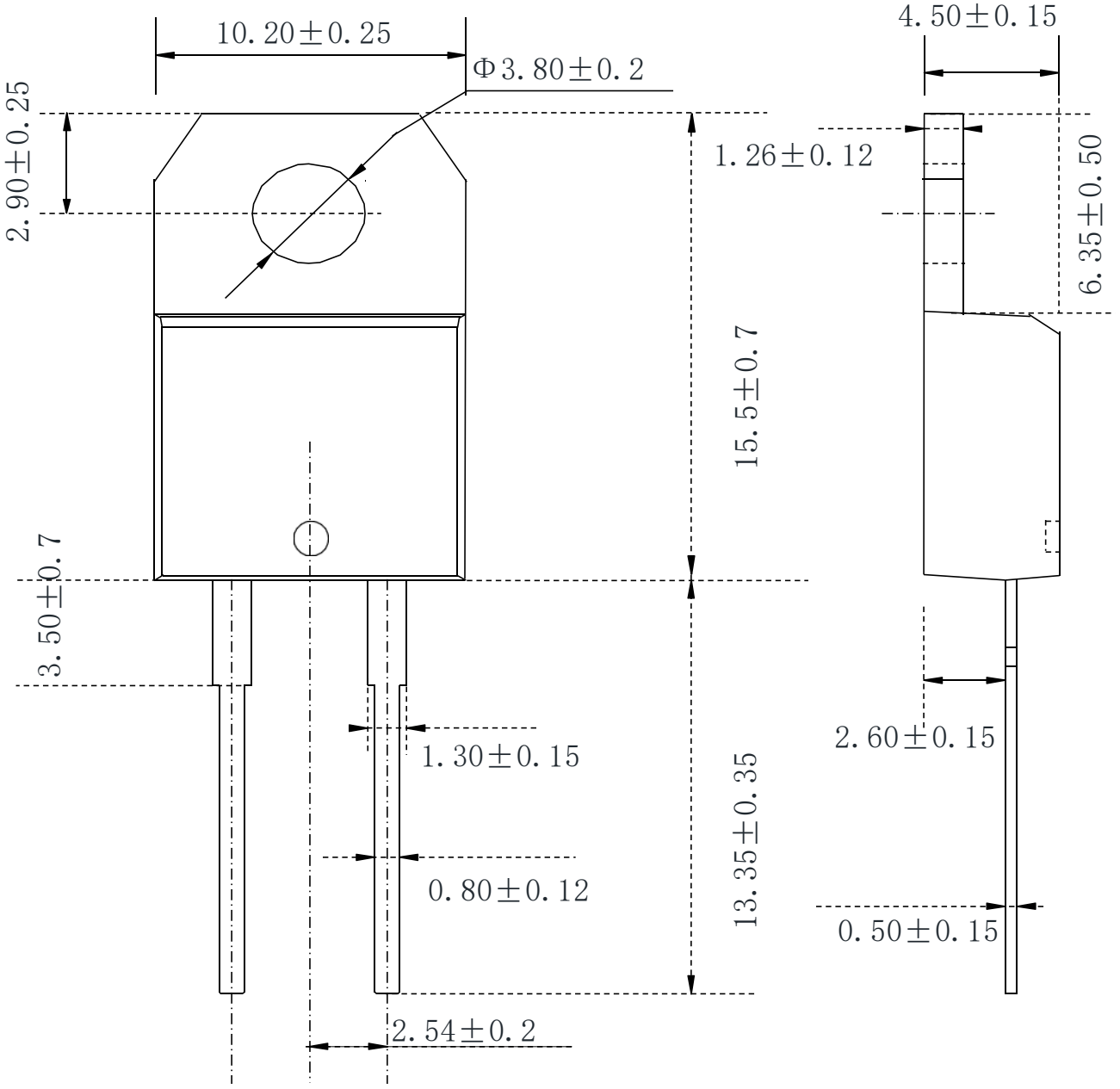


Figure 8. Transient Thermal Impedance

TO-220C-2L OUTLINE



NOTE：
1The plastic package is not marked as smooth surfaceRa=0.1;Subglossy surfaceRa=0.8
2.Undeclared tolerance±0.15,Unmarked filletRmax=0.25

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