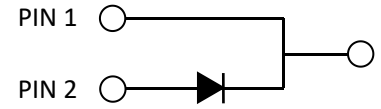


NOD05120E

Silicon Carbide Schottky Diode



Maximum Ratings ($T_c = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V		
V_{RSM}	Surge Peak Reverse Voltage	1200	V		
V_{DC}	DC Blocking Voltage	1200	V		
I_F	Continuous Forward Current	20.4 10.5 5	A	$T_c=25^\circ\text{C}$ $T_c=125^\circ\text{C}$ $T_c=154^\circ\text{C}$	Fig. 7
I_{FRM}	Repetitive Peak Forward Surge Current	25	A	$T_c=25^\circ\text{C}$, $t_p=10$ ms, Half Sine Wave,	
I_{FSM}	Non-Repetitive Peak Forward Surge Current	43	A	$T_c=25^\circ\text{C}$, $t_p=10$ ms, Half Sine Wave	
$I_{F,Max}$	Non-Repetitive Peak Forward Surge Current	370	A	$T_c=25^\circ\text{C}$, $t_p=10$ μs , Pulse	
P_{tot}	Power Dissipation	159 69	W	$T_c=25^\circ\text{C}$ $T_c=110^\circ\text{C}$	Fig. 6
T_j, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	$^\circ\text{C}$		

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.5 2.0	1.8 2.5	V	$I_F = 5$ A $T_j=25^\circ\text{C}$ $I_F = 5$ A $T_j=175^\circ\text{C}$	Fig. 1
I_R	Reverse Current	2 50	20 100	μA	$V_R = 1200$ V $T_j=25^\circ\text{C}$ $V_R = 1200$ V $T_j=175^\circ\text{C}$	Fig. 2
Q_C	Total Capacitive Charge	24		nC	$V_R = 800$ V, $T_j = 25^\circ\text{C}$ $Q_C = \int_0^{V_R} C(V)dV$	Fig. 4
C	Total Capacitance	340 22 18		pF	$V_R = 0$ V, $T_j = 25^\circ\text{C}$, $f = 1$ MHz $V_R = 400$ V, $T_j = 25^\circ\text{C}$, $f = 1$ MHz $V_R = 800$ V, $T_j = 25^\circ\text{C}$, $f = 1$ MHz	Fig. 3
E_C	Capacitance Stored Energy	12		μJ	$V_R = 800$ V	Fig. 5

Thermal Characteristics

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.94	$^\circ\text{C}/\text{W}$	Fig. 8

Typical Performance

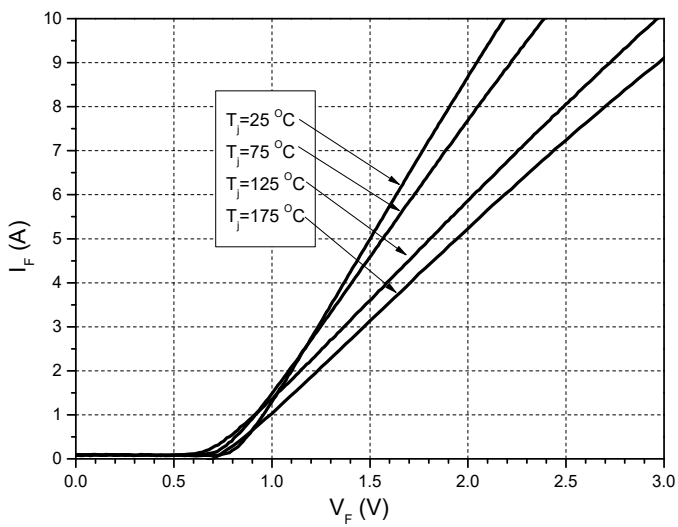


Figure 1. Forward Characteristics

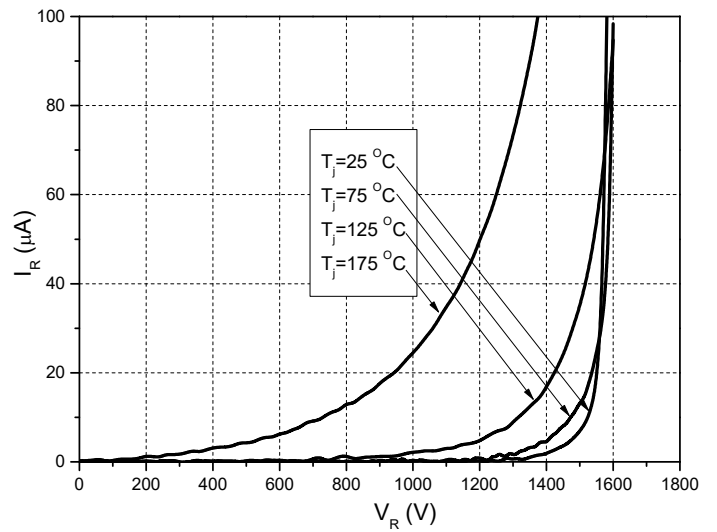


Figure 2. Reverse Characteristics

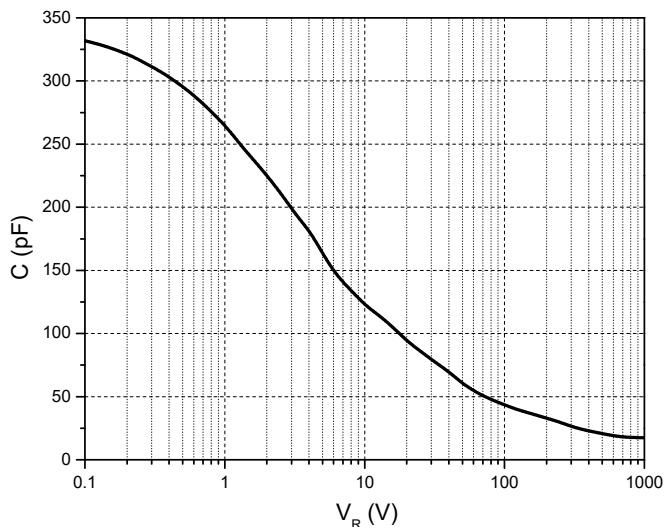


Figure 3. Capacitance vs. Reverse Voltage

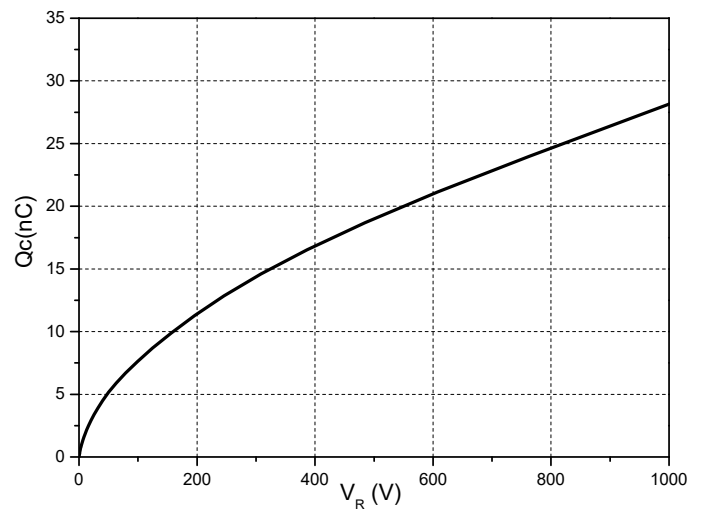


Figure 4. Total Capacitance Charge vs. Reverse Voltage

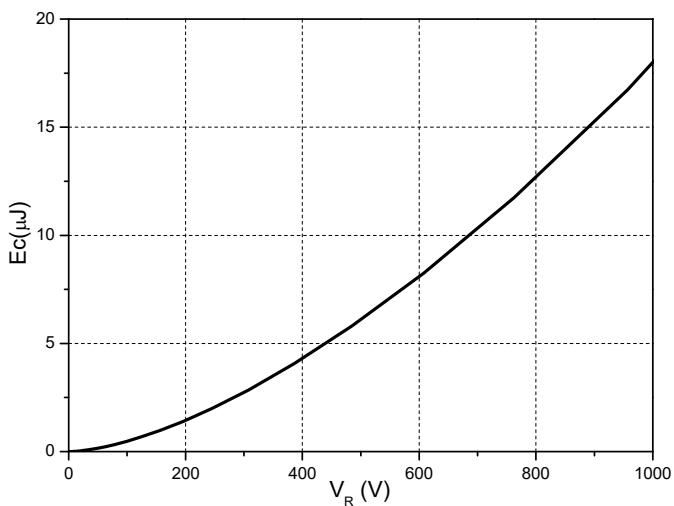


Figure 5. Capacitance Stored Energy

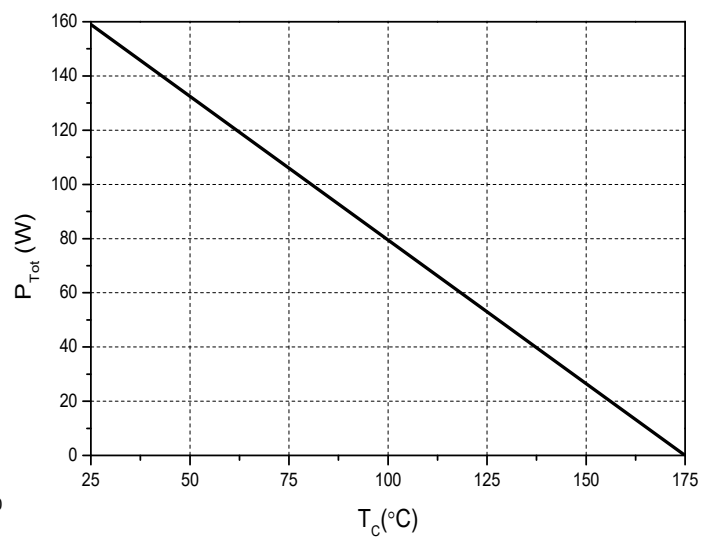


Figure 6. Power Derating

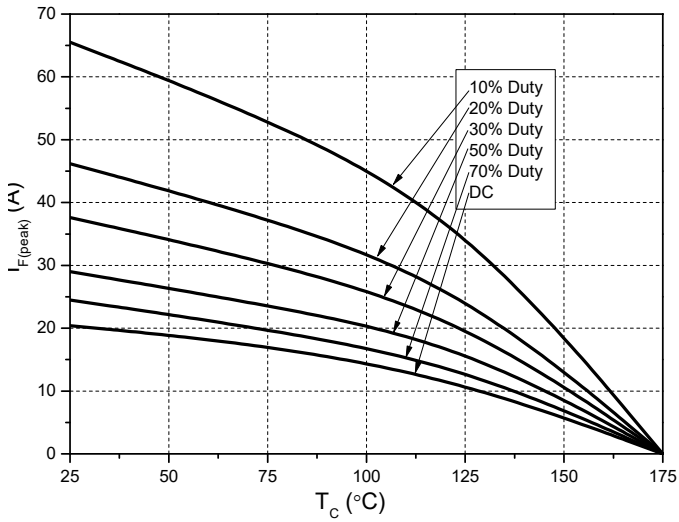


Figure 7. Current Derating

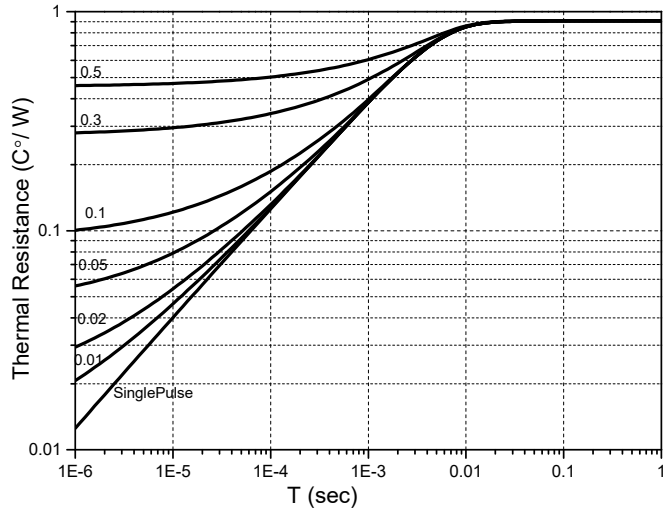


Figure 8. Transient Thermal Impedance

Package Dimensions: TO-252

