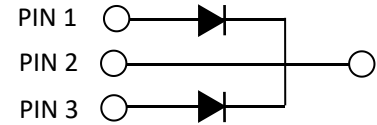


N3D06065B

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	650	V		
V_{RSM}	Surge Peak Reverse Voltage	650	V		
V_{DC}	DC Blocking Voltage	650	V		
I_F	Continuous Forward Current	6*/12**	A	$T_c = 150^\circ\text{C}$	Fig. 7
I_{FRM}	Repetitive Peak Forward Surge Current	40*	A	$T_c = 25^\circ\text{C}$, $t_p = 10$ ms, Half Sine Wave,	
I_{FSM}	Non-Repetitive Peak Forward Surge Current	65*	A	$T_c = 25^\circ\text{C}$, $t_p = 10$ ms, Half Sine Wave	
$I_{F,Max}$	Non-Repetitive Peak Forward Surge Current	520*	A	$T_c = 25^\circ\text{C}$, $t_p = 10$ μs , Pulse	
P_{tot}	Power Dissipation	111* 48*	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	$^\circ\text{C}$		

*Per Leg, ** Per Device

Electrical Characteristics (Per Leg)

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.40 1.70	1.70 2.00	V	$I_F = 6$ A $T_J = 25^\circ\text{C}$ $I_F = 6$ A $T_J = 175^\circ\text{C}$	Fig. 1
I_R	Reverse Current	2 40	20 200	μA	$V_R = 650$ V $T_J = 25^\circ\text{C}$ $V_R = 650$ V $T_J = 175^\circ\text{C}$	Fig. 2
Q_C	Total Capacitive Charge	17		nC	$V_R = 400$ V, $T_J = 25^\circ\text{C}$ $Q_C = \int_0^{V_R} C(V)dV$	Fig. 4
C	Total Capacitance	332 33 28		pF	$V_R = 0$ V, $T_J = 25^\circ\text{C}$, $f = 1$ MHz $V_R = 200$ V, $T_J = 25^\circ\text{C}$, $f = 1$ MHz $V_R = 400$ V, $T_J = 25^\circ\text{C}$, $f = 1$ MHz	Fig. 3
E_C	Capacitance Stored Energy	4.3		μJ	$V_R = 400$ V	Fig. 5

Thermal Characteristics (Per Leg)

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.15	$^\circ\text{C}/\text{W}$	Fig. 8

Typical Performance

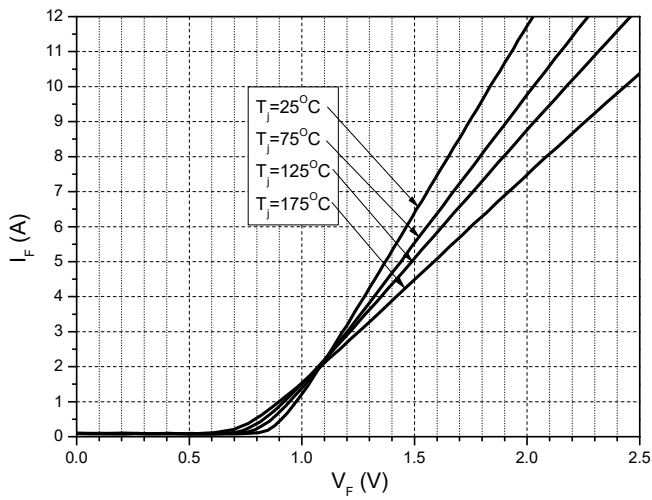


Figure 1. Forward Characteristics

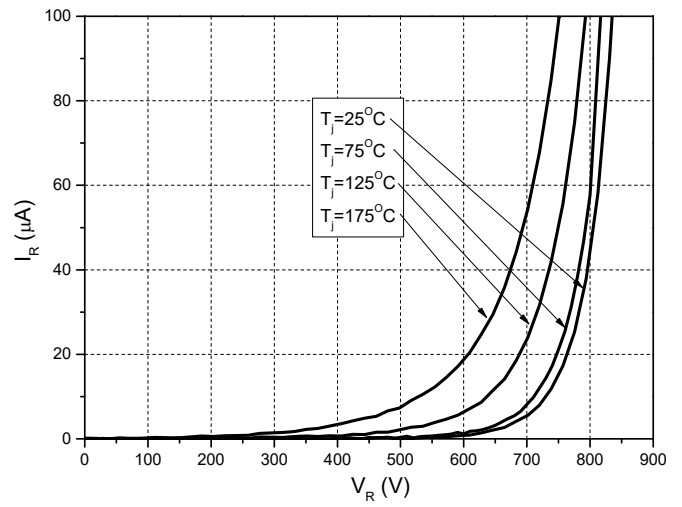


Figure 2. Reverse Characteristics

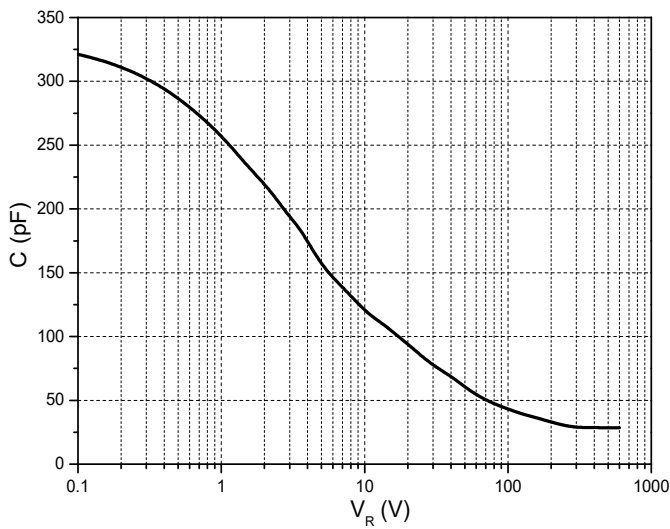


Figure 3. Capacitance vs. Reverse Voltage

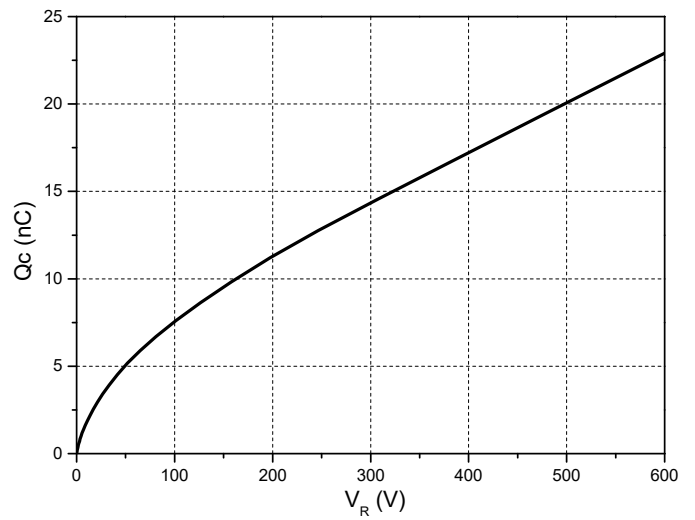


Figure 4. Total Capacitance Charge vs. Reverse Voltage

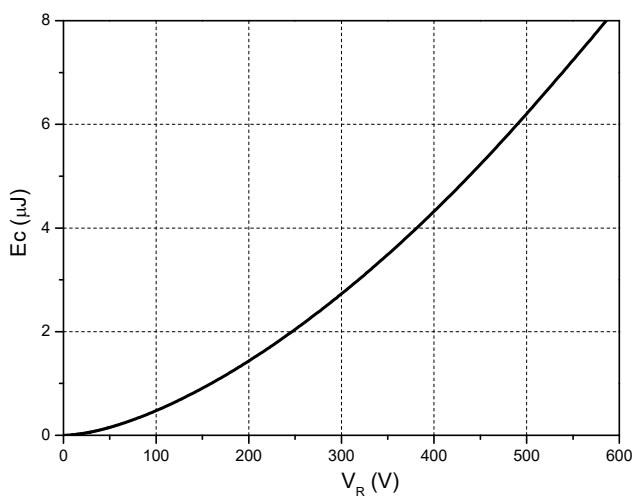


Figure 5. Capacitance Stored Energy

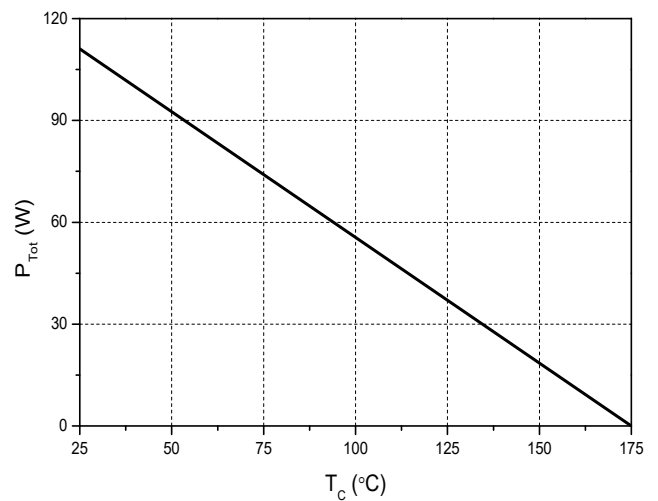


Figure 6. Power Derating

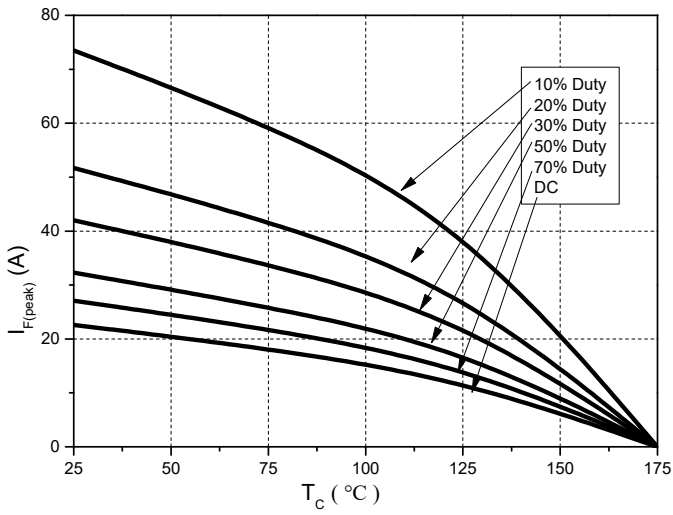


Figure 7. Current Derating

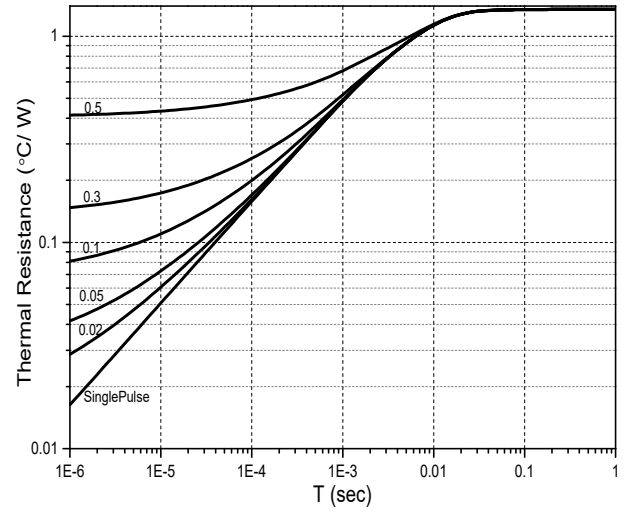
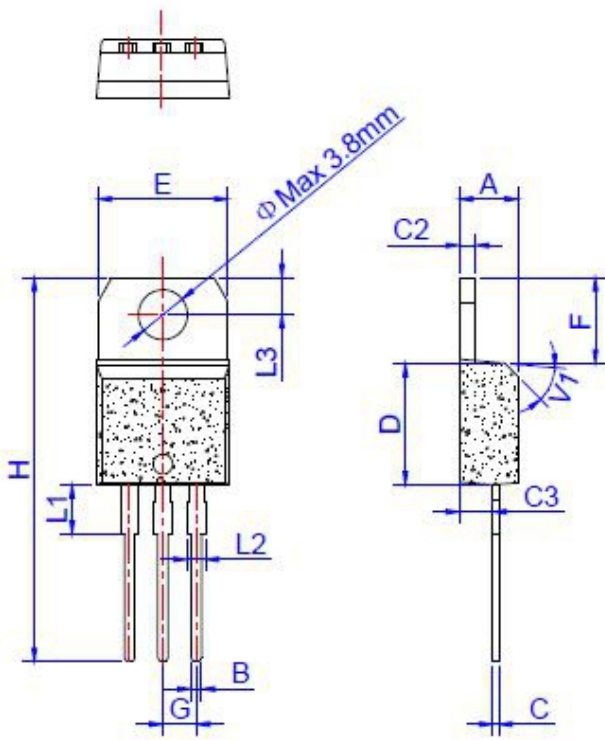


Figure 8. Transient Thermal Impedance

Package Dimensions: TO-220-3L



TO-220A Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	