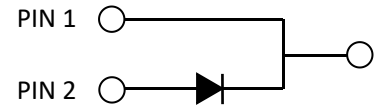


N3D16065A

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	16	A	$T_C = 150^\circ\text{C}$	Fig. 7
I_{FRM}	Repetitive Peak Forward Surge Current	105	A	$T_C = 25^\circ\text{C}$, $t_P = 10$ ms, Half Sine Wave	
I_{FSM}	Non-Repetitive Peak Forward Surge Current	135	A	$T_C = 25^\circ\text{C}$, $t_P = 10$ ms, Half Sine Wave	
$I_{F,Max}$	Non-Repetitive Peak Forward Surge Current	1200	A	$T_C = 25^\circ\text{C}$, $t_P = 10$ μs , Pulse	
P_{tot}	Power Dissipation	205 89	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	1.45 1.75	1.8 3.0	V	$I_F = 16$ A $T_J = 25^\circ\text{C}$ $I_F = 16$ A $T_J = 175^\circ\text{C}$	Fig. 1
I_R	Reverse Current	4 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	41		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	860 85 60		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	8.2		μJ	$V_R = 400$ V	Fig. 5

Thermal Characteristics

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.73	$^\circ\text{C}/\text{W}$	

Typical Performance

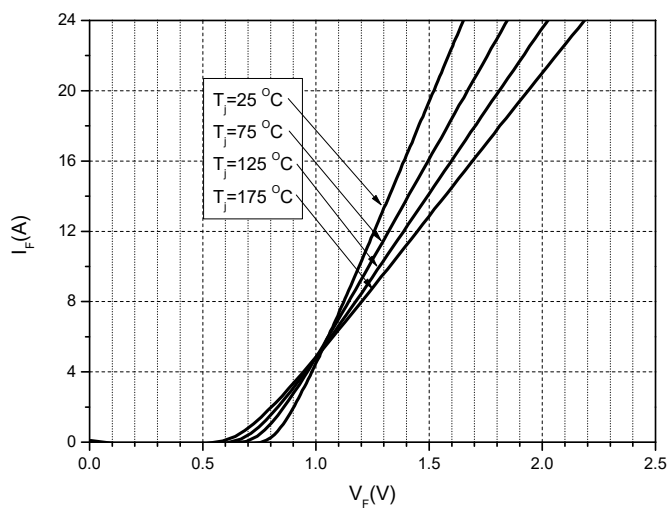


Figure 1. Forward Characteristics

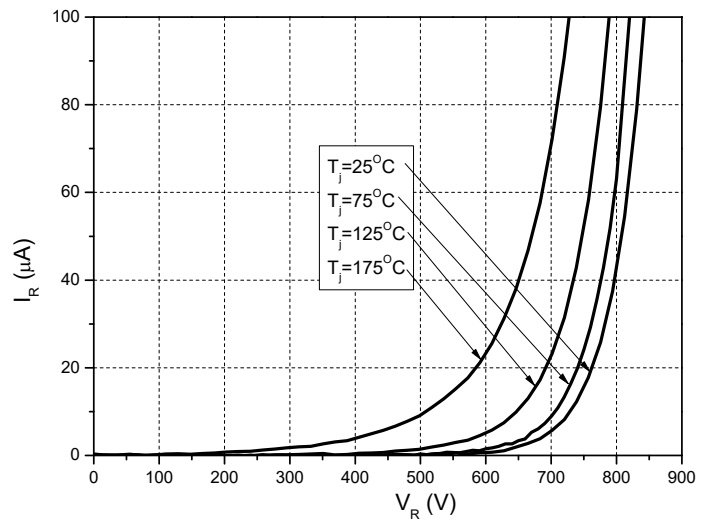


Figure 2. Reverse Characteristics

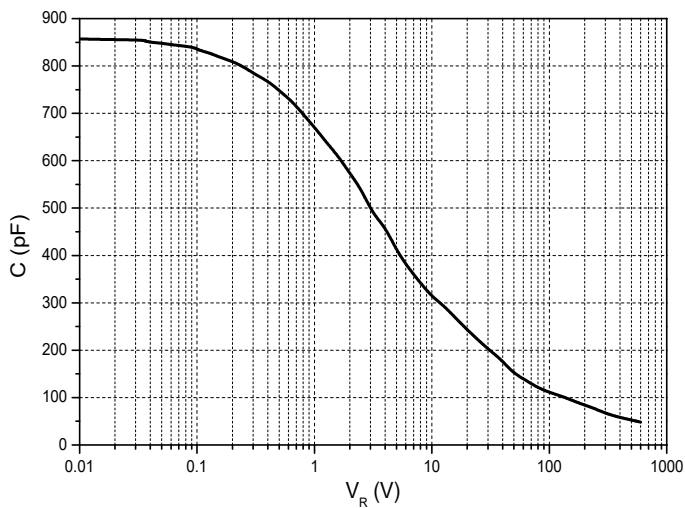


Figure 3. Capacitance vs. Reverse Voltage

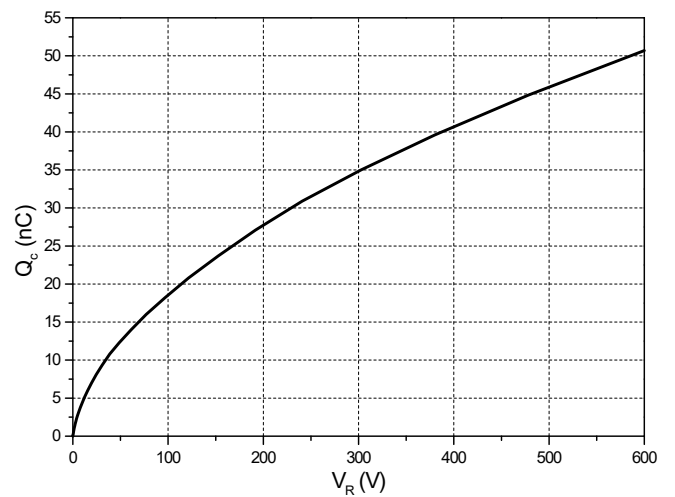


Figure 4. Total Capacitance Charge vs. Reverse Voltage

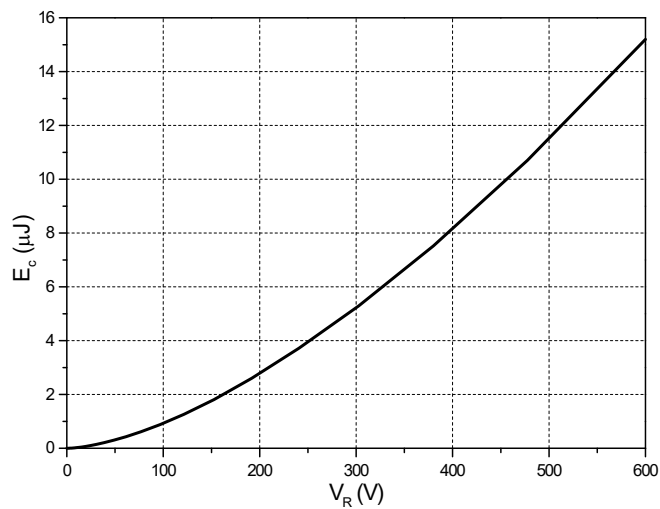


Figure 5. Capacitance Stored Energy

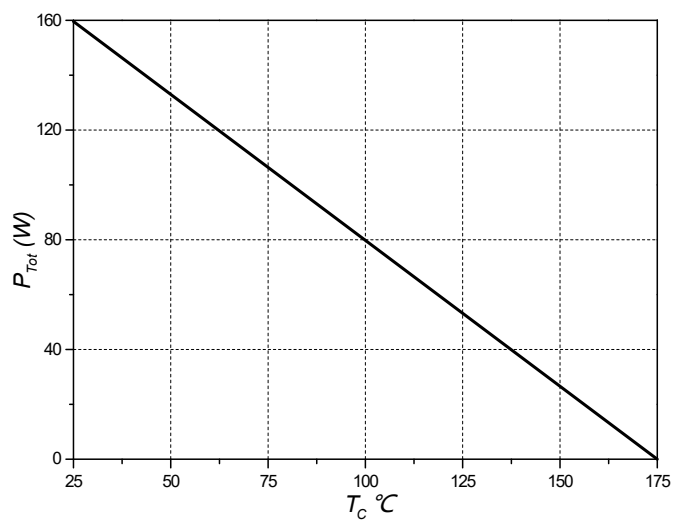


Figure 6. Power Derating

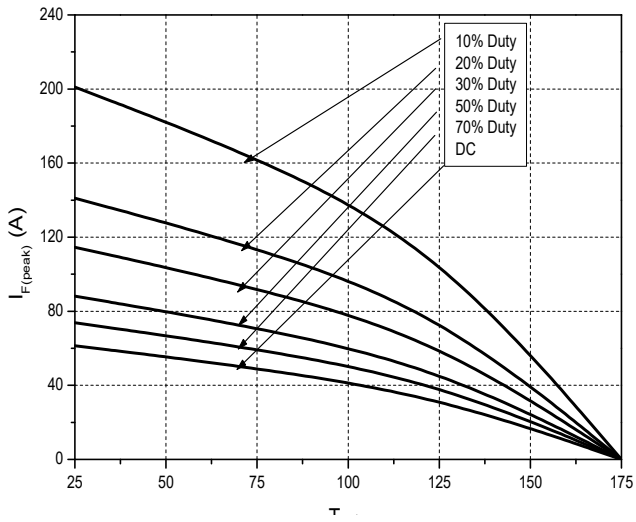


Figure 7. Current Derating

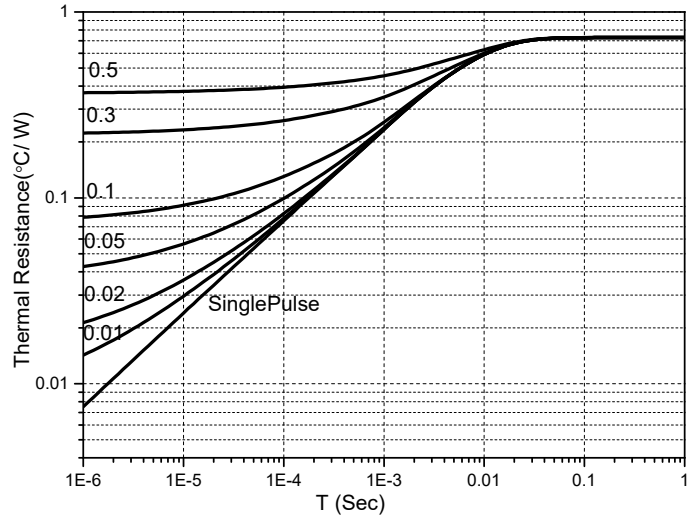
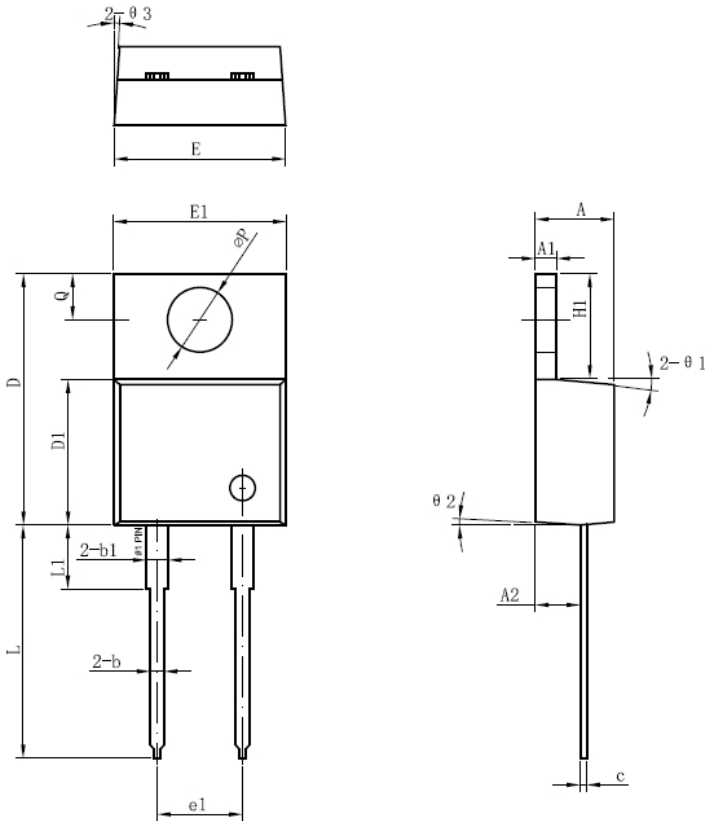


Figure 8. Transient Thermal Impedance

Package Dimensions: TO-220-2L



符号	机械尺寸/mm		
	最小值	典型值	最大值
A	4.55	4.70	4.85
A1	1.17	1.27	1.37
A2	2.59	2.69	2.89
b	0.71	0.81	0.96
b1		1.27	
c	0.36	0.38	0.61
D	14.64	14.94	15.24
D1	8.55	8.70	8.85
E	10.01	10.16	10.31
E1	9.98	10.18	10.38
e1		5.08	
H1	6.04	6.24	6.44
L	13.00	13.86	14.08
L1		3.80	
φP	3.74	3.84	4.04
Q	2.54	2.74	2.94
θ1		5°	
θ2		4°	
θ3		4°	