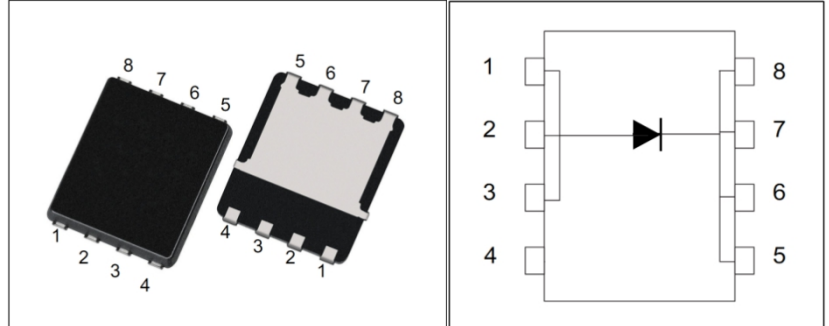


N3D04065N6

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	4.8	A	$T_C=150^\circ\text{C}$	Fig. 7
I_{FRM}	Repetitive Peak Forward Surge Current	20	A	$T_C=25^\circ\text{C}$, $t_p=10$ ms, Half Sine Wave,	
I_{FSM}	Non-Repetitive Peak Forward Surge Current	26	A	$T_C=25^\circ\text{C}$, $t_p=10$ ms, Half Sine Wave	
$I_{F,Max}$	Non-Repetitive Peak Forward Surge Current	200	A	$T_C=25^\circ\text{C}$, $t_p= 10$ μs , Pulse	
P_{tot}	Power Dissipation	76.5 33.2	W	$T_C=25^\circ\text{C}$ $T_C=110^\circ\text{C}$	Fig. 6
$\int i^2 dt$	I^2t value	3.3	A^2s	$T_C=25^\circ\text{C}$, $t_p=10$ ms	
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 1.8	1.8 2.0	V	$I_F= 4$ A $T_J=25^\circ\text{C}$ $I_F= 4$ A $T_J=175^\circ\text{C}$	Fig. 1
I_R	Reverse Current	1 12	20 100	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	9.5		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	185 19.0 16.7		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	2.4		μJ	$V_R = 400\text{ V}$	Fig. 5
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Thermal Characteristics

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.96	$^{\circ}\text{C}/\text{W}$	Fig. 8

Typical Performance

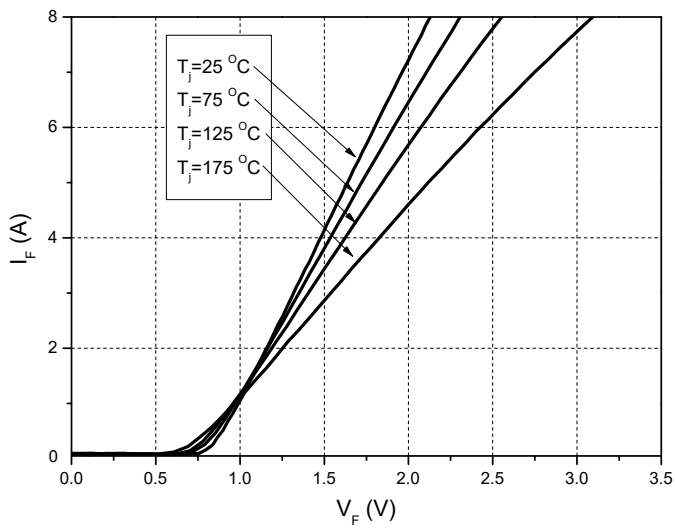


Figure 1. Forward Characteristics

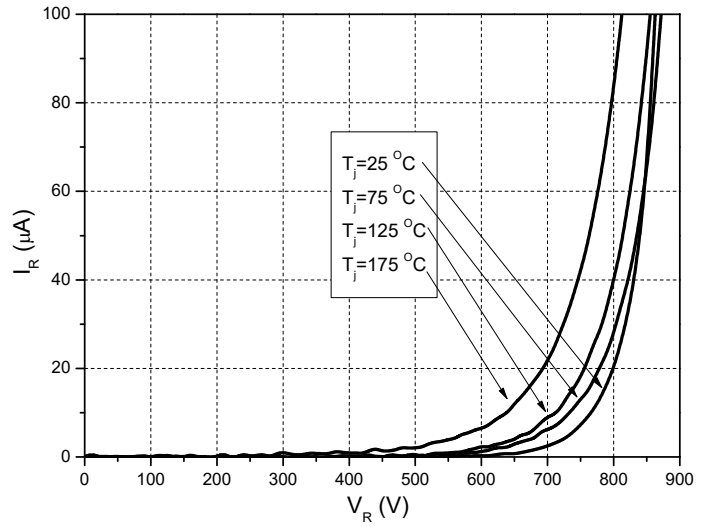


Figure 2. Reverse Characteristics

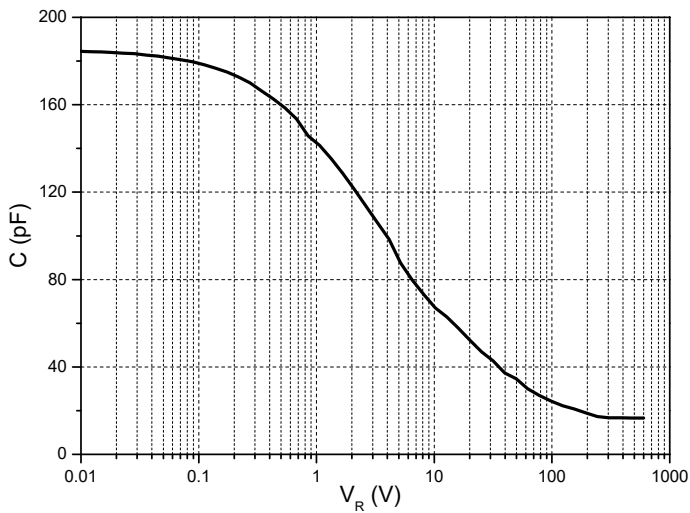


Figure 3. Capacitance vs. Reverse Voltage

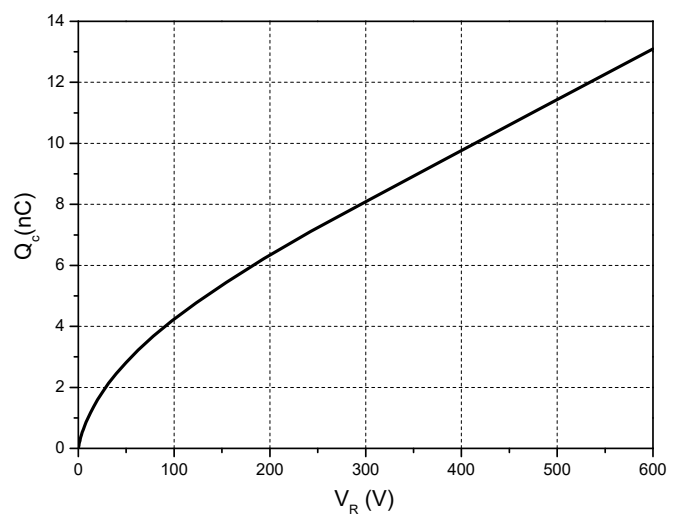


Figure 4. Total Capacitance Charge vs. Reverse Voltage

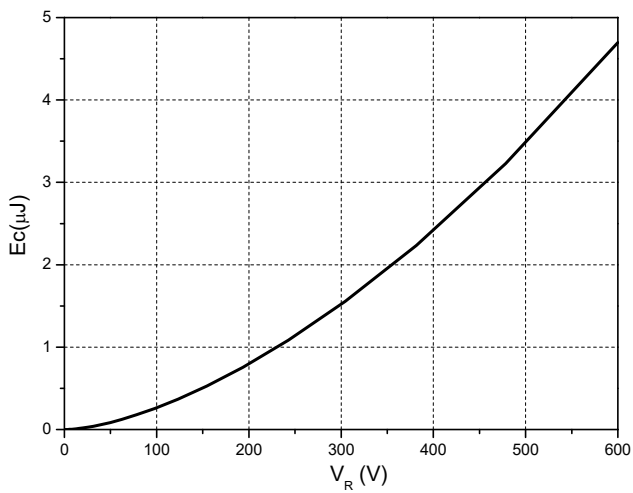


Figure 5. Capacitance Stored Energy

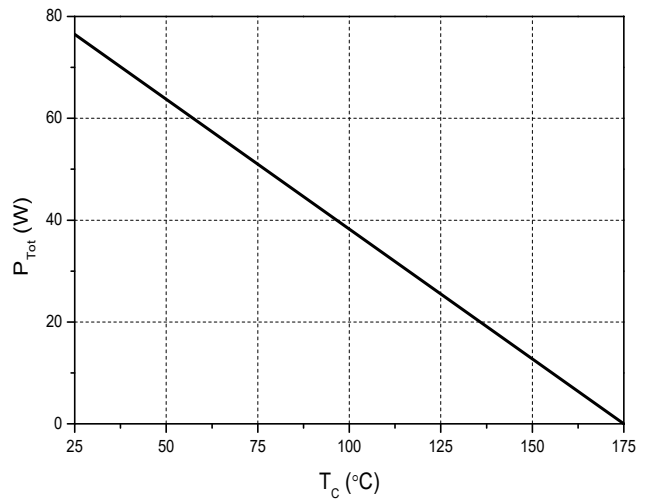


Figure 6. Power Derating

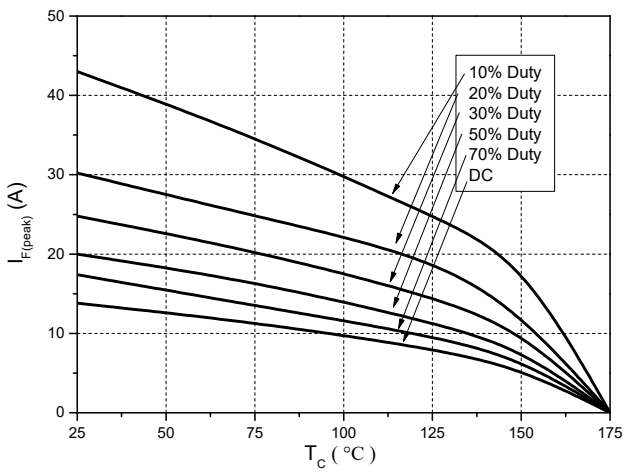


Figure 7. Current Derating

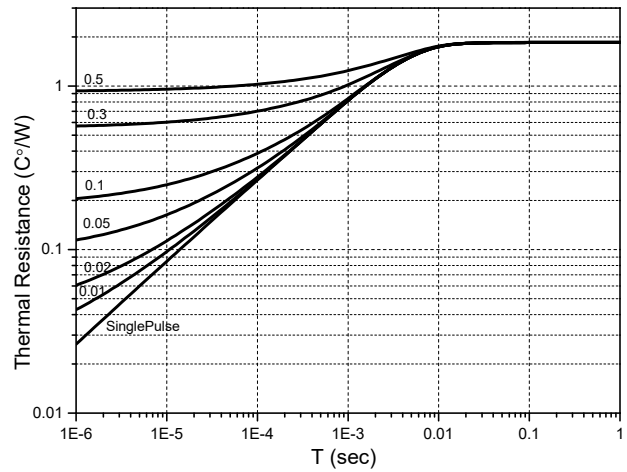
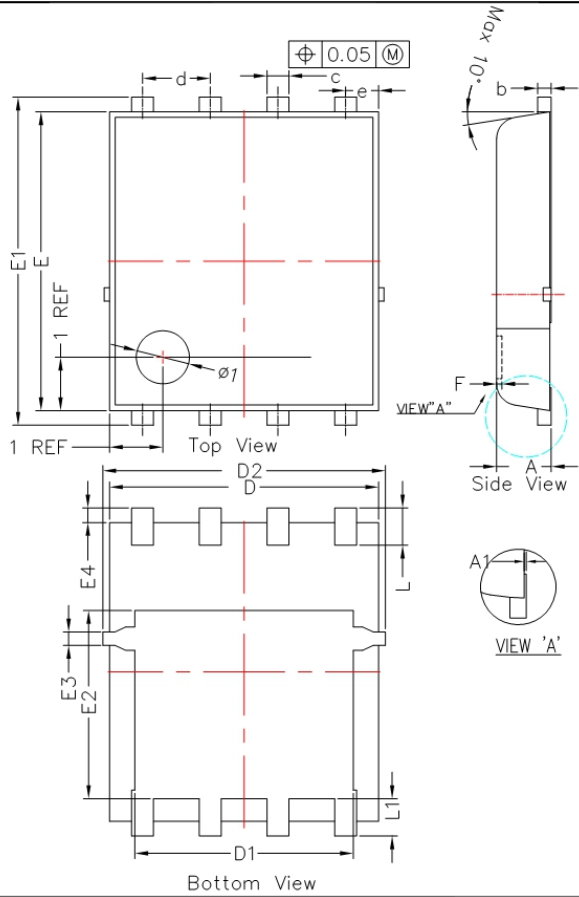


Figure 8. Transient Thermal Impedance

Package Dimensions: DFN5*6



SYMBOLS	DIMENSION IN MM			DIMENSION IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.900	1.000	1.100	0.035	0.039	0.043
A1	0.000	---	0.050	0.000	----	0.002
b	0.246	0.254	0.312	0.010	0.010	0.012
c	0.310	0.410	0.510	0.012	0.016	0.020
d	1.27 BSC			0.050 BSC		
D	4.950	5.050	5.150	0.195	0.199	0.203
D1	4.000	4.100	4.200	0.157	0.161	0.165
D2	5.200	5.300	5.400	0.205	0.209	0.213
e	0.62 BSC			0.024 BSC		
E	5.500	5.600	5.700	0.217	0.220	0.224
E1	6.050	6.150	6.250	0.238	0.242	0.246
E2	3.425	3.525	3.625	0.135	0.139	0.143
E3	0.150	0.250	0.350	0.006	0.010	0.014
E4	0.175	0.275	0.375	0.007	0.011	0.015
F	-	-	0.100	-	-	0.004
L	0.600	0.700	0.800	0.02	0.03	0.03
L1	0.600	0.700	0.800	0.02	0.03	0.03

NOTE:

1. PACKAGE BODY SIZE EXCLUDE MOLD FLASH AND GATE BURR.
2. MOLD FLASH AT THE NON-LEAD SIDES SHOULD BE LESS THAN 5 MIL EACH SIDE.
3. CONTROLLING DIMENSION IS MILLIMETER, INCH FOR REFERENCE ONLY.