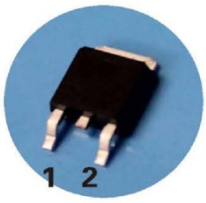
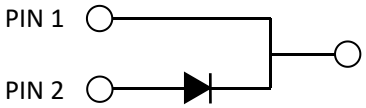
新芯微电子
NewChip
Microelectronics

N0D02120E

Silicon Carbide Schottky Diode





Maximum Ratings (T_c = 25°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	9.5 5 2	A	T_C=25°C T_C=125°C T_C=156°C	Fig. 7
I_{FRM}	Repetitive Peak Forward Surge Current	10	A	T_C=25°C, t_P=10 ms, Half Sine Wave	
I_{FSM}	Non-Repetitive Peak Forward Surge Current	18	A	TC=25°C, t_P=10ms, Half Sine Wave	
$I_{F,Max}$	Non-Repetitive Peak Forward Surge Current	180	A	T_C=25°C, t_P= 10 µs, Pulse	
P_{tot}	Power Dissipation	76.5 33.2	W	T_C=25°C T_C=110°C	Fig. 6
T_J , T_{stg}	Operating Junction and Storage Temperature	-55 to +175	°C		

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.4 2.1	1.8 2.5	V	I_F = 2 A T_J=25°C I_F = 2 A T_J=175°C	Fig. 1
I_R	Reverse Current	2 40	20 100	µA	V_R = 1200 V T_J=25°C V_R = 1200 V T_J=175°C	Fig. 2
Q_C	Total Capacitive Charge	11.2		nC	V_R = 800V, T_J = 25°C $Q_C = \int_0^{V_R} C(V)dV$	Fig. 4
C	Total Capacitance	148 11 8		pF	V_R = 0 V, T_J = 25°C, f = 1 MHz V_R = 400 V, T_J = 25°C, f = 1 MHz V_R = 800 V, T_J = 25°C, f = 1 MHz	Fig. 3
E_C	Capacitance Stored Energy	5.8		µJ	V_R = 800 V	Fig. 5

Thermal Characteristics

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

Typical Performance

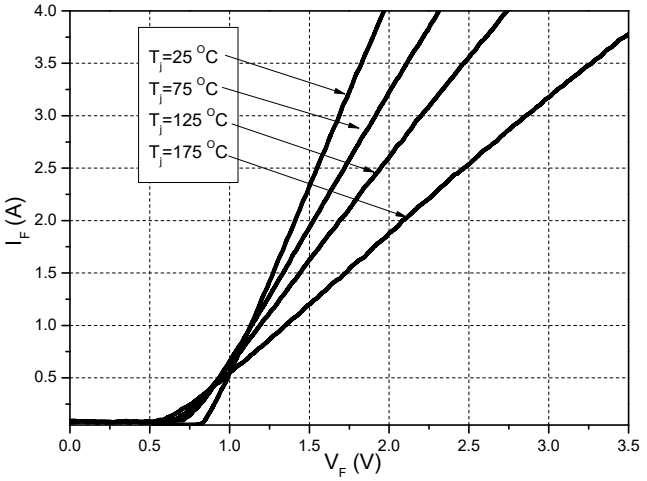


Figure 1.Forward Characteristics

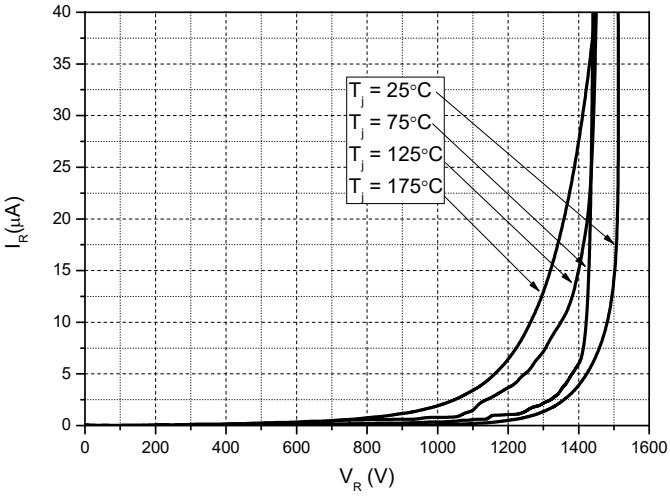


Figure 2. Reverse Characteristics

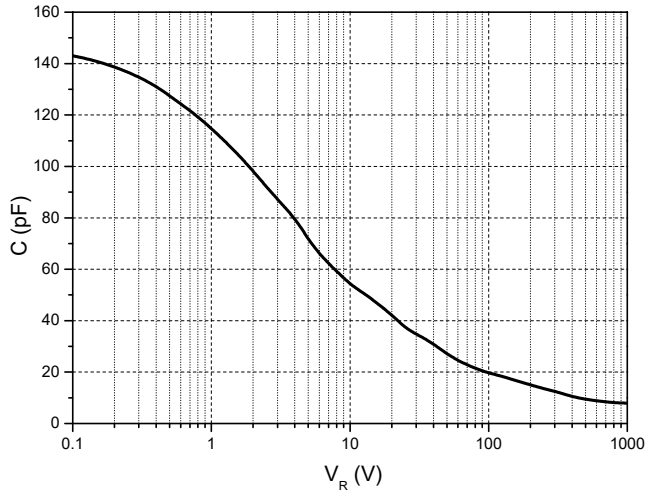


Figure 3.Capacitance vs. Reverse Voltage

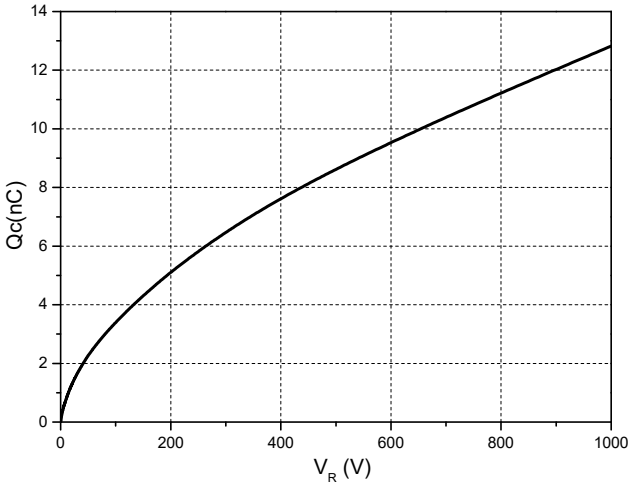
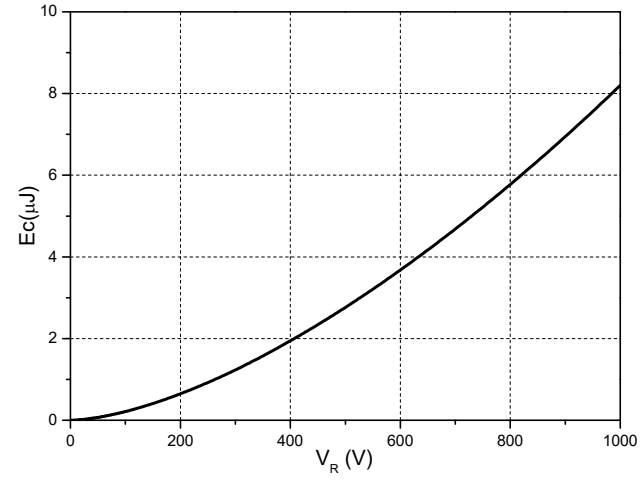


Figure 4. Total Capacitance Charge vs. Reverse Voltage



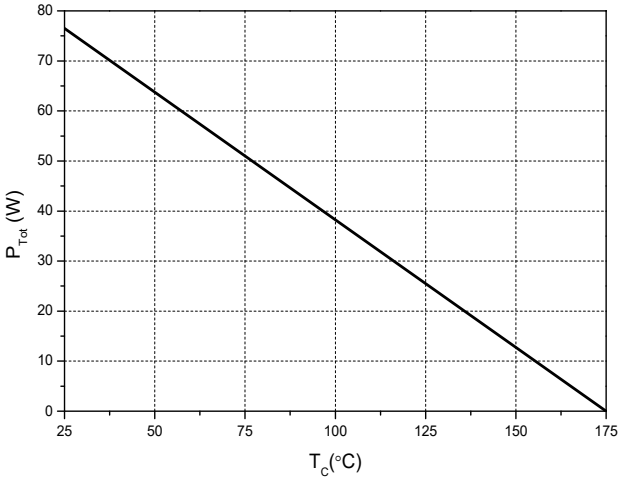


Figure 5. Capacitance Stored Energy

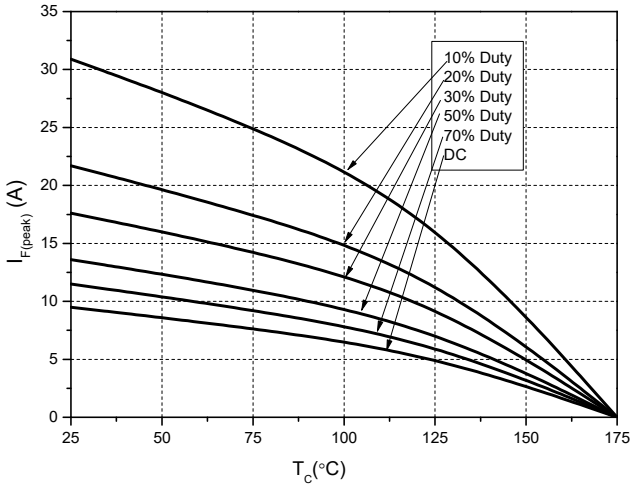


Figure 6. Power Derating

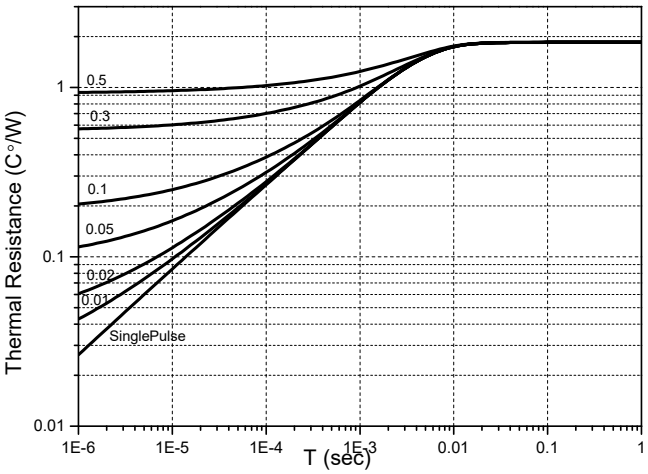
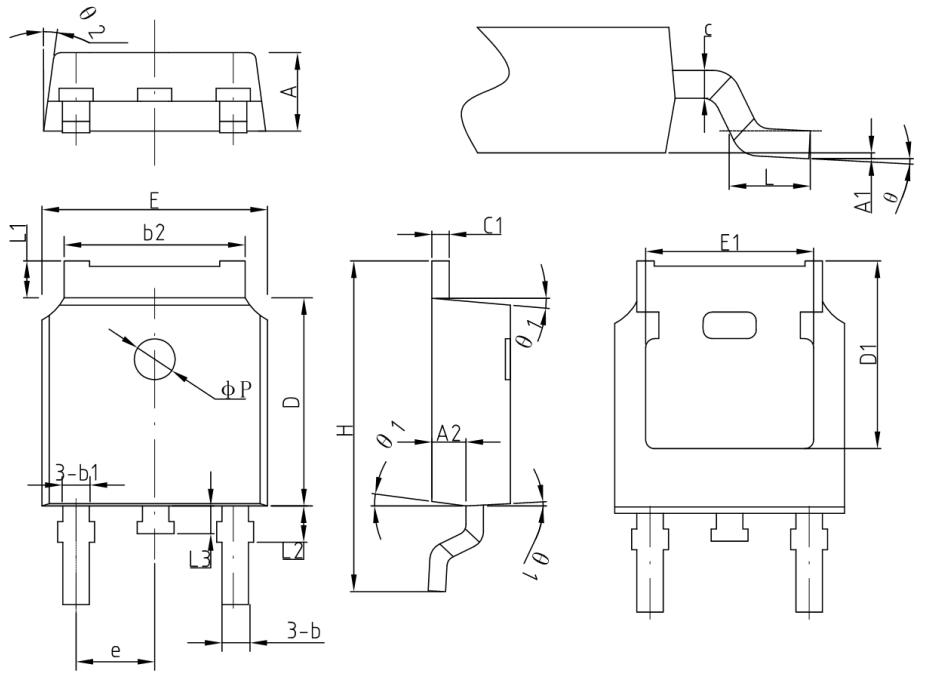


Figure 7. Current Derating

Figure 8. Transient Thermal Impendance

Package Dimensions: TO-252



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	2.2	2.30	2.38
A1	0	–	0.10
A2	0.90	1.01	1.10
b	0.71	0.76	0.86
b1		0.76	
b2	5.13	5.33	5.46
c	0.47	0.50	0.60
c1	0.47	0.50	0.60
D	6.0	6.10	6.20
D1	–	5.30	–
E	6.50	6.60	6.70
E1	–	4.80	–
e		2.286BSC	
H	9.70	10.10	10.40
L	1.40	1.50	1.70
L1	0.90	–	1.25
L2		1.05	
L3		0.8	
ΦP		1.2	
θ	0°	–	8°
θ1	5°	7°	9°
θ2	5°	7°	9°