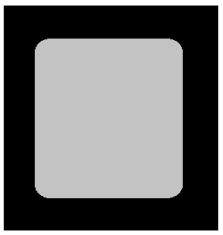
新芯微电子
NewChip
Microelectronics

N3D-0650-020

Silicon Carbide Schottky Diode Chip

Part Number	Die Size	Anode	Cathode
SIC-0650-020	2.71 x 2.71 mm^2	Al	Ni/Ag



Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	650	V		
I_F	Continuous Forward Current	20	A	T_C=150˚C	
V_R	DC Peak Blocking Voltage	650	V		
I_{FRM}	Repetitive Peak Forward Surge Current	140	A	T_C=25˚C, t_P=10 ms, Half Sine Wave,	*
I_{FSM}	Non-Repetitive Peak Forward Surge Current	170	A	T_C=25˚C, t_P=10ms, Half Sine Wave	*
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	˚C		

* $R_{\theta JC}$=1.09°C/W

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.45 1.80	1.7 2.0	V	I_F = 20 A T_J=25°C I_F = 20 A T_J=175°C	Figure 1
I_R	Reverse Current	2 40	20 200	μA	V_R = 650 V T_J=25°C V_R = 650 V T_J=175°C	Figure 2
Q_C	Total Capacitive Charge	65		nC	V_R = 400 V, T_J = 25°C $Q_C=\int_0^{V_R} C(V)dV$	Figure 4
C	Total Capacitance	1340 120 109		pF	V_R = 0 V, T_J = 25°C, f = 1 MHz V_R = 200 V, T_J = 25˚C, f = 1 MHz V_R = 400 V, T_J = 25˚C, f = 1 MHz	Figure 3
E_C	Capacitance Stored Energy	16		μJ	V_R = 400 V	

Mechanical Parameters

Parameter	Typ.	Unit
Die Size	2.71 x 2.71	mm
Anode Pad Size	2.44 x 2.44	mm
Anode Pad Opening	2.22 x 2.22	mm
Thickness	180 ± 10%	μm
Wafer Size	150	mm
Anode Metalization (Al)	4	μm
Cathode Metalization (Ni/Ag)	1.5	μm
Frontside Passivation	Polyimide	

Typical Performance

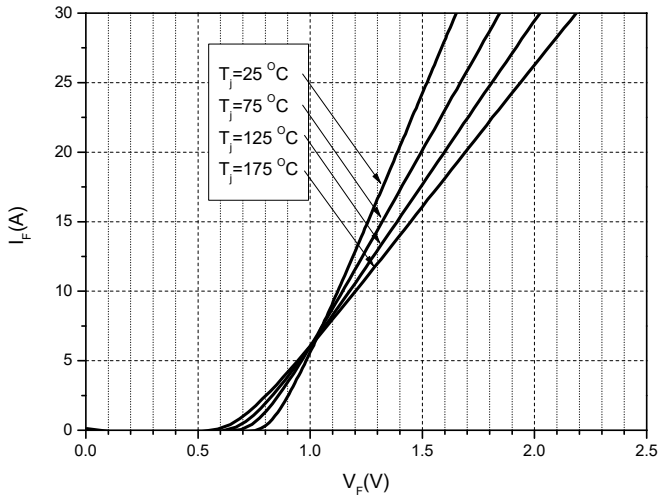


Figure 1.Forward Characteristics

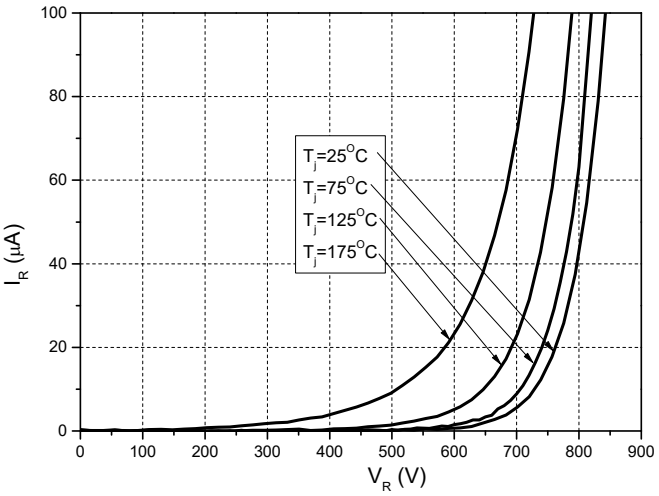


Figure 2. Reverse Characteristics

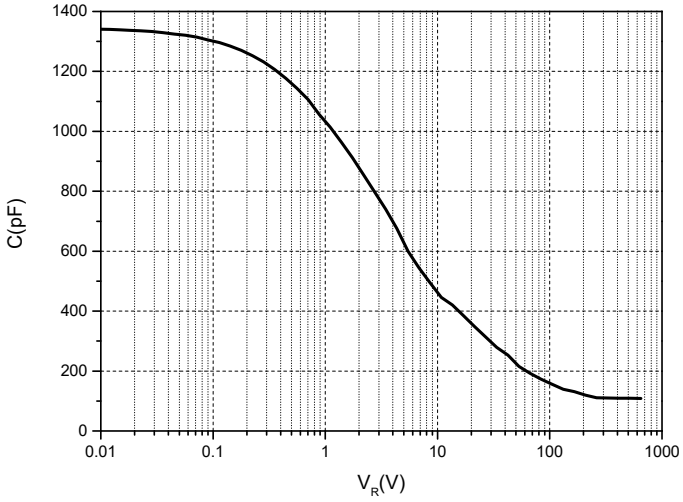


Figure 3.Capacitance vs. Reverse Voltage

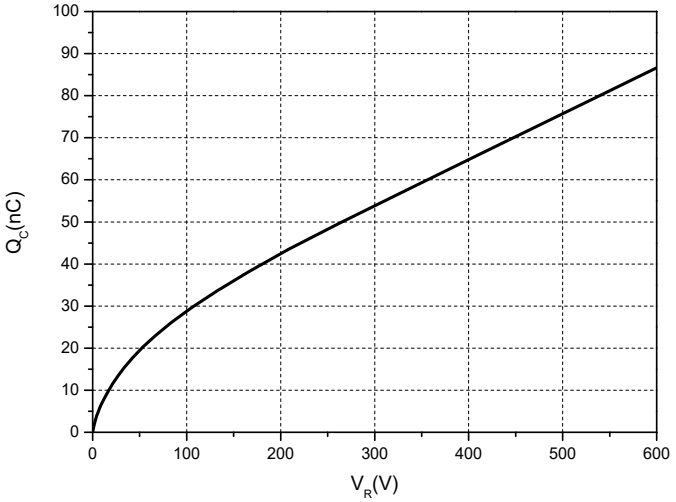
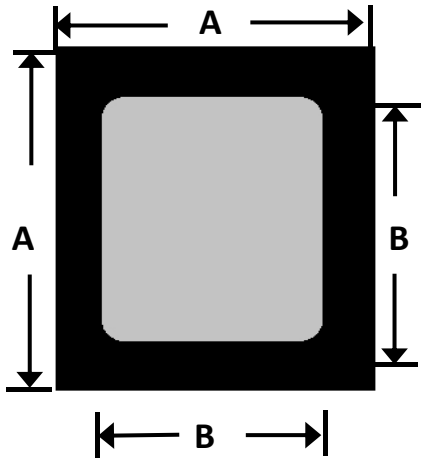


Figure 4. Total Capacitance Charge vs. Reverse Voltage

Chip Dimensions



Symbol	Dimension(mm)
A	2.73
B	2.22