

N3D-1200-040

Silicon Carbide Schottky Diode Chip



Part Number	Die Size	Anode	Cathode
SIC-1200-040	3.00 x 6.97 mm ²	Al	Ni/Ag

Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions	Note
V _{RRM}	Repetitive Peak Reverse Voltage	1200	V		
I _F	Continuous Forward Current	40*	A	T _C =150°C	
I _{FRM}	Repetitive Peak Forward Surge Current	280	A	T _C =25°C, t _p =10 ms, Half Sine Wave	*
I _{FSM}	Non-Repetitive Peak Forward Surge Current	350	A	T _C =25°C, t _p =10ms, Half Sine Wave	*
I _{F,Max}	Non-Repetitive Peak Forward Surge Current	2000	A	T _C =25°C, t _p = 10 μs, Pulse	*
T _J , T _{stg}	Operating Junction and Storage Temperature	-55 to +175	°C		

* R_{θJC}=0.55°C/W

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V _F	Forward Voltage	1.47 1.53 2.10	1.80 1.85 3.00	V	I _F = 40 A, T _J =25°C I _F = 45 A, T _J =25°C I _F = 40 A, T _J =175°C	
I _R	Reverse Current	10 50	100 400	μA	V _R = 1200V, T _J =25°C V _R = 1200V, T _J =175°C	
Q _C	Total Capacitive Charge	226		nC	V _R = 800V, T _J = 25°C, Q _C =∫ ₀ ^{V_R} C(V)dV	
C	Total Capacitance	3930 209 159		pF	V _R = 0V, T _J = 25°C, f = 1 MHz V _R = 400V, T _J = 25°C, f = 1 MHz V _R = 800V, T _J = 25°C, f = 1 MHz	
E _C	Capacitance Stored Energy	120		μJ	V _R = 800V	

Mechanical Parameters

Parameter	Typ.	Unit
Die Size	3.00 x 6.97	mm
Anode Pad Size	2.74 x 6.71	mm
Anode Pad Opening	2.52 x 6.49	mm
Thickness	180 ± 10%	μm
Wafer Size	150	mm
Anode Metalization (Al)	4	μm
Cathode Metalization (Ni/Ag)	1.5	μm

Typical Performance

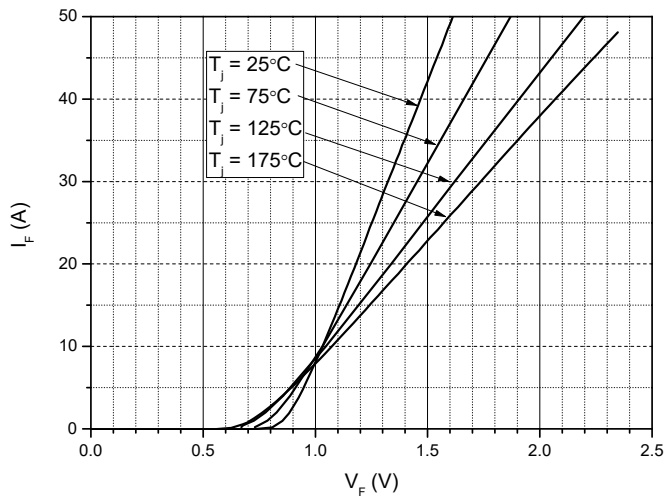


Figure 1. Forward Characteristics

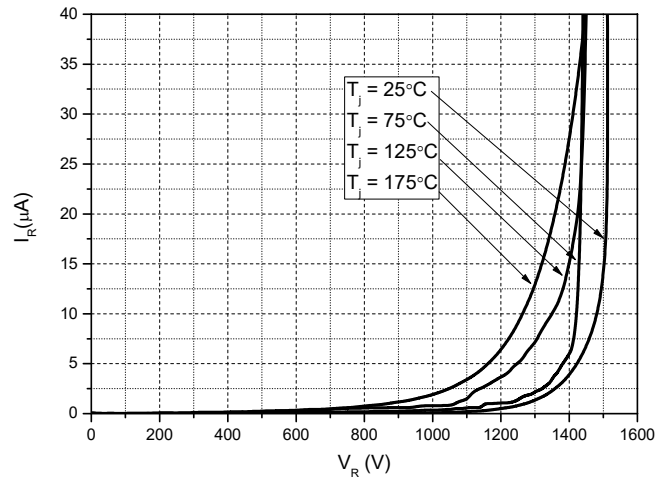


Figure 2. Reverse Characteristics

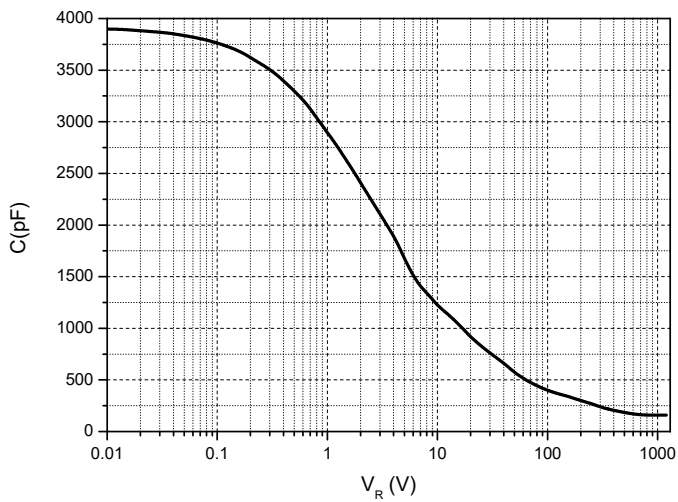


Figure 3. Capacitance vs. Reverse Voltage

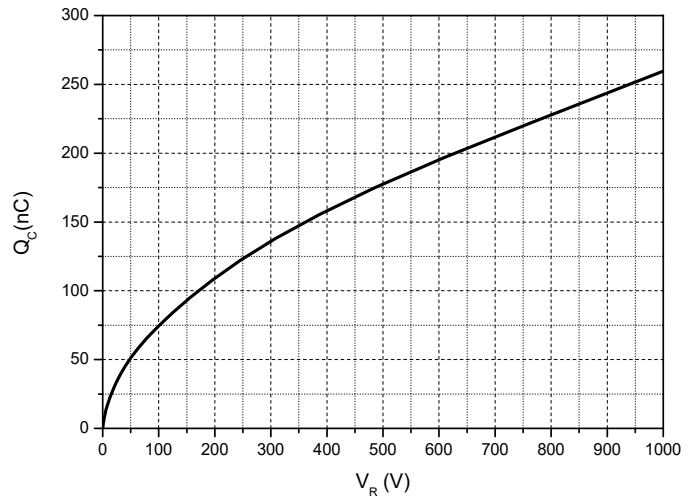
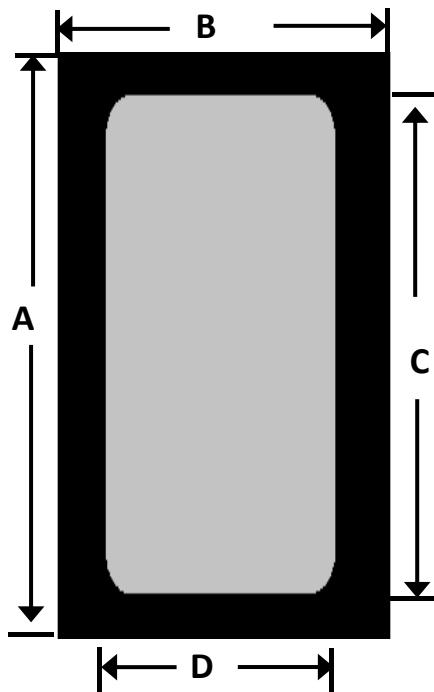


Figure 4. Total Capacitance Charge vs. Reverse Voltage

Chip Dimensions



Symbol	Dimension(mm)
A	6.97
B	3.00
C	6.49
D	2.52