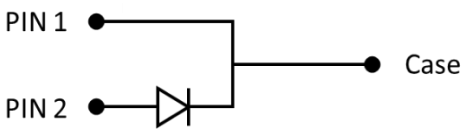
NW12005IX1

1200 V 5 A SiC Schottky diodes

Parameter	Value	Unit
I_F; T_c = 155 °C	5	A
V_F; I_F = 5 A	1.35	V
Q_C; V_R = 800 V	28	nC

Features

- Zero reverse recovery
- High-speed switching
- Temperature independent switching behavior
- V_{RPM} = 1200 V
- I_F = 5 A (155 °C)
- V_F= 1.35 V (25 °C)
- Q_C = 28 nC
- Junction temperature -55 °C to 175 °C
- Package type: TO-252-2L
- RoHS compliant



Applications

- Industrial power supplies
- Battery chargers
- Solar inverters
- Switch mode power supplies

Description

The NW12005IX1 Schottky barrier diode (SBD) is based on NovaWave's advanced SiC power technology resulting in high performance and long-term reliability. It supports high-temperature operation while showing minimal losses, zero reverse recovery, and low leakage current up to 1200V.

Table 1 Maximum Ratings

T_j = 25 °C, unless otherwise specified.

Parameter	Symbol	Value	Unit	Test conditions
Repetitive peak reverse voltage	V_{RRM}	1200	V	T_C = 25 °C
Surge peak reverse voltage	V_{RSM}	1200		
DC reverse voltage	V_{DC}	1200		
Continuous forward current	I_F	22	A	T_C = 25 °C
		10		T_C = 135 °C
		5		T_C = 155 °C
Surge non-repetitive forward current	I_{FSM}	55	A	T_C = 25 °C, t_p = 10 ms, half sine wave D = 0.1
Surge repetitive forward current	I_{FRM}	40	A	T_C = 25 °C, t_p = 10 ms, half sine wave D = 0.1
Power dissipation	P_{tot}	134	W	T_C = 25 °C
i^2t value	$\int i^2dt$	15	A^2s	T_C = 25 °C, t_p = 10 ms,
Operating Junction Temperature	T_J	-55 to +175	°C	-
Storage Temperature	T_S	-55 to +150	°C	-

Table 2 Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-to-Case – (bottom side)	$R_{TH,J-C}$	1.12	°C/W

Table 3 Static Electrical Characteristics

Parameters	Symbol	Min	Typ	Max	Unit	Condition
DC blocking voltage	V_{DC}	1200	-	-	V	I_R = 100 µA
Forward voltage	V_F	-	1.35	1.50	V	I_F = 5 A, T_j = 25 °C
		-	1.85	2.20		I_F = 5 A, T_j = 175 °C
Reverse current	I_R	-	1	20	µA	V_R = 1200 V, T_j = 25 °C
		-	3	80		V_R = 1200 V, T_j = 175 °C

Table 4 Dynamic Electrical Characteristics

Total capacitance	C	-	400	-	pF	V_R = 0 V, f = 1 MHz
		-	27	-		V_R = 400 V, f = 1 MHz
		-	20	-		V_R = 800 V, f = 1 MHz
Total capacitive charge	Q_C	-	28	-	nC	V_R = 800 V
Capacitive stored energy	E_C	-	8.2	-	µJ	V_R = 800 V

Electrical Performance Graphs

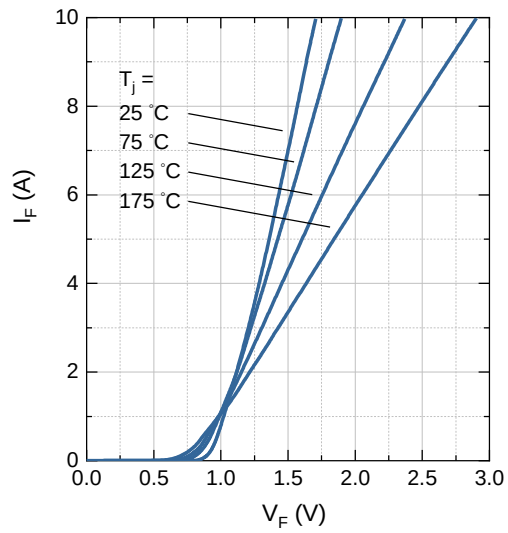


Figure 1: Typical Forward characteristics

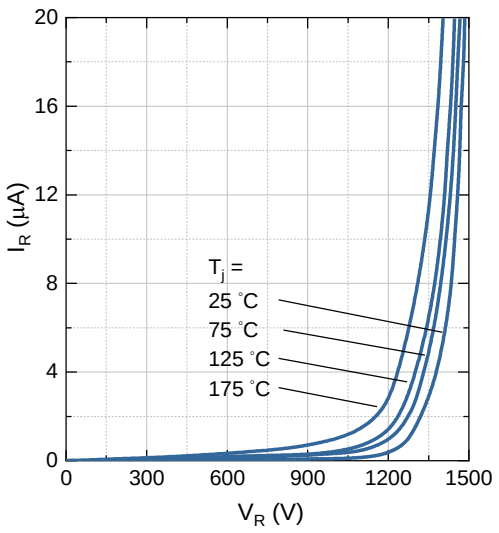


Figure 2: Typical Reverse characteristics

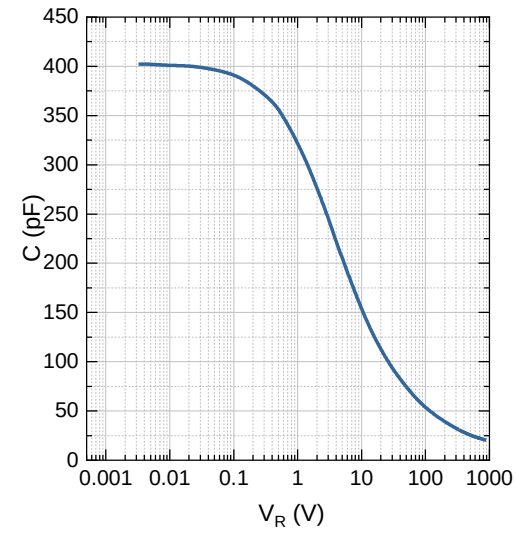


Figure 3: Typical Junction Capacitance vs. Reverse Voltage

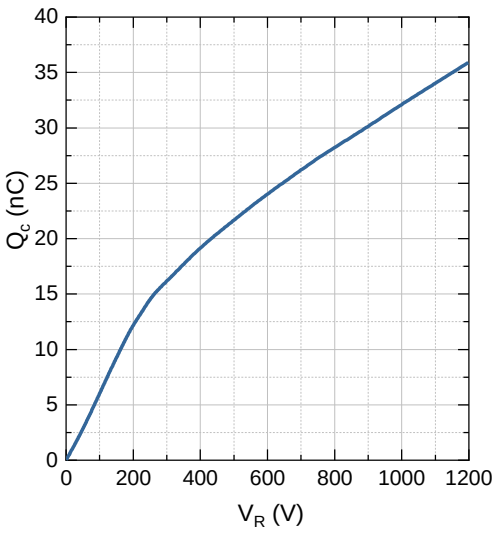


Figure 4: Typical Capacitive Charge vs. Reverse Voltage

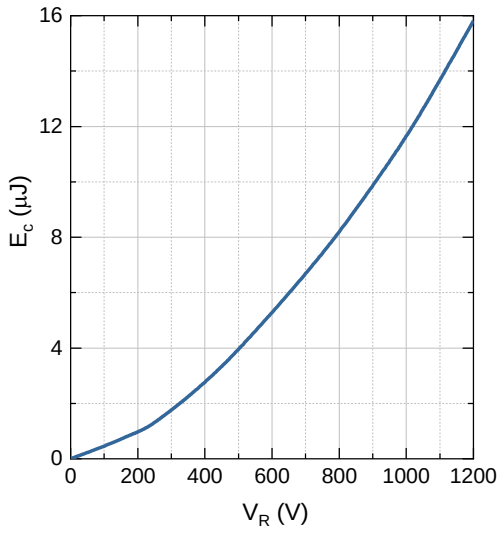


Figure 5: Typical Capacitive Energy vs. Reverse Voltage

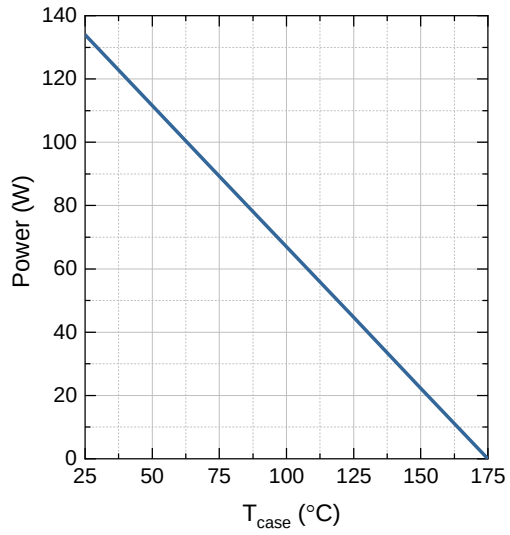


Figure 6: Power Derating vs. T_{case}

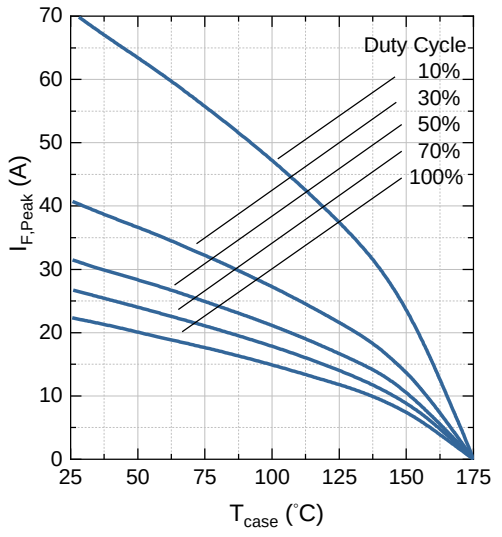
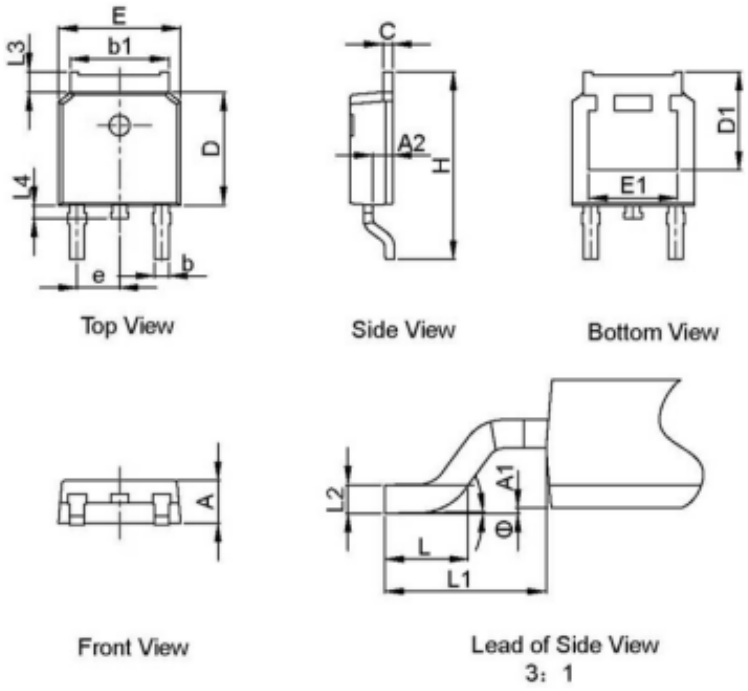


Figure 7: Current Derating vs. T_{case}

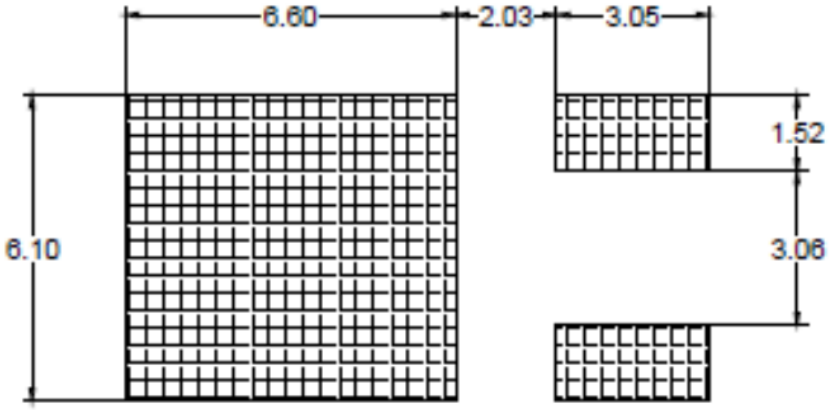
Package Information



Dimension unit: [mm]			
Symbol	Min	Nom	Max
A	2.20	2.30	2.38
A1	0	-	0.127
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b1	5.20	5.33	5.46
c	0.43	0.53	0.61
D	5.98	6.10	6.22
D1	5.30 REF		
E	6.40	6.60	6.73
E1	4.63	-	-
e	2.286 BSC		
H	9.40	10.10	10.50
L	1.38	1.50	1.75
L1	2.743 REF		
L2	0.51 BSC		
L3	0.88	-	1.28
L4	0.50	-	1.00
θ	0°	-	8°

Recommended Solder Pad Layout

Note: all dimensions are in mm



TO-252-2L

Ordering information

Parameters	Symbol
Part number	NW12005IX1
Package	TO-252-2L
Unit quantity	2500 ea
Package type	Tape & Reel

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