

Revision History

<u>Rev. No.</u>	<u>History</u>	<u>Issue Date</u>
1.0	New issue	Oct. 15,2025

Nano Meter Coated (NMC)SIC Schottky Diode

650 V, 10 A Silicon Carbide Schottky Diode

■ Features

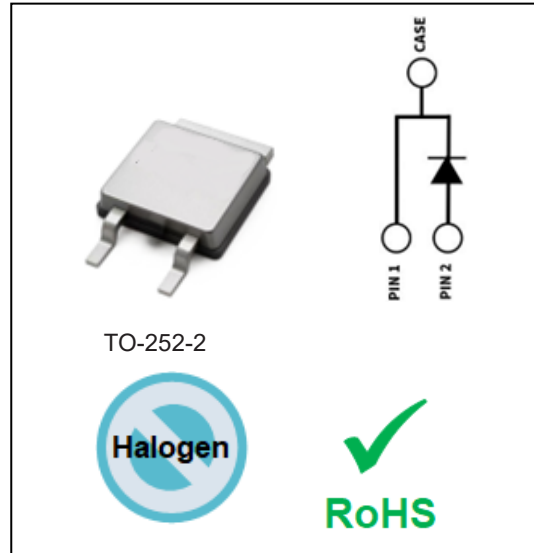
- Replace bipolar with unipolar rectifiers
- High heat dissipation and anti- EMI ability
- Zero reverse recovery current
- Zero forward recovery voltage
- High-frequency operation
- Temperature-independent switching behavior
- Extremely fast switching
- Positive temperature coefficient on VF

■ Benefits

- Replace bipolar with unipolar rectifiers
- Essentially no switching losses
- Higher efficiency
- Reduction of heat sink requirements
- Parallel devices without thermal runaway

■ Applications

- Switch mode power supplies (SMPS)
- Boost diodes in PFC or DC/DC stages
- Free wheeling diodes in inverter stages
- AC/DC converters



Top Mark: CSiCD65010T7		
Ordering P/N: CSiCD65010T7		
Parameter	Value	Unit
V_{DS}	650	V
$I_D(T_C < 150^\circ\text{C})$	10	A

■ Absolute Maximum Ratings (Tj=25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Value	Unit	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	Tc=25°C	32	A	Fig. 3
		Tc=135°C	15	A	
		Tc=153°C	10	A	
I_{FRM}	Repetitive Peak Forward Surge Current	Tc=25°C, tp=10 ms, Half Sine Wave	43.5	A	
		Tc=110°C, tp=10 ms, Half Sine Wave	28	A	
I_{FSM}	Non-Repetitive Peak Forward Surge Current	Tc=25°C, tp=10 ms, Half Sine Wave	90	A	Fig. 8
		Tc=110°C, tp=10 ms, Half Sine Wave	71	A	
$I_{F, Max}$	Non-Repetitive Peak Forward Surge Current	Tc=25°C, tp=10 μs, Pulse	860	A	Fig. 8
		Tc=110°C, tp=10 μs, Pulse	680	A	

P _{tot}	Power Dissipation	T _c =25°C	150	W	Fig. 4
		T _c =110°C	65	W	
dV/dt	Diode dV/dt Ruggedness	V _R = 0-650 V	200	V/ns	
i ₂ ² dt	i ₂ ² t Value	T _c =25°C, t _p =10 ms	40.5	A ² s	
		T _c =110°C, t _p =10 ms	25	A ² s	
T _J , T _{stg}	Operating Junction and Storage Temperature		-55~175	°C	

■ Electrical Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions	Note
V _F	Forward Voltage		1.5	1.8	V	I _F = 10 A, T _J = 25 °C	Fig. 1
			2.0	2.4		I _F = 10 A, T _J = 175 °C	
I _R	Reverse Current		12	60	μA	V _R = 650 V, T _J = 25 °C	Fig. 2
			24	220		V _R = 650 V, T _J = 175 °C	
Q _C	Total Capacitive Charge		24		nC	V _R = 400 V, I _F = 10 A di/dt = 500 A/μS T _J = 25 °C	Fig. 5
C	Total Capacitance		460.5		pF	V _R = 0 V, T _J = 25 °C, f = 1 MHz	Fig. 6
			44			V _R = 200 V, T _J = 25 °C, f = 1 MHz	
			40			V _R = 400 V, T _J = 25 °C, f = 1 MHz	
EC	Capacitance Stored Energy		3.6		μJ	V _R = 400 V	Fig. 7

■ Thermal Data

SYMBOL	PARAMETER	Typ.	UNIT
R _{thJC}	Thermal Resistance from Junction to Case Fig. 9	1.0	°C/W

■ Typical Characteristics

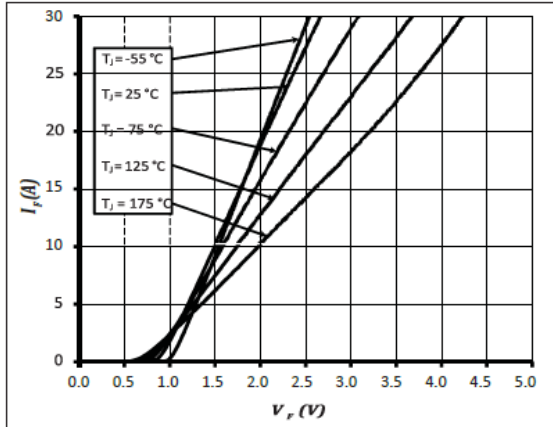


Figure 1. Forward Characteristics

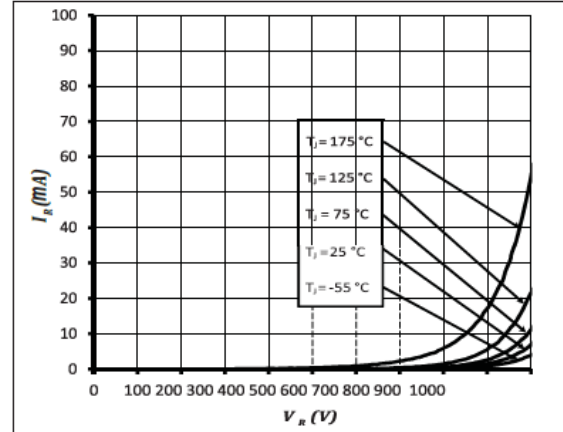


Figure 2. Reverse Characteristics

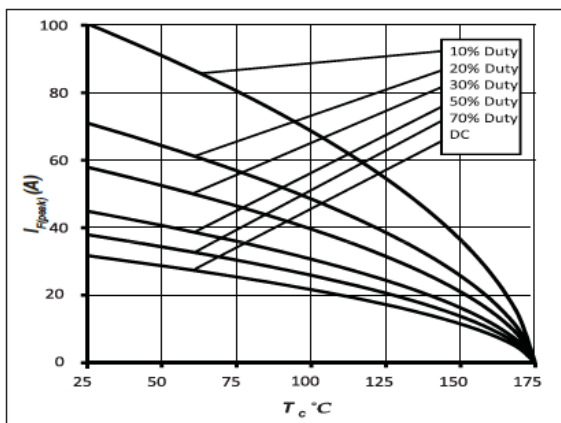


Figure 3. Current Derating

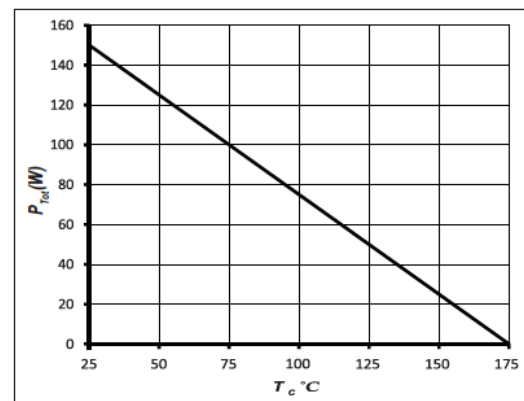


Figure 4. Power Derating

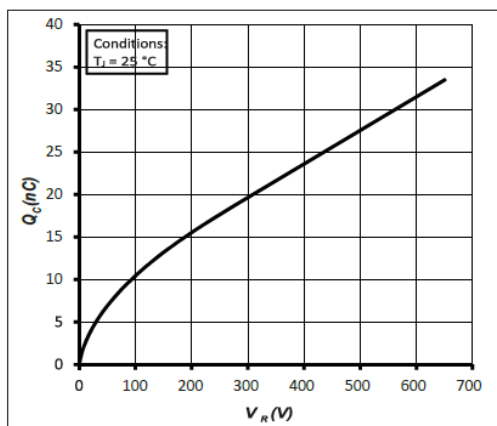


Figure 5. Total Capacitance Charge vs. Reverse Voltage

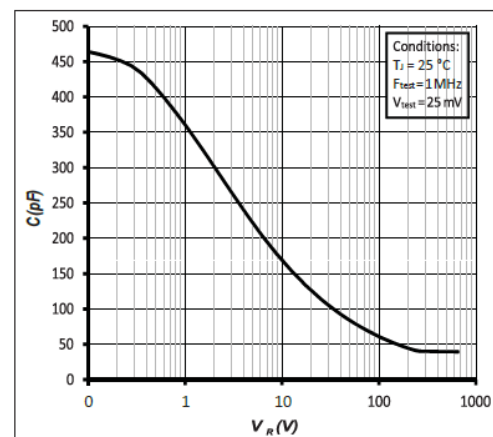


Figure 6. Capacitance vs. Reverse Voltage

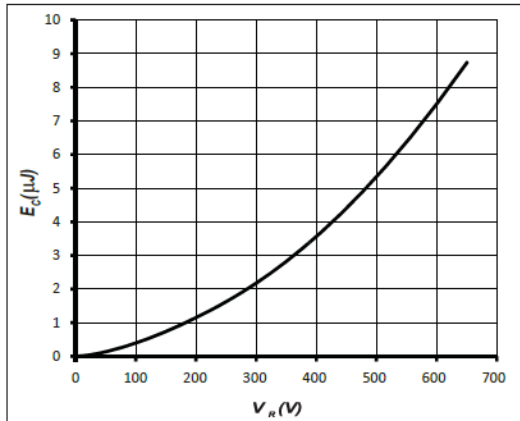


Figure 7. Capacitance Stored Energy

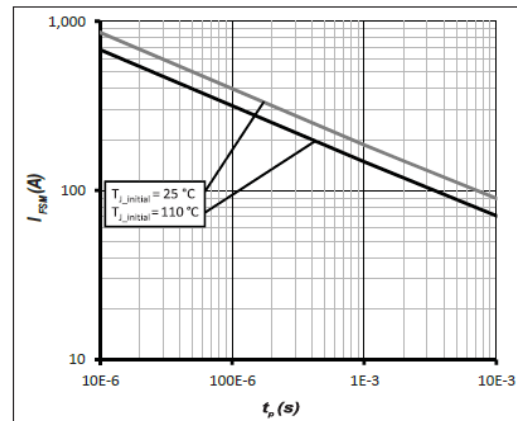


Figure 8. Non-Repetitive Peak Forward Surge Current Versus Pulse Duration (Sinusoidal Waveform)

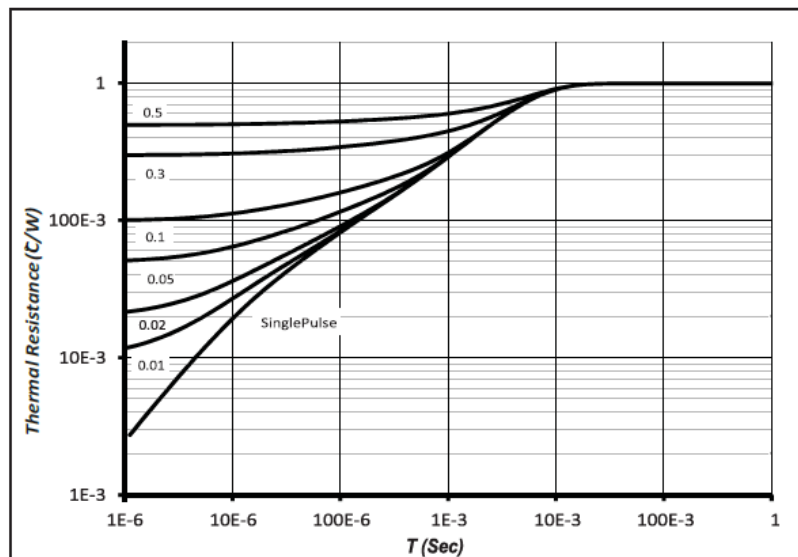
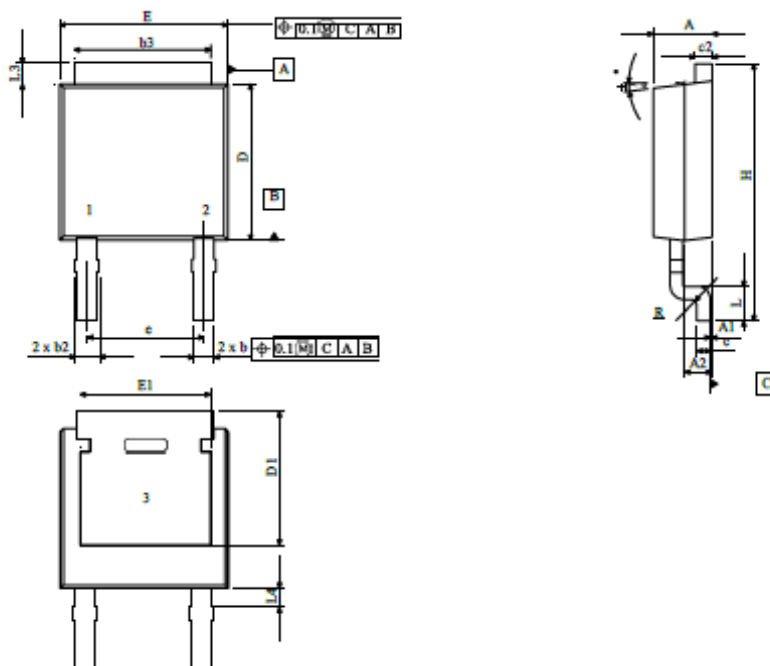


Figure 9. Transient Thermal Impedance

■ Package Outline Dimension

TO-252-2



SYMBOL	MIN (mm)	MAX (mm)
A	2.184	2.388
A1	0.00	0.127
A2	0.97	1.17
b	0.64	0.88
b2	0.635	1.143
b3	5.004	5.60
c	0.46	0.58
c2	0.457	0.864
D	5.867	6.248
D1	5.21	---
E	6.35	6.73
E1	4.32	---
e	4.521	4.623
H	9.652	10.414
L3	0.889	1.27
L	1.245	1.445
L4	0.462 REF	
R	0.254 TYP	

1	CATHODE
2	ANODE
3	CATHODE

NOTE

1. ALL METAL SURFACES ARE TIN PLATED (MATTE), EXCEPT AREA OF CUT.
2. DIMENSIONING & TOLERANCING CONFORM TO ASME Y14.5M-1994.
3. ALL DIMENSIONS ARE LISTED IN MILLIMETERS. ANGLES ARE IN DEGREES.
4. PACKAGE BURR FLASH SIZE (0.5 mm) IS NOT INCLUDED IN THE DIMENSIONS