



DSC50DSD170B5H

1.7kV, 50A Silicon Carbide Schottky Diode Module

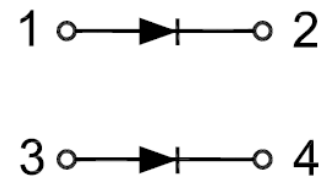
Parallel legs

Preliminary Datasheet

Features:

- 1.7kV Schottky Rectifier
- Zero Reverse Recovery
- Zero Forward Recovery
- Low Stray Inductance
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on V_F

Circuit Diagram



Benefits:

- Very Rugged and Easy Mounting
- Essentially No Switching Losses
- High Efficiency
- Reduction of Heat Sink Requirements
- Low Loss and Low EMI Noise

Applications:

- EV Chargers
- Solar/Wind Inverters
- Induction heating
- AC/DC Converters
- UPS、SMPS



SiC Schottky Diodes

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

Symbol	Description	Values	Units
V _{RRM}	Repetitive Peak Reverse Voltage	1700	V
V _{RSM}	Surge Peak Reverse Voltage	1700	V
I _F	Continuous Forward Current	T _{VJ} =150°C	A
I _{FSM}	Non-Repetitive Forward Surge Current	T _{VJ} =25°C, t _p =8.3ms	A
P _{tot}	Total Power Dissipation	T _C =25°C, T _{VJmax} =175°C	W

Electrical Characteristics (T_C=25°C unless otherwise specified)

Symbol	Description	Test conditions	Min.	Typ.	Max.	Units
V _{FM}	Forward Voltage	I _F =50A	T _{VJ} =25°C	1.45		V
			T _{VJ} =175°C	2.15		
I _R	Reverse Leakage Current	V _R =1700V	T _{VJ} =25°C		1	mA
			T _{VJ} =175°C		10	
C	Total Capacitive	f=1MHz, T _{VJ} =25°C	V _R =0.1V	8600		pF
			V _R =1000V	171		
			V _R =1700V	157		
Q _C	Total Capacitive Charge	V _R =800V, I _F =50A		320		nC
R _{θJC}	Diode Thermal Resistance: Junction-to-Case				0.37	°C/W



Module

Symbol	Description		Min.	Typ.	Max.	Units
V _{ISO}	Isolation Voltage (All Terminals Shorted)	f=50Hz, 60s	3400			V
T _{VJ}	Maximum Junction Temperature				175	°C
T _{JOP}	Maximum Operating Junction Temperature Range		-55		+175	°C
T _{stg}	Storage Temperature		-55		+150	°C
CTI	Comparative Tracking Index		200			
R _{θCS}	Case-to-Sink Thermally (Conductive Grease Applied)				0.06	°C/W
T	Power Terminals Screw:M4		1.1		1.5	N·m
T	Mounting Screw:M4		1.1		1.5	N·m
G	Weight			30		g

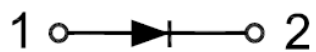
Ordering Information Table

Device code	D	SC	50	DSD	170	B5	H
	①	②	③	④	⑤	⑥	⑦

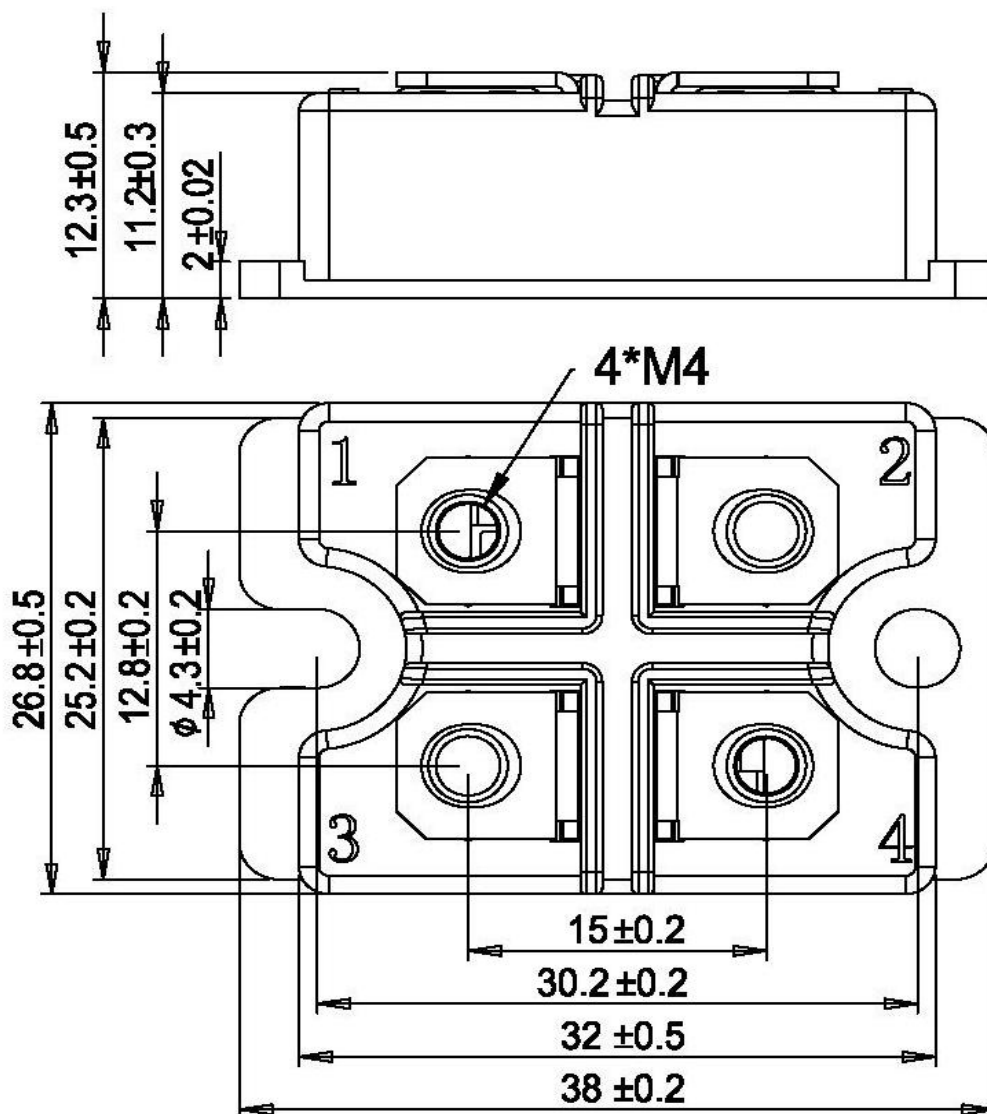
- ① - Diode Module
- ② - SiC Schottky Diodes
- ③ - Rated Current (50=50A)
- ④ - Circuit Configuration (Double Channel)
- ⑤ - Rated Voltage (170=1700V)
- ⑥ - Package Type
- ⑦ - Test Level (Pass the Important Reliability Test-Industrial Grade)



Internal Circuit Diagram:



Package Outline (Unit: mm):





Revision	Notes
01	Initial Release

Announcement

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The datasheet with “REV.” + “Arabic numerals” is based on engineering data for initial reference purpose only.

The released datasheet would be issued with “REV.” + “alphabet characters”.