

600V SiC Schottky Diode Module

Description

The SiC Schottky Diode Module SOT-227A package devices are optimized to reduce losses and switching noise in high frequency power conditioning electrical systems.

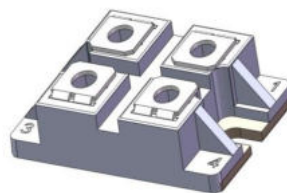
These SiC Schottky Diode Module series are ideally suited for Energy Storage ,High Power inverters, Power Quality Management and other applications where switching losses are significant portion of the total losses.

Features

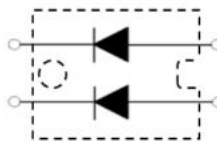
- Revolutionary semiconductor material - Silicon Carbide
- No reverse recovery current
- Temperature independent switching behavior
- Excellent thermal performance
- High reliability
- Isolation Type Package

Applications

- Power Quality Management
- Energy Storage



SOT-227A



Equivalent Circuit

Absolute Maximum Ratings (at $T_C=25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter		Ratings	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		600	V
V_{DC}	DC Blocking Voltage		600	V
$I_{F(AVG)}$	Average Forward Current	$T_C \leq 145^{\circ}\text{C}$	100	A
I_{FSM}	Non-Repetitive Forward Current , $t_p=8.3\text{ms}$, Half Sine Wave		600	A
P_D	Maximum Power Dissipation		500	W
T_J	Operating Junction Temperature Range		-55~+175	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range		-55~+150	$^{\circ}\text{C}$
V_{iso}	Isolation Voltage	AC 1minute	2500	V
	Mounting screw Torque: M6		4	N.M
	Weight		300	g

Thermal Characteristics

Symbol	Parameter	Ratings	Unit
$R_{th(J-C)}$ (Diode)	Thermal Resistance, Junction to case for Diode	0.3	$^{\circ}\text{C/W}$

Electrical Characteristics of Diode @T_C=25 °C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V _F	Diode Forward Voltage	I _F =100A	-	1.5	1.8	V
		I _F =100A, T _J =175°C	-	1.8	2.3	V
I _R	Reverse Current	V _R =600V			100	μA
		V _R =600V, T _J =175°C			200	μA
Q _C	Total Capacitive Charge	V _R =600V, I _F =100A, di/dt=200A/μs		220		nC
C	Total Capacitance	V _R =400V, f=1MHz		450		pF

Typical Performance Characteristics

Fig. 1. Forward Characteristics

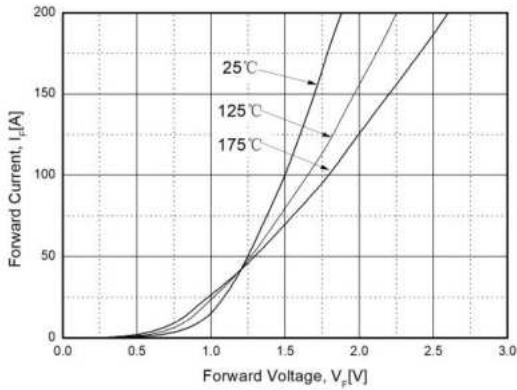


Fig. 2. Rate Current vs. T_C

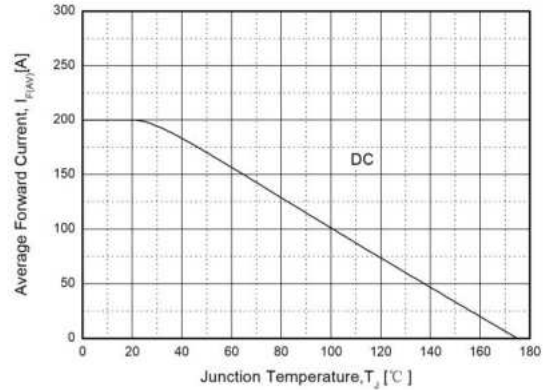


Fig. 3. Power Dissipation vs. T_J

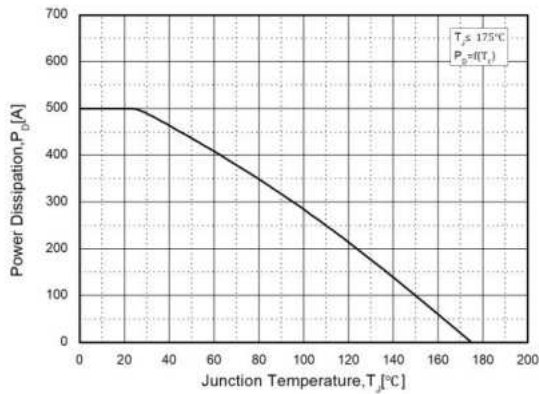


Fig. 4. Transient Thermal Impedance

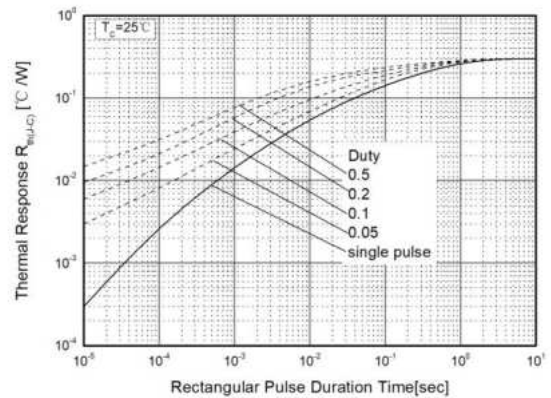


Fig. 5. Total Capacitance vs. Reverse Voltage

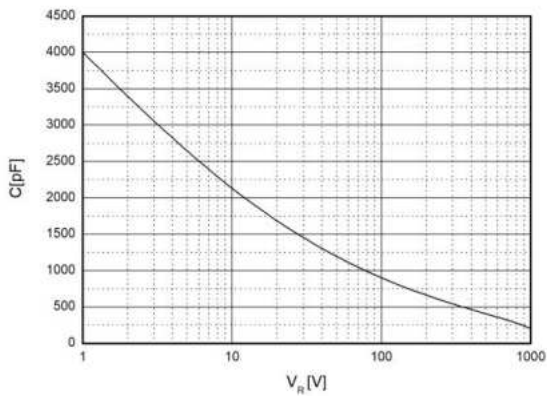
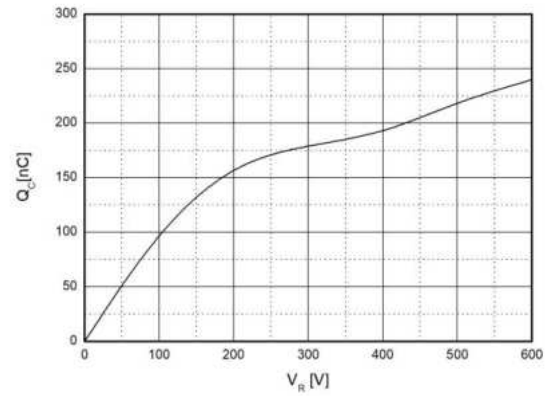
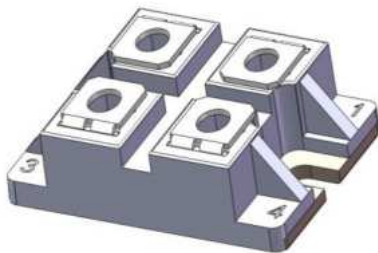


Fig. 6. Total Capacitive Charge vs. Reverse Voltage



Package Dimensions

SOT-227A



(Dimensions in Millimeters)

