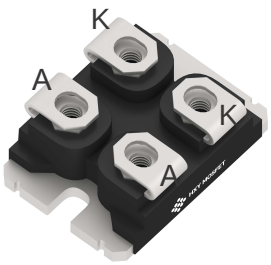
GC2X50MPS06-227

Silicon Carbide Schottky Diode

General Description

This product family offers state of the art performance.It is designed for high frequency applications where high efficiency and high reliability are required.



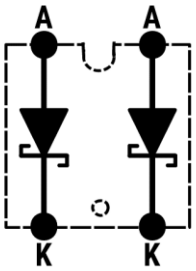
SOT-227

Features

- Low conduction loss due to low V_F
- Extremely low switching loss by tiny Q_C
- Highly rugged due to better surge current
- Industrial standard quality and reliability

Applications

- Solar Inverters
- EV Fast Chargers
- High performance SMPS
- Induction Heating and Welding



Ordering Information

Part Number	Package	Qty(PCS)
GC2X50MPS06-227	SOT-227	120

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

Symbol	Parameter	Value	Unit	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	650	V	
V_{RSM}	Surge Peak Reverse Voltage	650	V	
V_R	DC Blocking Voltage	650	V	
I_F	Continuous Forward Current	182/364 149/298 125/250	A	T_C=25˚C T_C=75˚C T_C=103˚C
I_{FRM}	Repetitive Peak Forward Surge Current	360 252	A	T_C=25˚C, t_P = 10 ms, Half Sine Wave T_C=110˚C, t_P=10 ms, Half Sine Wave
I_{FSM}	Non-Repetitive Peak Forward Surge Current	600 480	A	T_C=25˚C, t_p = 10 ms, Half Sine Wave T_C=110˚C, t_p = 10 ms, Half Sine Wave
$\int i^2dt$	i^2dt value	1800 1152	A^2s	T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse
P_{tot}	Power Dissipation	300 120	W	T_C=25˚C T_C=110˚C
T_{stg}	Storage temperature Range	-55 to +150	°C	
T_J	Operating junction Range	-55 to +175	°C	

Electrical Characteristics

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V_F	-	1.4	1.8	V	I_F=125A, T_j=25°C
		-	1.8			T_j=175°C
Reverse Current	I_R	-	-	100	μA	V_R=650V, T_j=25°C
		-	-	200		T_j=175°C
Total Capacitive Charge	Q_C	-	340	-	nC	V_R=400V，T_j=25°C, $Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	-	6420	-	pF	T_j=25°C, f=1MHz, V_R=0V
		-	654	-		V_R=200V
		-	539	-		V_R=400V

Thermal Characteristics

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.5	°C/W

Characteristics Curve

Fig 1: Forward Characteristics

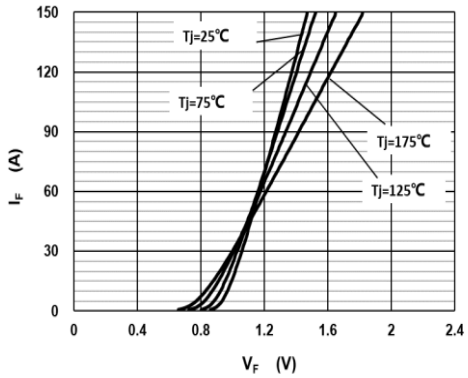


Fig 2: Reverse Characteristics

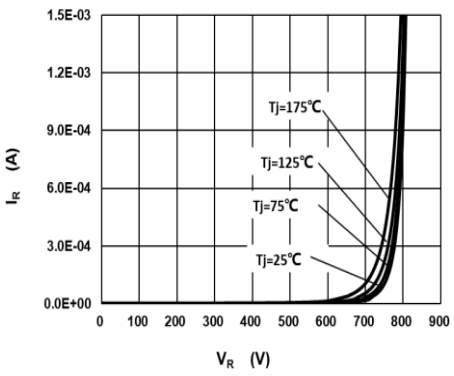


Fig 3: Current Derating

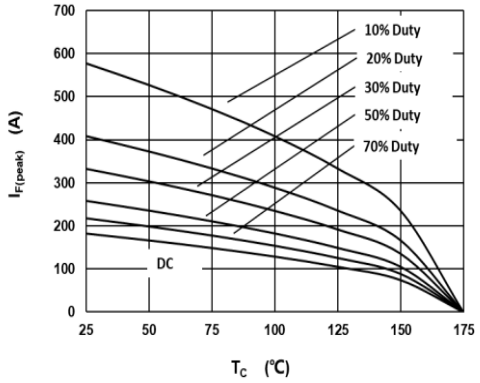


Fig 4: Power Derating

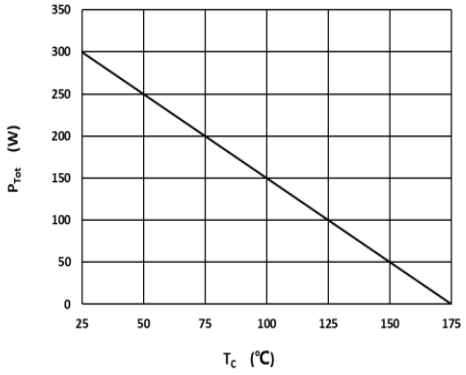


Fig 5: Capacitance vs. Reverse Voltage

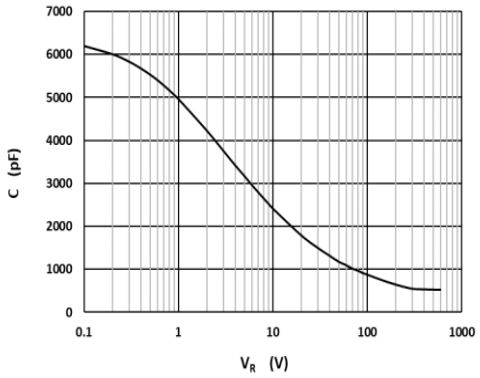


Fig 6: Reverse Charge vs. Reverse Voltage

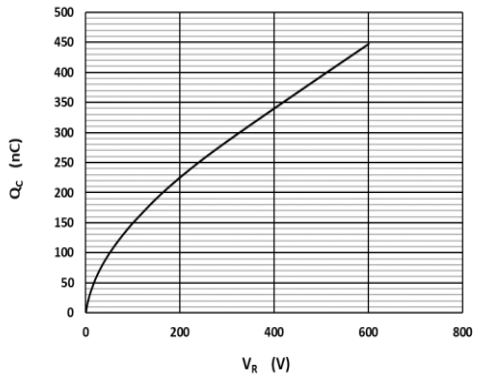


Fig 7: Typical Capacitance Stored Energy

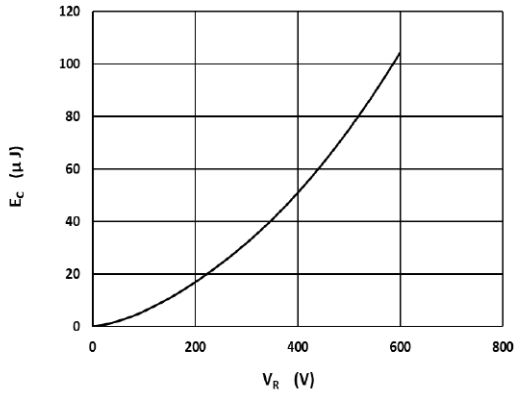
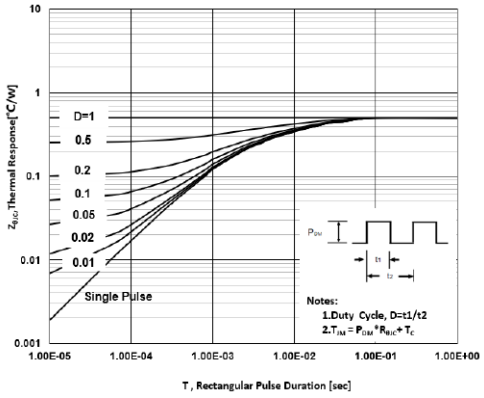
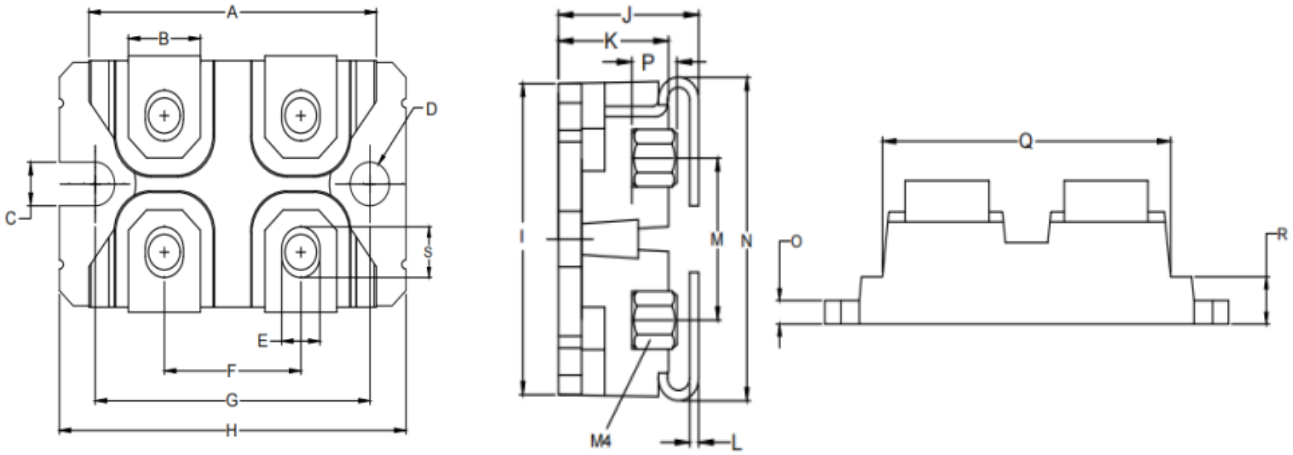


Fig 8: Transient Thermal Impandance



Package Information
SOT-227



DiM	Millimeter	
	Min	Max
A	31.40	31.60
B	7.70	8.10
C	4.20	4.40
D	4.20	4.40
E	4.10	4.30
F	14.90	15.10
G	30.10	30.20
H	38.00	38.40
I	23.80	24.20
J	12.20	12.70
K	9.40	9.60
L	0.75	0.85
M	12.40	12.80
N	24.50	25.40
O	1.90	2.10
P	3.10	3.95
Q	26.60	27.00
R	3.80	4.20
S	5.10	5.40

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