

HSC10120

Silicon Carbide Schottky Diode

VRRM	IF (TC≤148℃)	QC
1200V	10A	25nc

Features:

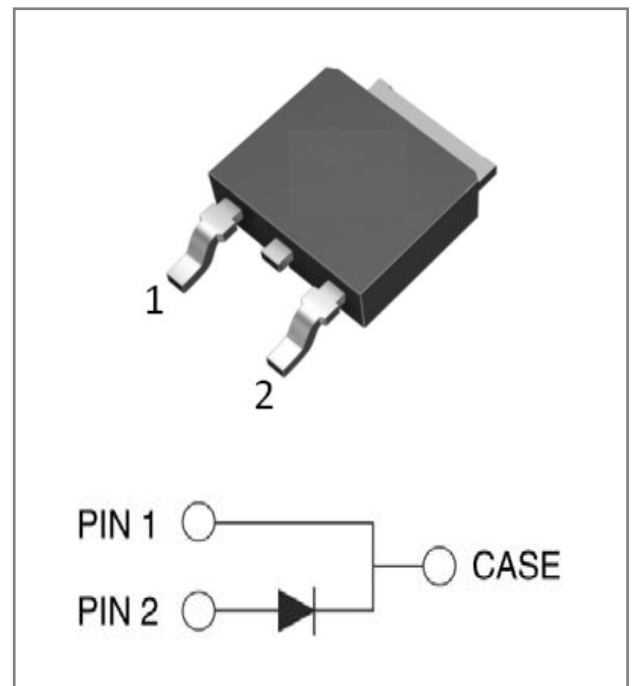
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- New Thin Wafer Technology
- Positive Temperature Coefficient on VF
- Temperature-independent Switching
- Excellent surge current capability
- 175°C Operating Junction Temperature

Applications:

- Switch Mode Power Supplies
- Power Factor Correction
- Motor drive, PV Inverter, Wind Power Station

Benefits:

- Replace Bipolar with Unipolar Device
- Reduction of Heat Sink Size
- Parallel Devices Without Thermal Runaway
- Essentially No Switching Losses



Ordering Information

Part Number	Package	Marking	Packing	Qty.
HSC10120	T0-252	HSC10120	Tape&reel	2500 PCS

Maximum Ratings (TJ= 25℃ unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
VRRM	Repetitive Peak Reverse Voltage	1200	V	TC = 25℃	
VRSM	Surge Peak Reverse Voltage	1200	V	TC = 25℃	
VR	DC Blocking Voltage	1200	V	TC = 25℃	
IF	Forward Current	25 13 10	A	TC ≤ 25℃ TC ≤ 135℃ TC ≤ 148℃	
IFSM	Non-Repetitive Forward Surge Current	90	A	TC = 25℃, tp = 8.3ms, Half Sine Wave	
Ptot	Power Dissipation	125	W	TC = 25℃	Fig.3
TJ,TSTG	Operating Junction and Storage Temperature	-55 -175	℃		

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

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V _F	Forward Voltage	1.45 2.0	1.8 -	V	I _F = 10A, T _J = 25°C I _F = 10A, T _J = 175°C	Fig.1
I _R	Reverse Current	6 30	100 500	μA	V _R = 1200V, T _J = 25°C V _R = 1200V, T _J = 175°C	Fig.2
C	Total Capacitance	600 45 34	/	pF	V _R = 0.1V, T _J = 25°C, f = 1MHz V _R = 400V, T _J = 25°C, f = 1MHz V _R = 800V, T _J = 25°C, f = 1MHz	Fig.5
QC	Total Capacitive Charge	25	/	nC	V _R = 800V,	Fig.4

Thermal Characteristics (T_J = 25°C unless otherwise specified)

Symbol	Parameter	Typ.	Unit	Note
R _{θJC}	Thermal Resistance from Junction-Case	1.2	°C / W	Fig.6
R _{θJA}	Thermal Resistance from Junction-Ambient	80	°C / W	
T _{sold}	Soldering Temperature	260	°C	

Typical Characteristics

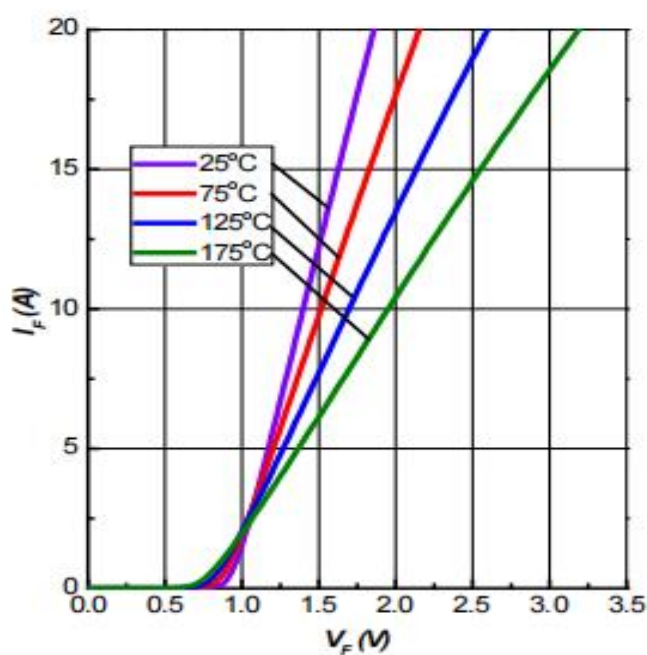


Figure 1. Forward Characteristics

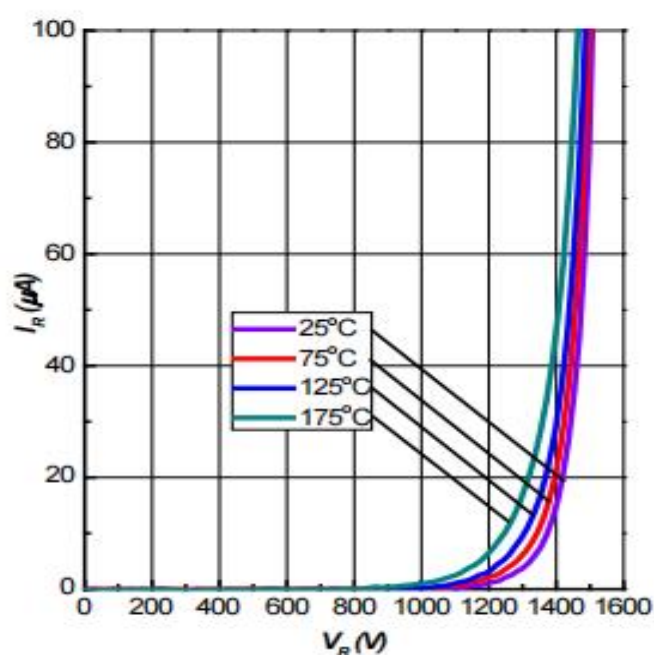


Figure 2. Reverse Characteristics

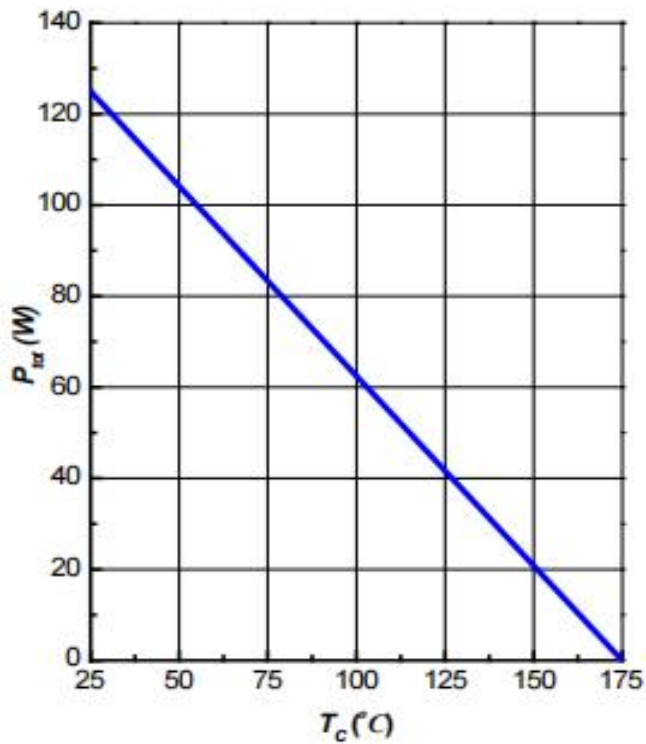


Figure 3. Power Derating

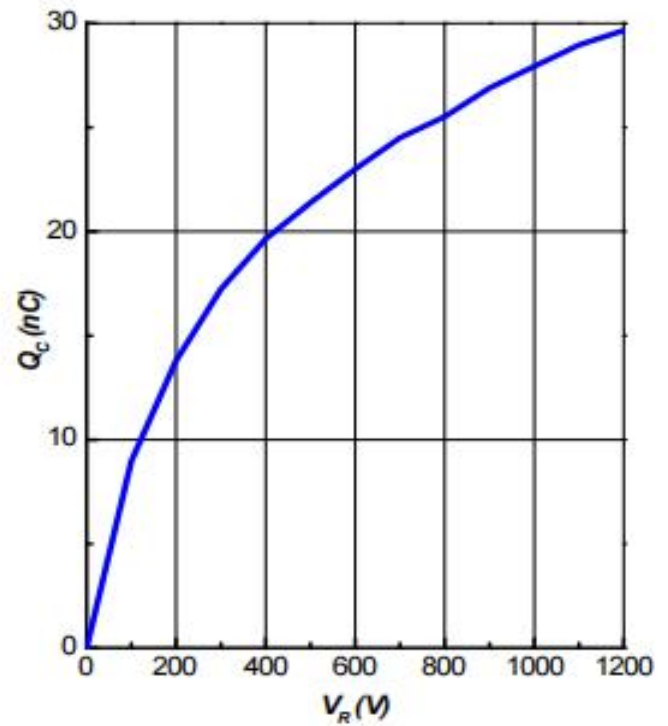


Figure 4. Total Capacitive Charge vs. Reverse Voltage

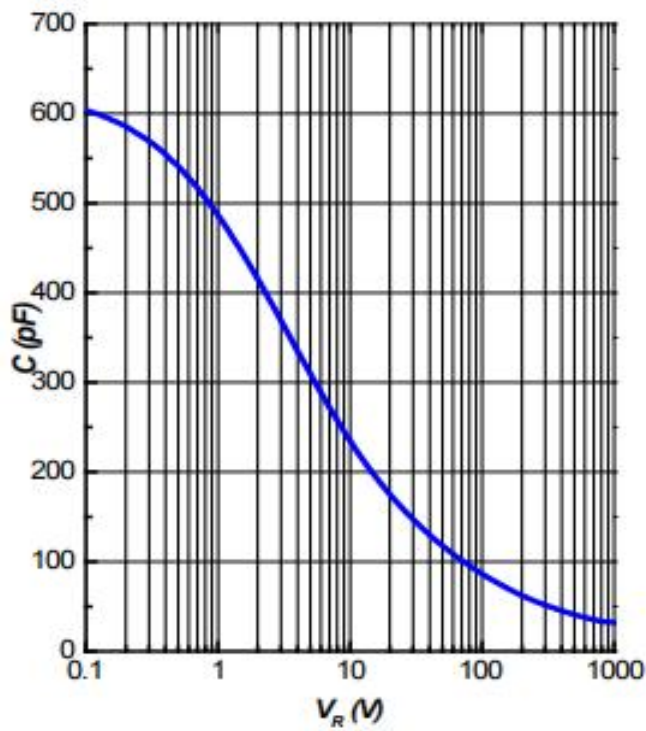


Figure 5. Total Capacitance vs. Reverse Voltage

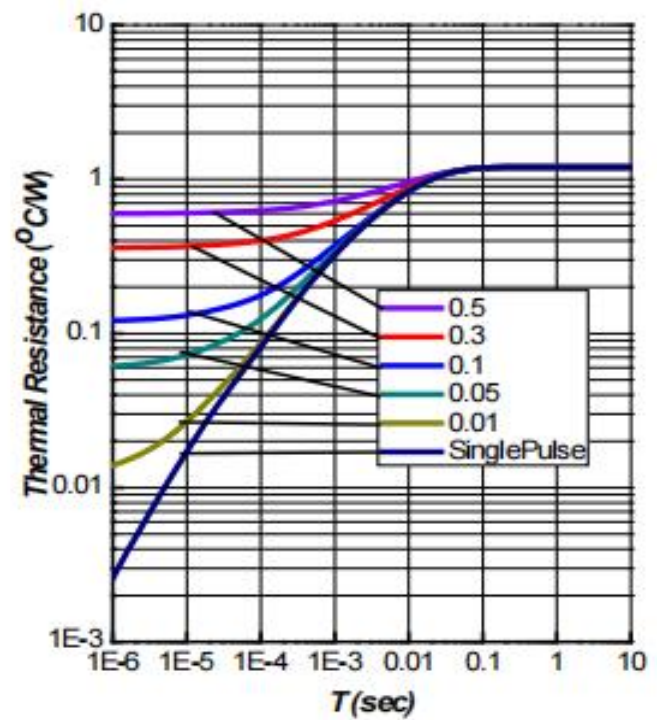
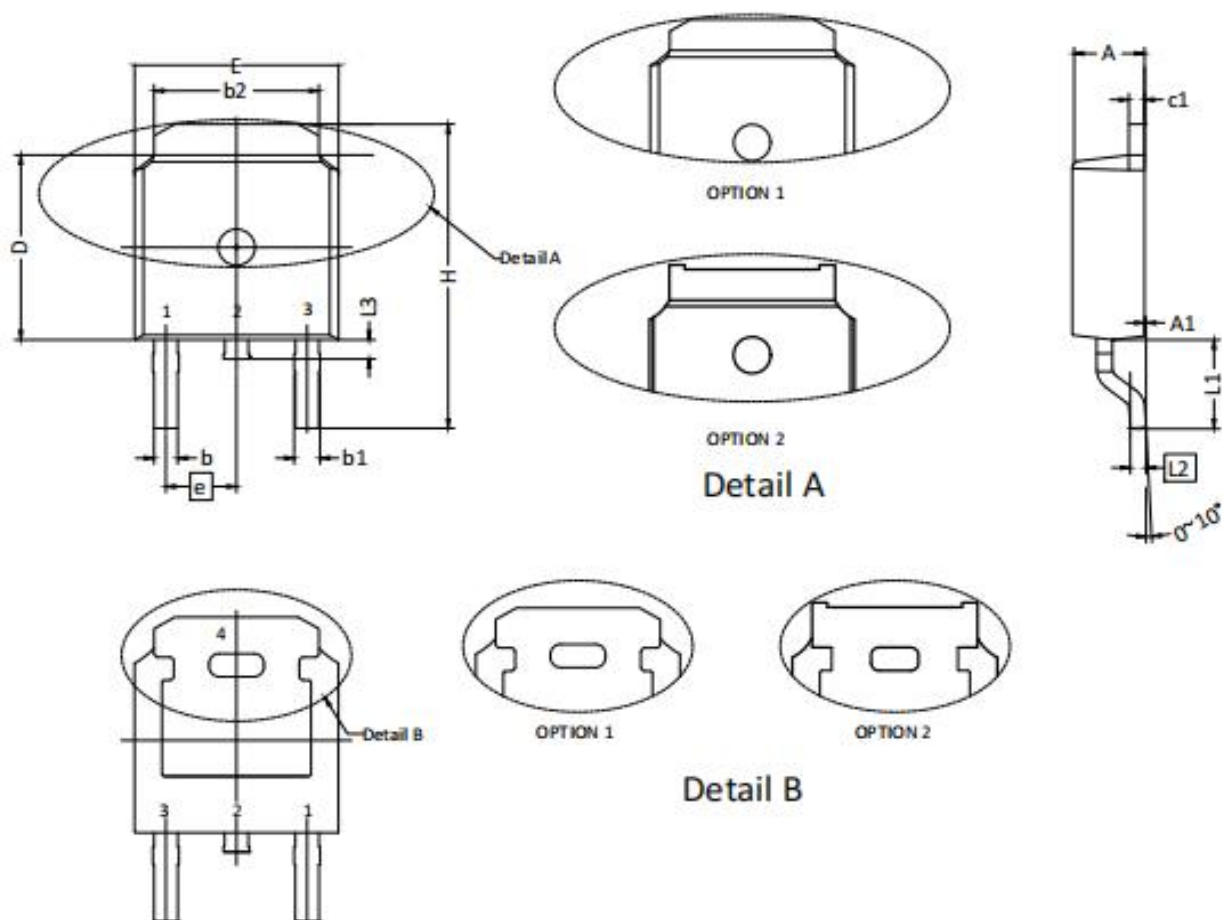


Figure 6. Transient Thermal Impedance

Package outline drawing TO-252 Unit: mm)



SYMBOLS	DIMENSION IN MM		
	MIN	NOM	MAX
A	2.184	2.286	2.400
A1	0.000	---	0.200
b	0.635	0.762	0.889
b1	0.680	0.840	1.143
b2	4.953	5.340	5.500
c1	0.450	0.508	0.630
D	5.969	6.096	6.223
E	6.350	6.604	6.800
e	2.286 BSC		
H	9.398	10.033	10.500
L1	2.921 REF.		
L2	0.408	0.508	0.608
L3	0.600	---	1.016