

1200V/2A Silicon Carbide Power Schottky Barrier Diode

Features

- Rated to 1200V at 2 Amps
- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

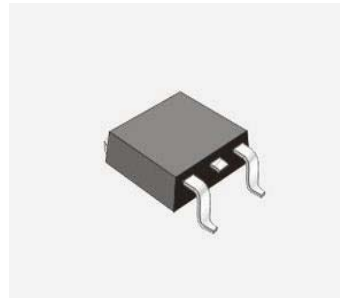
Key Characteristics		
V_{RRM}	1200	V
$I_F, T_c \leq 135^\circ\text{C}$	3.2	A
Q_C	12	nC

Benefits

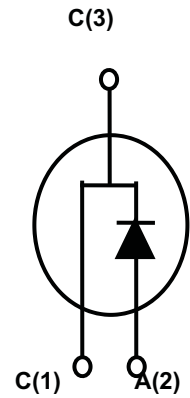
- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements

Applications

- SMPS, e.g., CCM PFC;
- Motor drives, Solar application, UPS, Wind turbine, Rail traction, EV/HEV



Package: TO-252



Part No.	Package Type	Marking
SC3S12002C	TO-252	12002

Maximum Ratings

Parameter	Symbol	Test Condition	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}		1200	V
Surge Peak Reverse Voltage	V_{RSM}		1200	
DC Blocking Voltage	V_{DC}		1200	
Continuous Forward Current	I_F	$T_C=25^{\circ}C$ $T_C=135^{\circ}C$ $T_C=155^{\circ}C$	6.2 3.2 2	A
Repetitive Peak Forward Surge Current	I_{FRM}	$T_C=25^{\circ}C$, $t_p=10ms$, Half Sine Wave, $D=0.3$	10	A
Non-repetitive Peak Forward Surge Current	I_{FSM}	$T_C=25^{\circ}C$, $t_p=10ms$, Half Sine Wave	20	A
Power Dissipation	P_{TOT}	$T_C=25^{\circ}C$	53.2	W
		$T_C=110^{\circ}C$	23	W
Operating Junction	T_j		-55 $^{\circ}C$ to 175 $^{\circ}C$	$^{\circ}C$
Storage Temperature	T_{stg}		-55 $^{\circ}C$ to 175 $^{\circ}C$	$^{\circ}C$
Mounting Torque		M3 Screw 6-32 Screw		Nm lbf-in

Thermal Characteristics

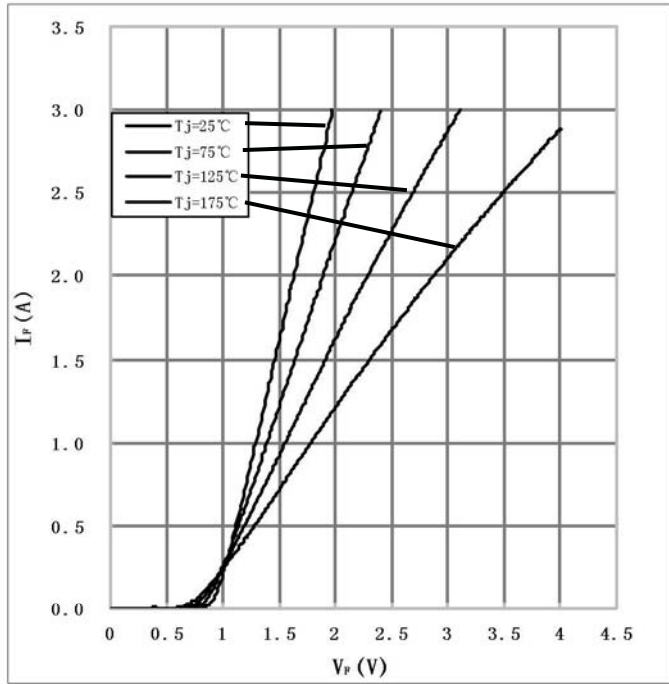
Parameter	Symbol	Test Condition	Value	Unit
			Typ.	
Thermal resistance from junction to case	R_{thJC}		2.82	$^{\circ}C/W$

Electrical Characteristics

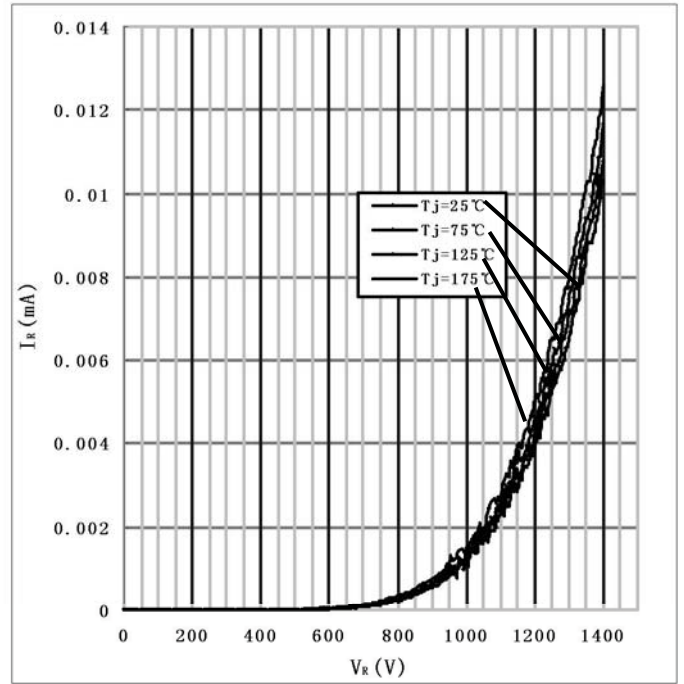
Parameter	Symbol	Test Conditions	Numerical		Unit
			Typ.	Max.	
Forward Voltage	V_F	$I_F=2A$, $T_j=25^{\circ}C$	1.62	1.7	V
		$I_F=2A$, $T_j=175^{\circ}C$	2.8	3	
Reverse Current	I_R	$V_R=1200V$, $T_j=25^{\circ}C$	20	100	μA
		$V_R=1200V$, $T_j=175^{\circ}C$	30	200	
Total Capacitive Charge	Q_C	$V_R=800V$, $T_j=150^{\circ}C$ $Q_C = \int_0^{V_R} C(V)dV$	12	-	nC
Total Capacitance	C	$V_R=0V$, $T_j=25^{\circ}C$, $f=1MHz$	136	150	pF
		$V_R=400V$, $T_j=25^{\circ}C$, $f=1MHz$	12	13	
		$V_R=800V$, $T_j=25^{\circ}C$, $f=1MHz$	11	12	

RATING AND CHARACTERISTICS CURVES(SC3S12002C)

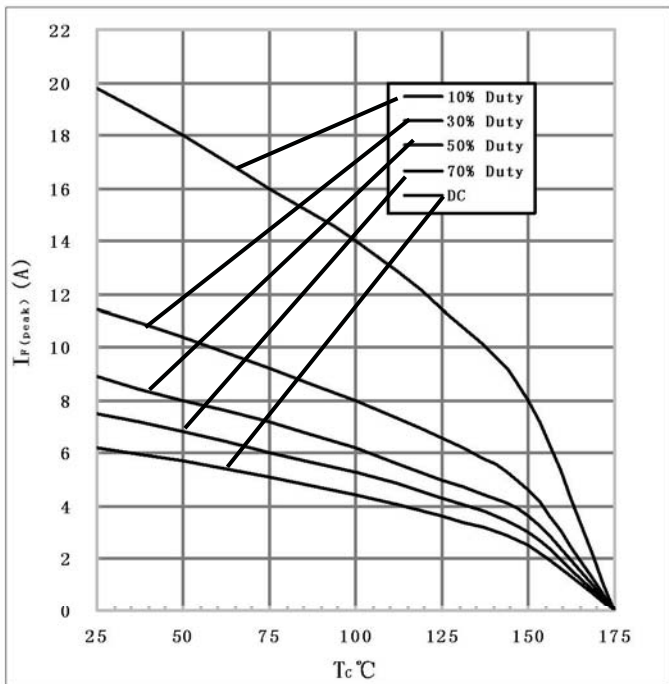
1) Forward IV characteristics as a function of Tj :



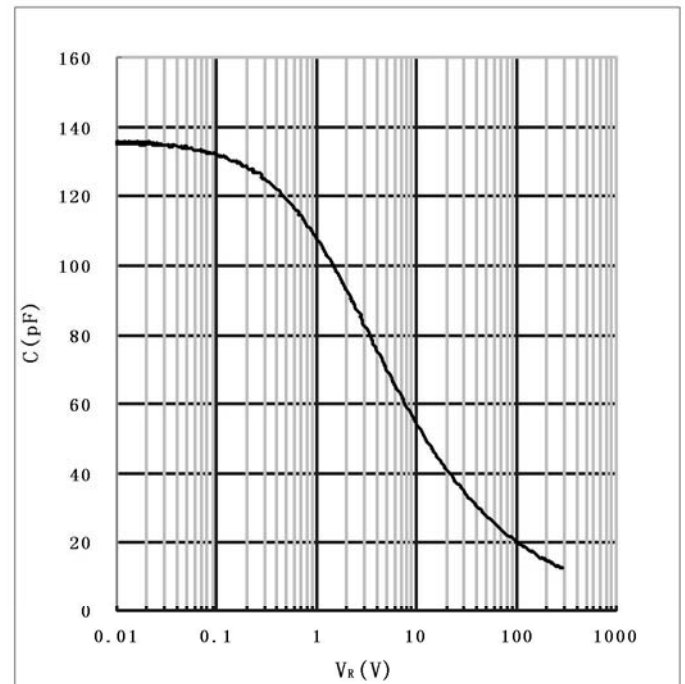
2) Reverse IV characteristics as a function of Tj :



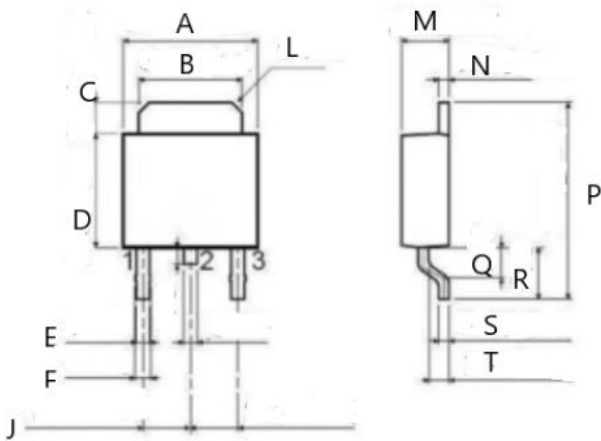
3) Current Derating



4) Capacitance vs. reverse voltage :



Package TO-252



DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	6.4	6.6	0.251	0.259
B	5.2	5.4	0.204	0.212
C	1.15	1.35	0.045	0.053
D	5.7	6.1	0.224	0.240
E	1.3		0.051	
F	0.75		0.029	
J	2.1	2.5	0.082	0.098
L	0.5		0.019	
M	2.2	2.4	0.086	0.094
N	0.4	0.6	0.015	0.023
P	9.9	10.1	0.389	0.397
Q	1.5		0.059	
R	3.0		0.118	
S	0.4	0.6	0.015	0.023
T	0.9	1.1	0.035	0.043

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