

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

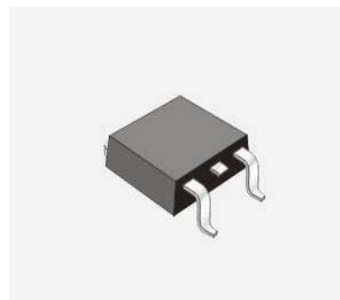
Key Characteristics		
V_{RRM}	1200	V
$I_F, T_c \leq 135^\circ\text{C}$	3.2	A
Q_c	12	nC

Benefits

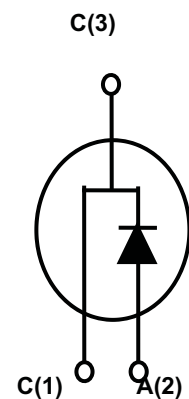
- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements

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

2016-11
REV:026

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	$T_C=25^{\circ}\text{C}$ $T_C=135^{\circ}\text{C}$ $T_C=155^{\circ}\text{C}$	6.2 3.2 2	A
Repetitive Peak Forward Surge Current	I_{FRM}	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave, $D=0.3$	10	A
Non-repetitive Peak Forward Surge Current	I_{FSM}	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	20	A
Power Dissipation	P_{TOT}	$T_C=25^{\circ}\text{C}$	53.2	W
		$T_C=110^{\circ}\text{C}$	23	W
Operating Junction	T_j		-55°C to 175°C	$^{\circ}\text{C}$
Storage Temperature	T_{stg}		-55°C to 175°C	$^{\circ}\text{C}$
Mounting Torque		M3 Screw 6-32 Screw		Nm lbf-in

Thermal Characteristics

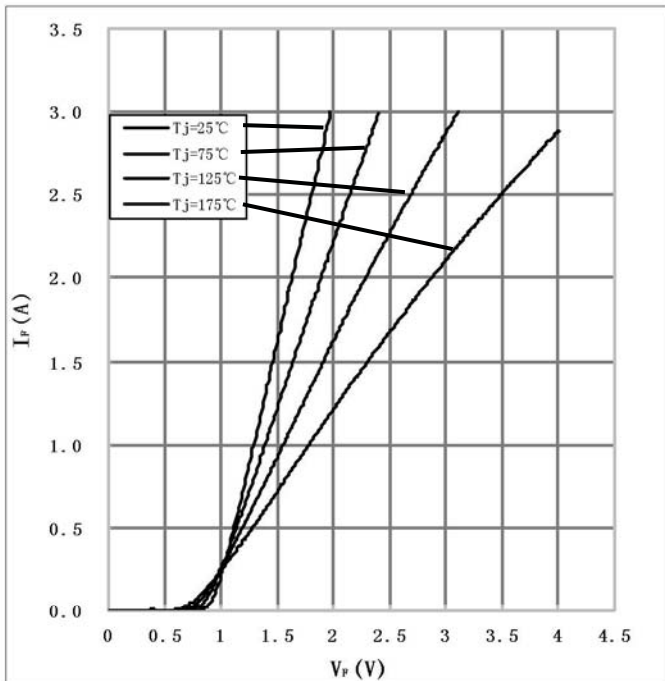
Parameter	Symbol	Test Condition	Value	Unit
			Typ.	
Thermal resistance from junction to case	$R_{th\text{ JC}}$		2.82	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics

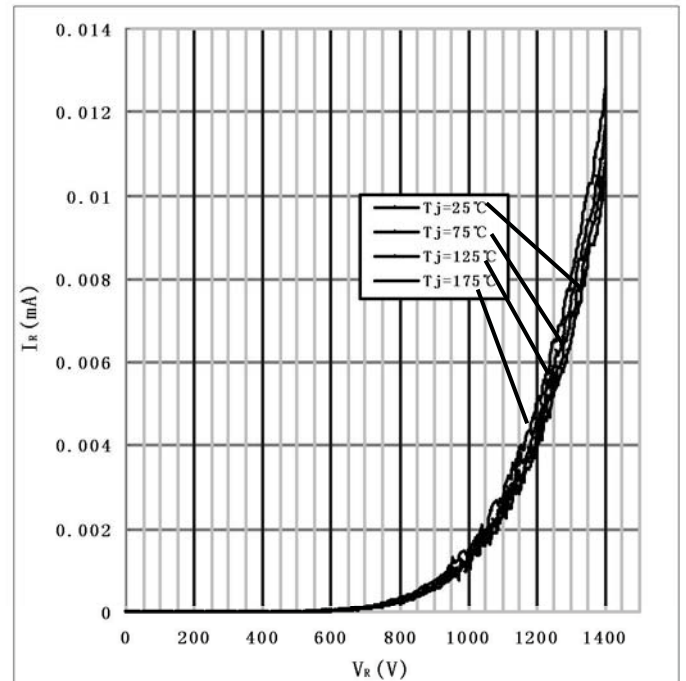
Parameter	Symbol	Test Conditions	Numerical		Unit
			Typ.	Max.	
Forward Voltage	V_F	$I_F=2\text{A}$, $T_j=25^{\circ}\text{C}$	1.62	1.7	V
		$I_F=2\text{A}$, $T_j=175^{\circ}\text{C}$	2.8	3	
Reverse Current	I_R	$V_R=1200\text{V}$, $T_j=25^{\circ}\text{C}$	20	100	μA
		$V_R=1200\text{V}$, $T_j=175^{\circ}\text{C}$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

RATING AND CHARACTERISTICS CURVES(SC3S12002C)

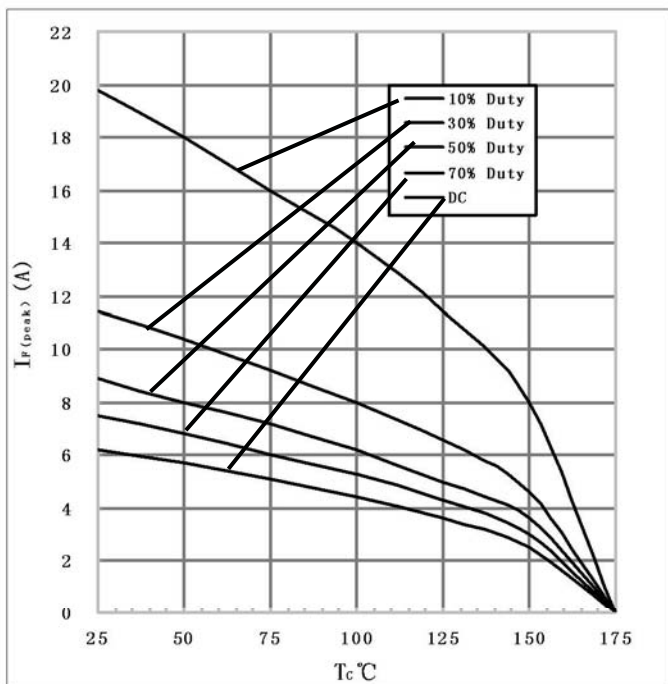
1) Forward IV characteristics as a function of T_j :



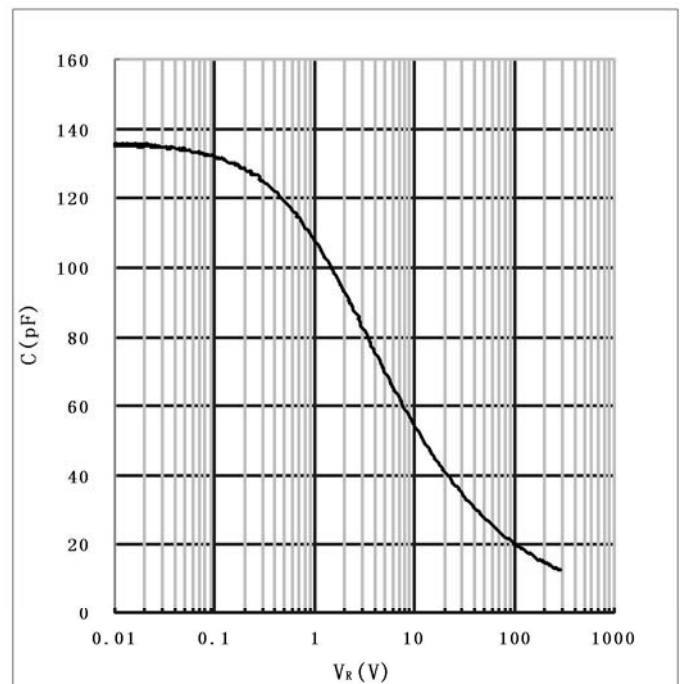
2) Reverse IV characteristics as a function of T_j :



3) Current Derating

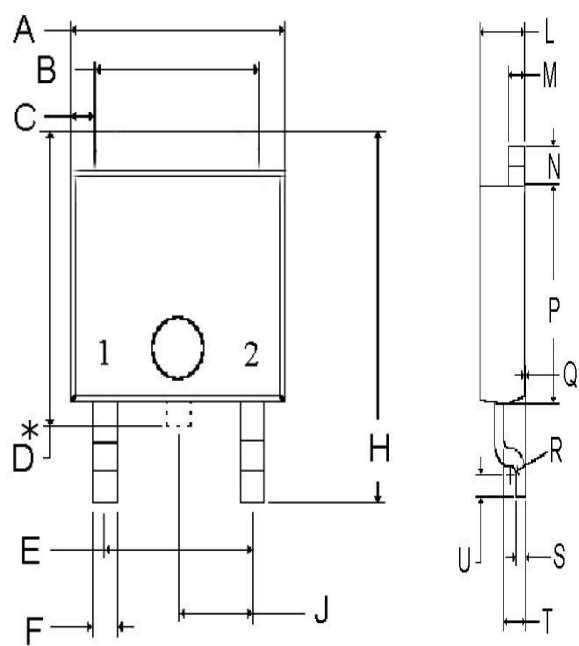


4) Capacitance vs. reverse voltage :



RECTRON

Package TO-252



DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	6.477	6.731	0.255	0.265
B	5.004	5.207	0.197	0.205
C	0.686	0.838	0.027	0.033
D*	6.858	8.179	0.270	0.322
E	4.521	4.623	0.178	0.182
F	0.635	0.889	0.025	0.035
H	9.703	10.084	0.382	0.397
J	2.286		0.090	
L	2.184	2.388	0.086	0.094
M	0.762	0.864	0.030	0.034
N	1.016	1.118	0.040	0.044
P	5.969	6.223	0.235	0.245
Q	0.000	0.102	0.000	0.004
R	R0.31		R0.01	
S	0.428	0.588	0.017	0.023
T	1.016	1.118	0.040	0.044
U	0.534	1.118	0.021	0.027

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