RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

SC3S12002C

1200V/2A Silicon Carbide Power Schottky Barrier Diode

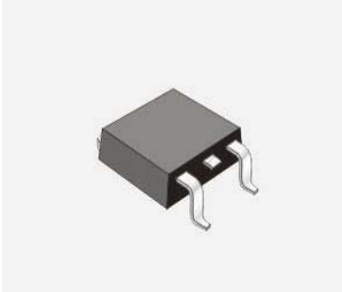
Features

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

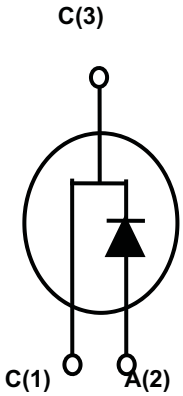
Key Characteristics		
V_{RRM}	1200	V
I_F, $T_c \leqslant 135℃$	3.2	A
Q_C	12	nC

Benefits

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



Package: TO-252



Applications

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

Part No.	Package Type	Marking
SC3S12002C	TO-252	SC12002

2023-07/26
REV:A

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

Thermal Characteristics

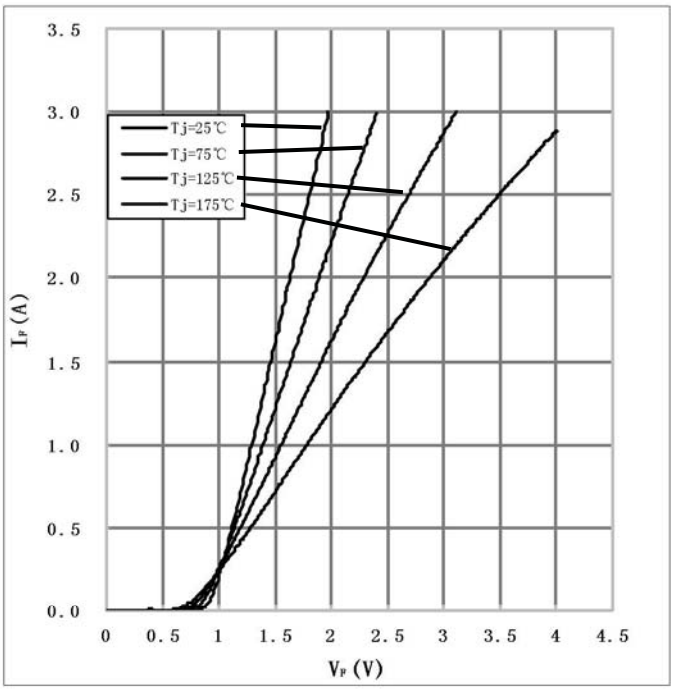
Parameter	Symbol	Test Condition	Value	Unit
			Typ.	
Thermal resistance from junction to case	$R_{th\ JC}$		2.82	℃/W

Electrical Characteristics

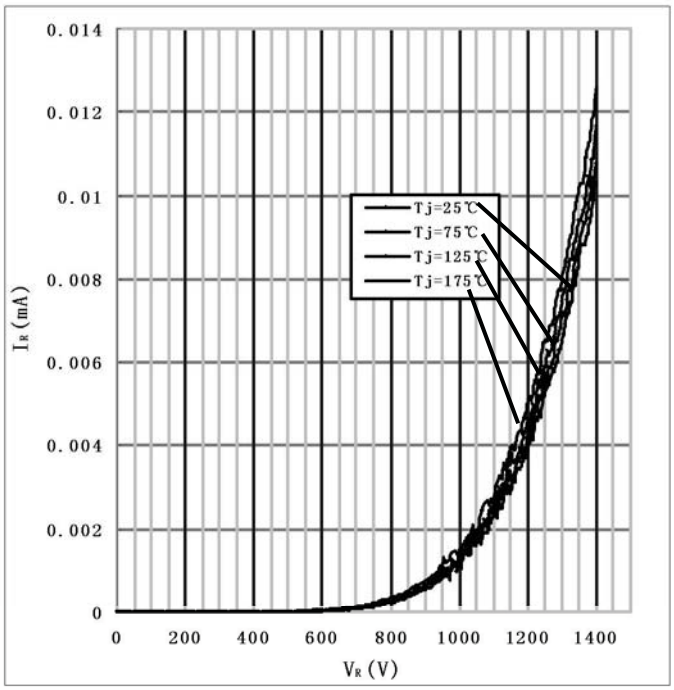
Parameter	Symbol	Test Conditions	Numerical		Unit
			Typ.	Max.	
Forward Voltage	V_F	I_F=2A, T_j=25℃	1.62	1.7	V
		I_F=2A, T_j=175℃	2.8	3	
Reverse Current	I_R	V_R=1200V, T_j=25℃	20	100	μA
		V_R=1200V, T_j=175℃	30	200	
Total Capacitive Charge	Q_C	V_R=800V, T_j=150℃ $Qc = \int_0^{VR} C(V)dV$	12	-	nC
Total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

RATING AND CHARACTERISTICS CURVES(SC3S12002C)

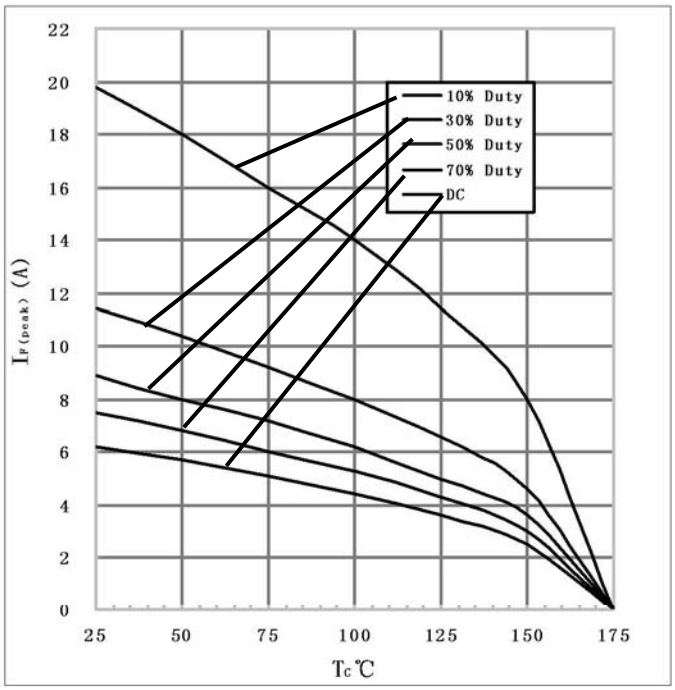
1) Forward IV characteristics as a function of Tj :



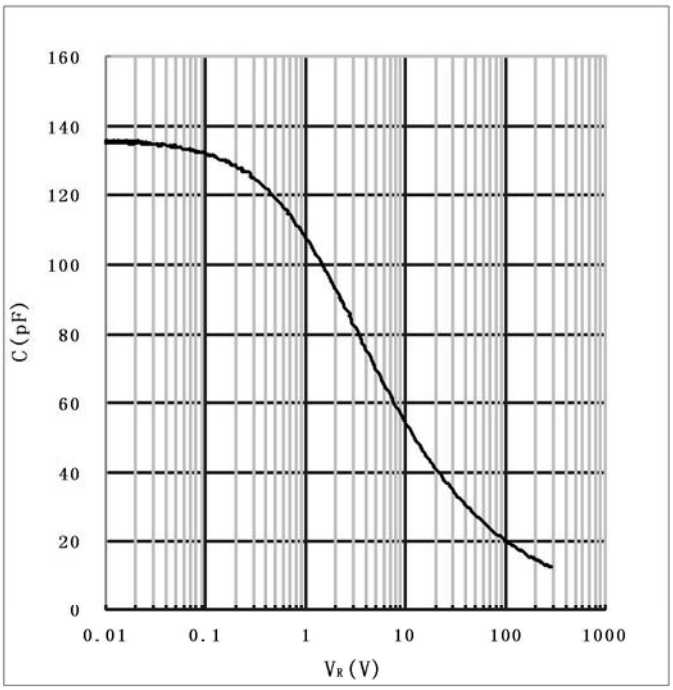
2) Reverse IV characteristics as a function of Tj :



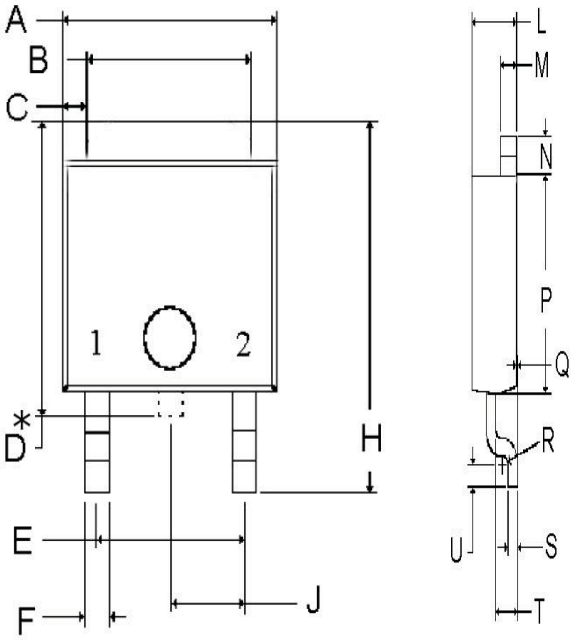
3) Current Derating



4)Capacitance vs. reverse voltage :



Package TO-252



DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	6.477	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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