



Silicon Carbide Schottky Diode S1S12002RC1

V_{RRM}	=	1200 V
$I_F (T_C=135\text{ }^\circ\text{C})$	=	12 A
Q_C	=	12 nC

Features

- 1200V Schottky Rectifier
- Zero Reverse Recovery Current
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching

Package



Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- Higher Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway



Applications

- Switch Mode Power Supplies (SMPS)
- Power Factor Correction
- Motor Drives

Part Number	Package
S1S12002RC1	TO220-2L

料号: 3960180000
 品名: Si C SBD塑封器件 1200V 2A-T0220-2L(S1S12002RC1)
 版本: 01
 编辑: 温小花 2025.01.02
 审核: 王松 2025.01.02



Maximum Rated Values ($T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V		
V_R	DC Peak Reverse Voltage	1200	V		
I_F	Continuous Forward Current	8.8	A	$T_C=25^\circ\text{C}$	Fig. 3
		4.1		$T_C=135^\circ\text{C}$	
		3.0		$T_C=150^\circ\text{C}$	
I_{FRM}	Repetitive Peak Forward Surge Current	10	A	$T_C=25^\circ\text{C}$, $t_p=10$ ms, Half Sine Pulse	
		8		$T_C=110^\circ\text{C}$, $t_p=10$ ms, Half Sine Pulse	
I_{FSM}	Non-Repetitive Forward Surge Current	13	A	$T_C=25^\circ\text{C}$, $t_p=10$ ms, Half Sine Pulse	
		11		$T_C=110^\circ\text{C}$, $t_p=10$ ms, Half Sine Pulse	
$I_{F,MAX}$	Non-Repetitive Forward Surge Current	53	A	$T_C=25^\circ\text{C}$, $t_p=10\mu\text{s}$, Square Wave Pulse	
		46		$T_C=110^\circ\text{C}$, $t_p=10\mu\text{s}$, Square Wave Pulse	
P_{tot}	Power Dissipation	57	W	$T_C=25^\circ\text{C}$	Fig. 4
		25		$T_C=110^\circ\text{C}$	
T_J	Operating Temperature	-55 to +175	$^\circ\text{C}$		
T_{stg}	Storage Temperature	-55 to +175	$^\circ\text{C}$		
	TO-247 Mounting Torque	1 8.8	Nm lbf-in	M3 Screw 6-32 Screw	

Electrical Characteristics ($T_J=25^\circ\text{C}$)

Symbol	Parameter	Value			Unit	Test Conditions	Note
		Min.	Typ.	Max.			
V_F	Forward Voltage		1.4	1.8	V	$I_F=2\text{A}$, $T_J=25^\circ\text{C}$	Fig. 1
			1.9	3		$I_F=2\text{A}$, $T_J=175^\circ\text{C}$	
I_R	Reverse Current		0.2	50	μA	$V_R=1200\text{V}$, $T_J=25^\circ\text{C}$	Fig. 2
			5.0	150		$V_R=1200\text{V}$, $T_J=175^\circ\text{C}$	
Q_C	Total Capacitive Charge		12		nC	$V_R=800\text{V}$, $T_J=25^\circ\text{C}$	Fig. 5
C	Total Capacitance		146		pF	$V_R=0\text{V}$, $T_J=25^\circ\text{C}$, $f=1\text{MHz}$	Fig. 6
			11			$V_R=400\text{V}$, $T_J=25^\circ\text{C}$, $f=1\text{MHz}$	
			10.8			$V_R=800\text{V}$, $T_J=25^\circ\text{C}$, $f=1\text{MHz}$	
E_C	Capacitance Stored Energy		2.9		μJ	$V_R=800\text{V}$	Fig. 7

Thermal Characteristics

Symbol	Parameter	Value	Unit	Note
$R_{\theta JC}$	Thermal Resistance(Junction to Case)	2.65	$^\circ\text{C/W}$	Fig. 8



Typical Performance

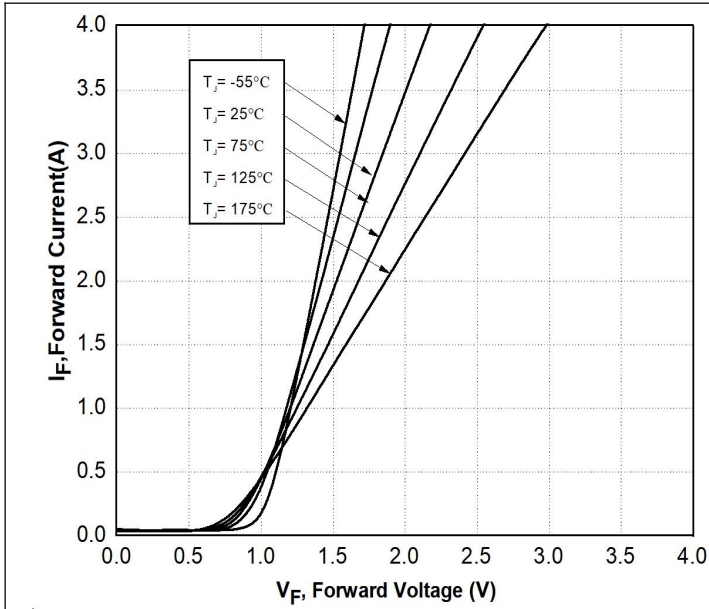


Figure 1. Forward Characteristics

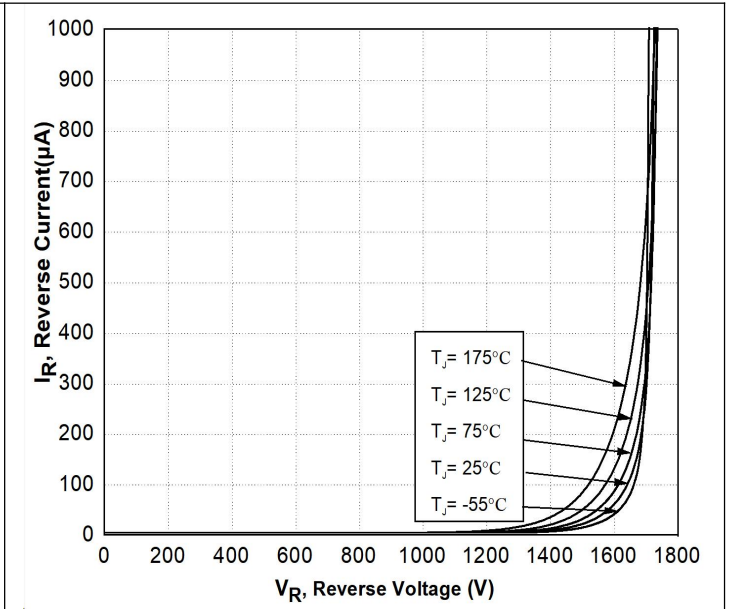


Figure 2. Reverse Characteristics

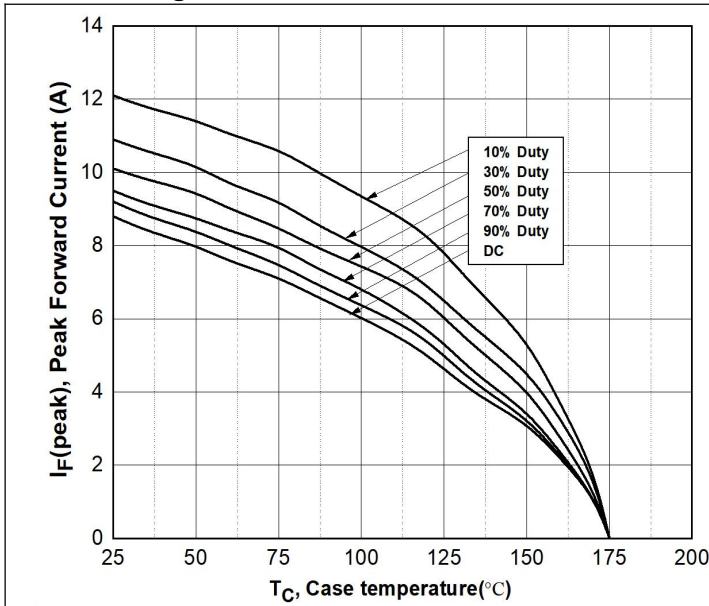


Figure 3. Current Derating

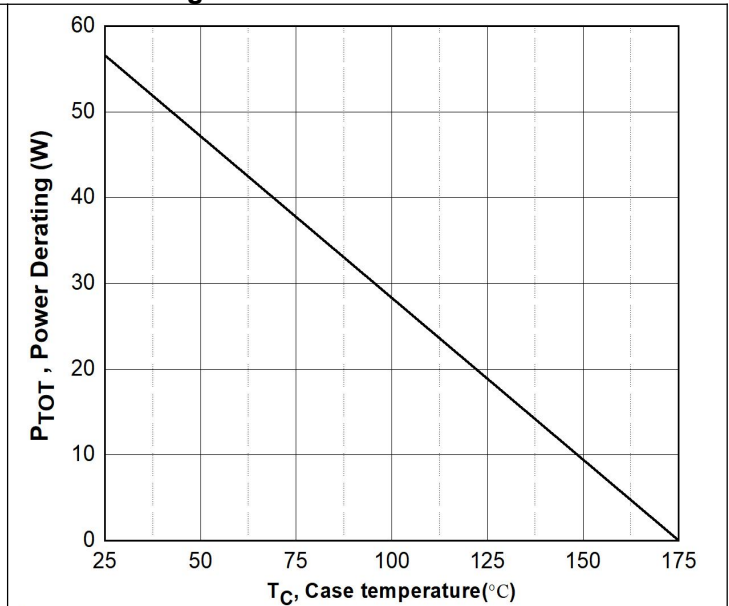


Figure 4. Power Derating



Typical Performance

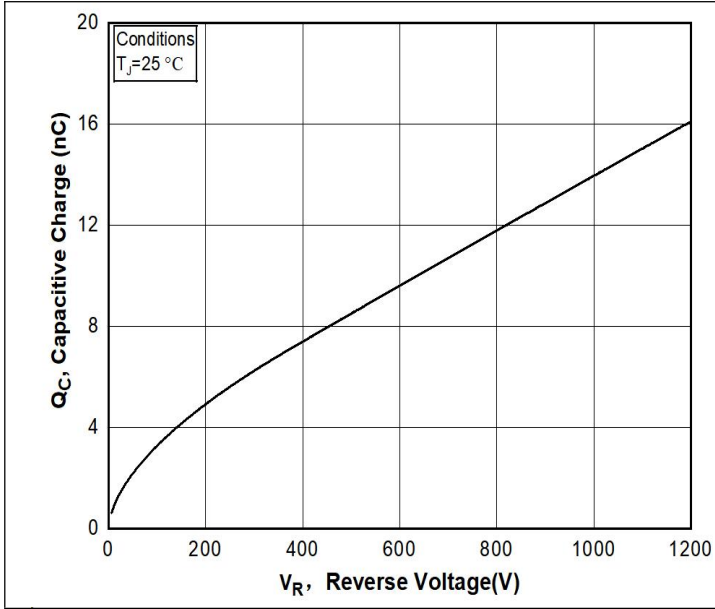


Figure 5. Capacitance Charge Vs. Reverse Voltage

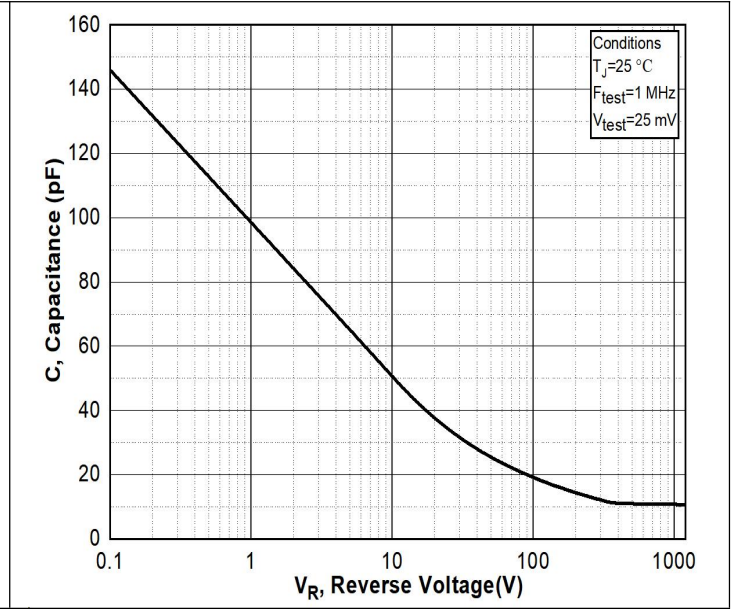


Figure 6. Capacitance Vs. Reverse Voltage

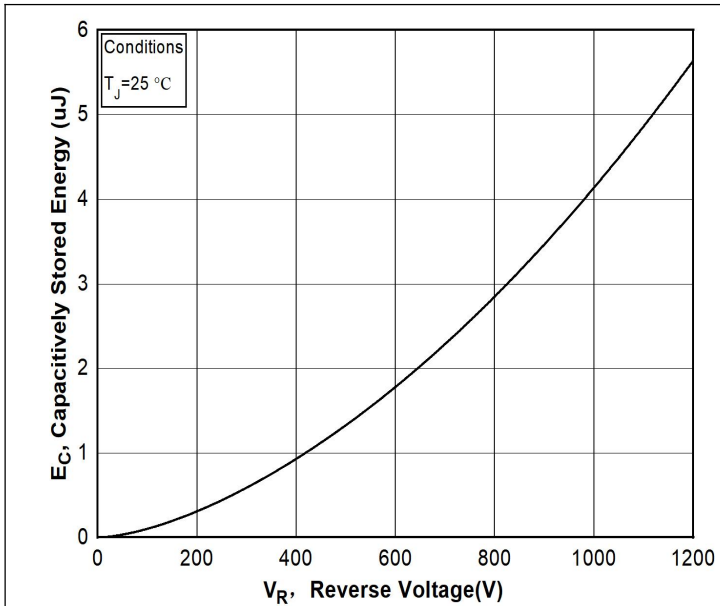


Figure 7. Capacitance Stored Energy

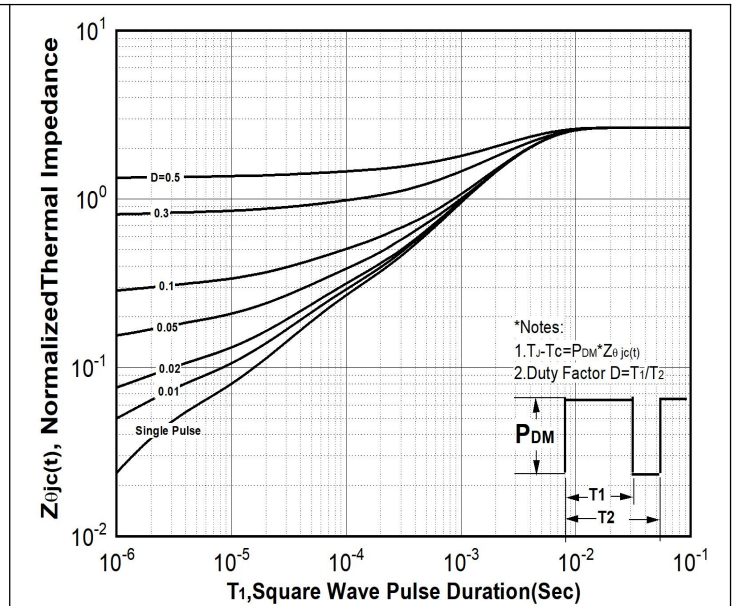
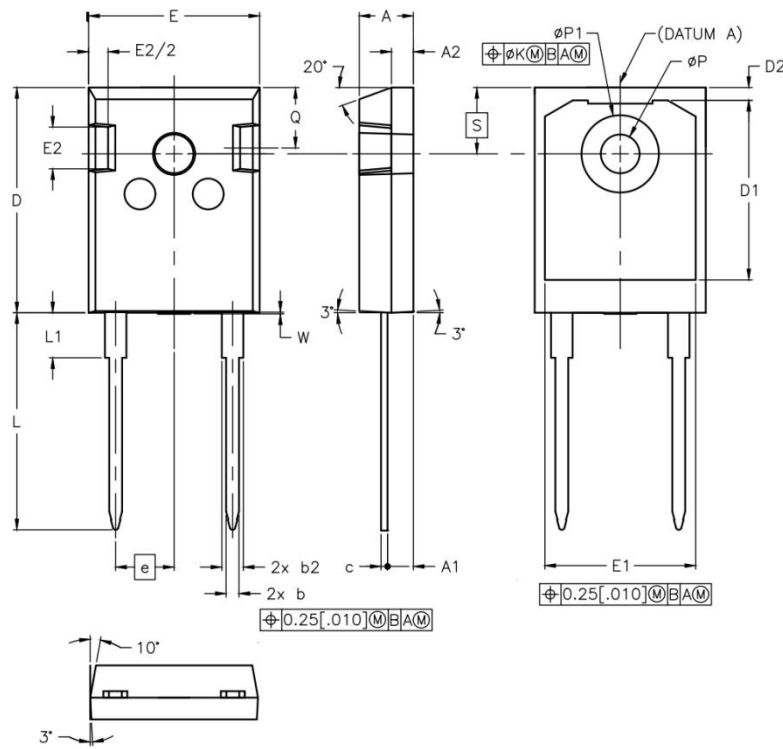


Figure 8. Transient Thermal Response Curve(Junction-to-Case)



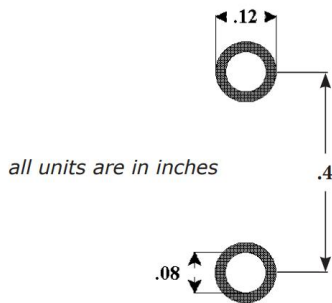
Package Dimensions

Package TO-220-2L



POS	Inches		Millimeters	
	Min	Max	Min	Max
A	.190	.205	4.70	5.31
A1	.087	.102	2.21	2.59
A2	.059	.098	1.50	2.49
b	.039	.055	0.99	1.40
b2	.065	.094	1.65	2.39
c	.015	.035	0.38	0.89
D	.819	.845	20.80	21.46
D1	.515	-	13.08	-
D2	.020	.053	0.51	1.35
E	.620	.640	15.49	16.26
E1	.530	-	13.46	-
E2	.135	.157	3.43	3.99
e	.214		5.44	
ØK	.010		0.25	
L	.780	.800	19.81	20.32
L1	-	.177	-	4.50
ØP	.140	.144	3.56	3.66
ØP1	.278	.291	7.06	7.39
Q	.212	.244	5.38	6.20
S	.243		6.17	
W	-	.006	-	0.15

Recommended Solder Pad Layout



TO220-2L

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Statement:

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Contact Information:

Address: N501-505 Weiye Bldg., Xiamen Pioneering Park For Overseas Chinese Scholars, Xiamen, Fujian, China

Tel: +86-592-3898601, 3898608, 5318000

Fax: +86-592-5703588

Email: sales@san-u.com

<http://www.san-u.com>