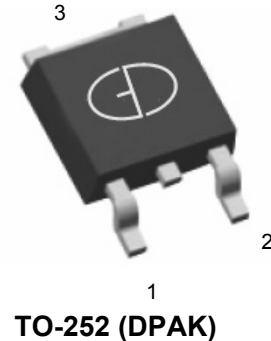


# GS2S12004B Silicon Carbide Schottky Rectifier

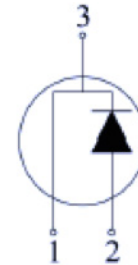
## Features

- Positive temperature coefficient, easier for parallel connection
- Temperature-insensitive switching characteristics
- Working temperature up to 175°C
- Reverse recovery current  $I_{rr} = 0$
- Forward recovery Voltage  $V_{FR} = 0$



## Applications

- Photovoltaic inverter
- Switching mode power supply(SMPS)
- Power factor correction(PFC)
- Eddy-current heating
- Uninterrupted power supply(UPS)
- Motor drive



**Schematic Diagram**

## Absolute Maximum Ratings

Parameter	Symbol	Test Condition	Value	Units
Peak Repetitive Reverse Voltage	$V_{RRM}$	$T_J=25^{\circ}C$	1200	V
Peak Reverse Surge Voltage	$V_{RSM}$	$T_J=25^{\circ}C$	1200	
DC Reverse Voltage	$V_{DC}$	$T_J=25^{\circ}C$	1200	
Average Forward Current	$I_F$	$T_C=150^{\circ}C$	4	A
Repetitive Peak Forward Current	$I_{FRM}$	$T_C=25^{\circ}C, t_p=10ms, \text{Half Sine Wave}$	35	A
Non Repetitive Peak Forward Current	$I_{FSM}$	$T_C=25^{\circ}C, t_p=10\mu s, \text{Pulse}$	100	A
Total Power Dissipation	$P_{TOT}$	$T_C=25^{\circ}C$	163	W
		$T_C=110^{\circ}C$	71	W
Reverse Recovery Time	$T_{rr}$	$I_F=4A, di/dt=200A/\mu s$	10	ns
Case Temperature	$T_C$		135	$^{\circ}C$
Junction Temperature	$T_J$		-55 to 175	$^{\circ}C$
Storage Temperature	$T_{stg}$		-55 to 175	$^{\circ}C$

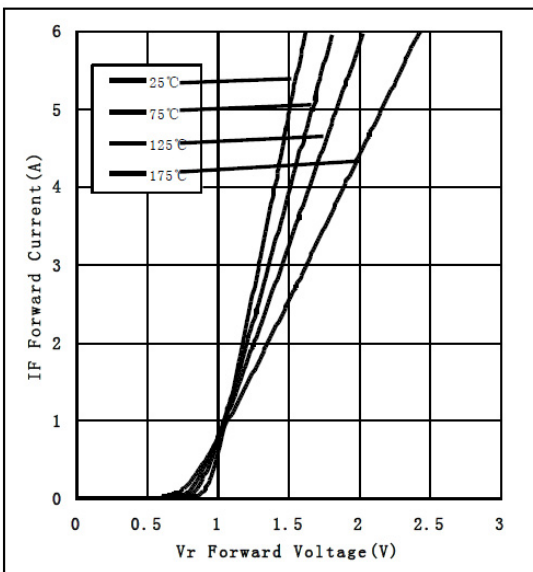
**Thermal Characteristics**

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
Thermal Resistance(Junction to Case)	$R_{th\ JC}$	-	0.92	-	$^{\circ}C/W$

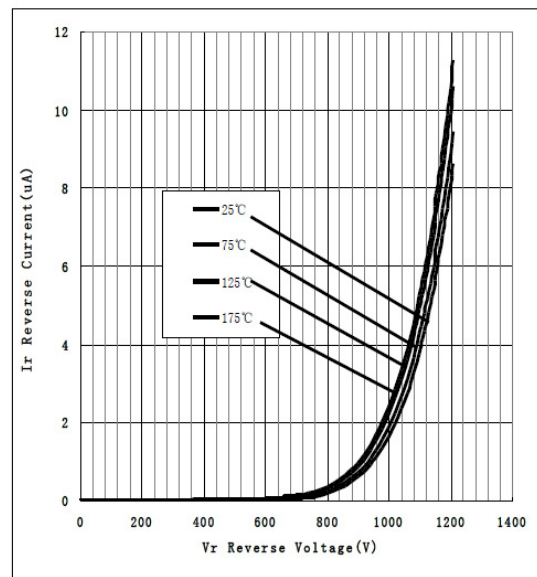
**Electrical Characteristics** ( $T_A=25^{\circ}C$  unless otherwise specified)

Parameter	Symbol	Test Condition	Value			Unit
			Min	Typ.	Max	
Forward Voltage	$V_F$	$I_F=4A, T_J=25^{\circ}C$	-	1.55	1.8	V
		$I_F=4A, T_J=175^{\circ}C$	-	2.1	2.8	
Reverse Leakage Current	$I_R$	$V_R=1200V, T_J=25^{\circ}C$	-	5.5	100	$\mu A$
		$V_R=1200V, T_J=175^{\circ}C$	-	50	200	
Total Storage Charge	$Q_C$	$V_R=1200V, I_F=4A$ $di/dt=500A/\mu s, T_J=25^{\circ}$	-	27	-	nC
Capacitance	C	$V_R=0V, T_J=25^{\circ}C, f=1MHZ$	-	350	-	pF
		$V_R=200V, T_J=25^{\circ}C, f=1MHZ$	-	39	-	
		$V_R=400V, T_J=25^{\circ}C, f=1MHZ$	-	30	-	

**Typical Characteristics Curves**

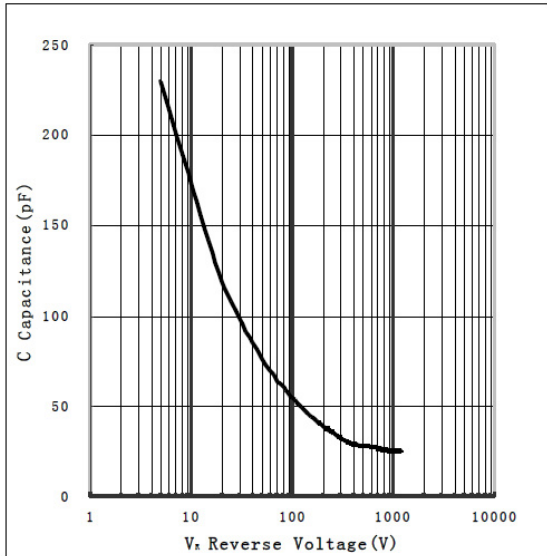


**Figure 1. Typical Forward Characteristics Test Temperature:  $T_J$**

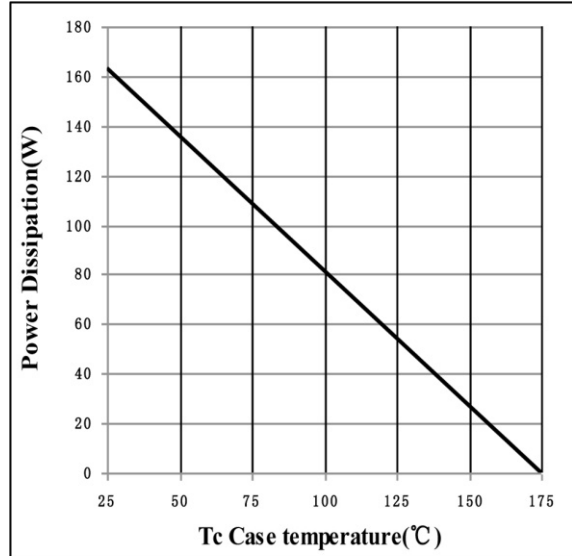


**Figure 2. Typical Reverse Characteristics Test Temperature:  $T_J$**

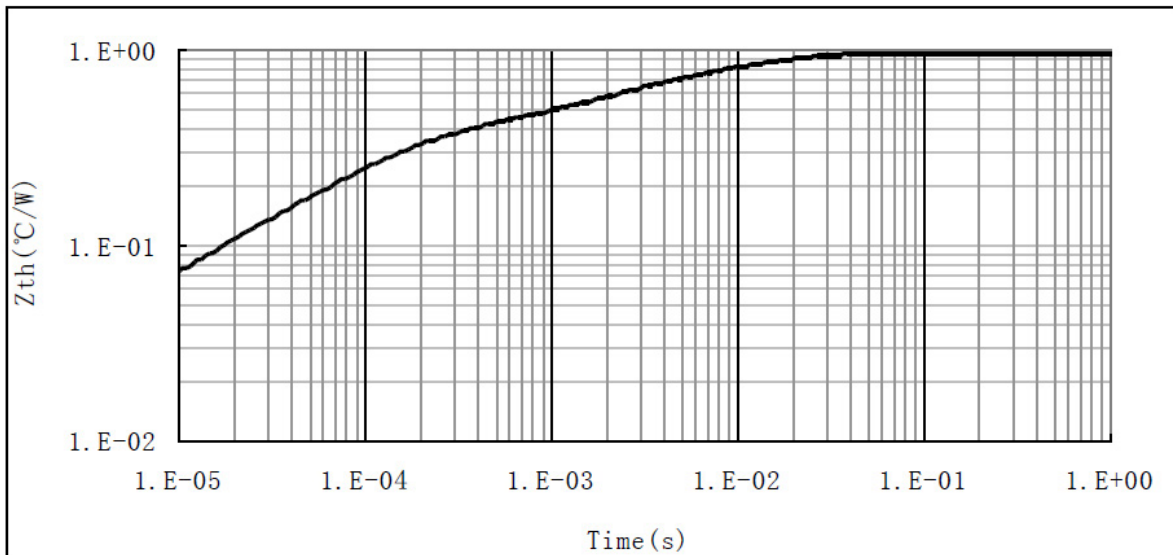
**Typical Characteristics Curves**



**Figure 3. Typical Capacitance-Reverse Voltage Curve Test Temperature:  $T_J$**



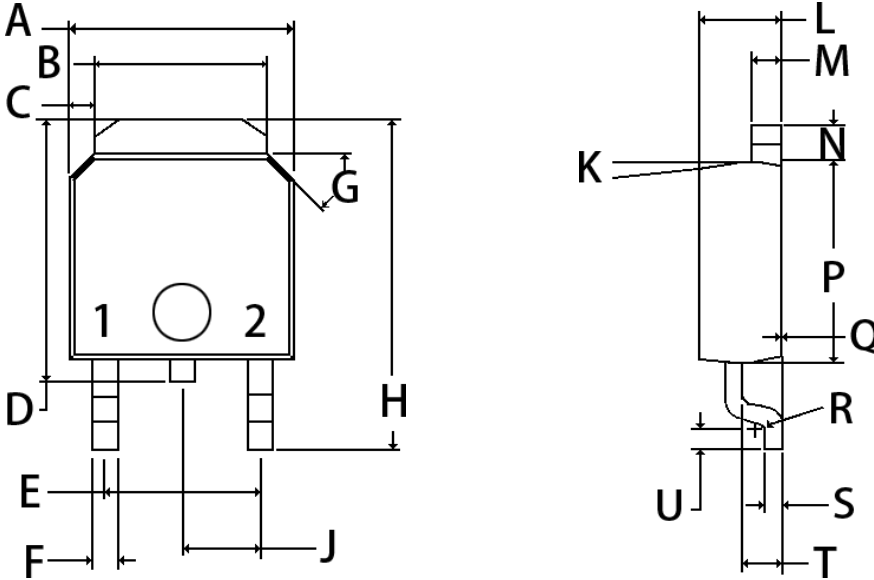
**Figure 4. Power Dissipation Rate**



**Figure 5. Transient Thermal Resistance**

**GS2S12004B**  
**Silicon Carbide Schottky Rectifier**

**Package Outline Dimensions TO-252 (DPAK)**



DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	6.350	7.341	.250	.289
B	5.004	5.461	.197	.215
C	.686	1.270	.027	.050
D	6.858	8.179	.270	.322
E	4.521	4.623	.178	.182
F	.635	1.143	.025	.045
G	44°	46°	44°	46°
H	9.4	10.414	.370	.410
J	2.286 TYP		.090 TYP	
K	6°	8°	6°	8°
L	2.184	2.41	.086	.095
M	.457	.864	.018	.034
N	.889	1.270	.035	.050
P	5.567	6.248	.219	.246
Q	0.00	.127	0.00	.005
R	R0.010		TYP	
S	.432	.584	.017	.023
T	.965	1.143	.038	.045
U	.533	.737	.021	.029