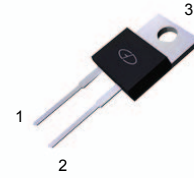


# GS2S12004A

## Silicon Carbide Schottky Rectifier

### Features

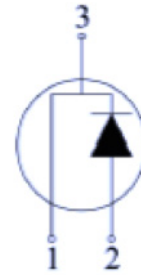
- Positive temperature coefficient, easier for parallel connection
- Temperature-insensitive switching characteristics
- Working temperature up to 175°C
- Reverse recovery current  $I_{rr} = 0$
- Forward recovery Voltage  $V_{FR} = 0$



**TO-220AC**

### 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	$I_{FRM}$	$T_C=25^{\circ}C$ , $t_p=10ms$ , Half Sine Wave	35	A
Non Repetitive Peak Forward Current	$I_{FSM}$	$T_C=25^{\circ}C$ , $t_p=10\mu s$ , Pulse	100	A
Total Power Dissipation	$P_{TOT}$	$T_C=25^{\circ}C$	163	W
		$T_C=125^{\circ}C$	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	$^{\circ}C$

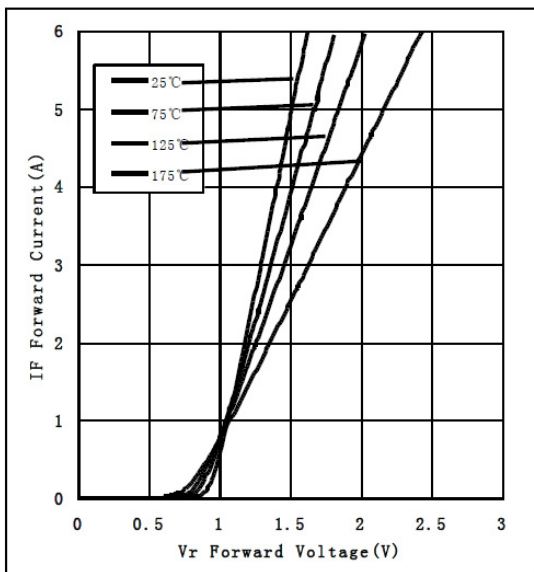
### Thermal Characteristics

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

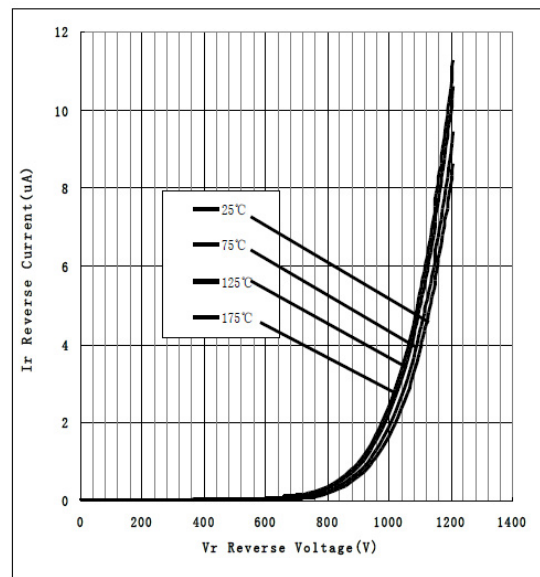
### Electrical Characteristics ( $T_A=25^{\circ}C$ unless otherwise specified)

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

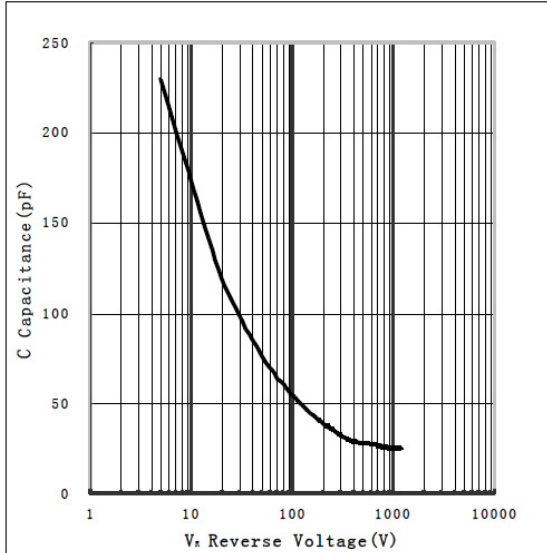


**Figure 1. Typical Forward Characteristics Test Temperature:  $T_J$**

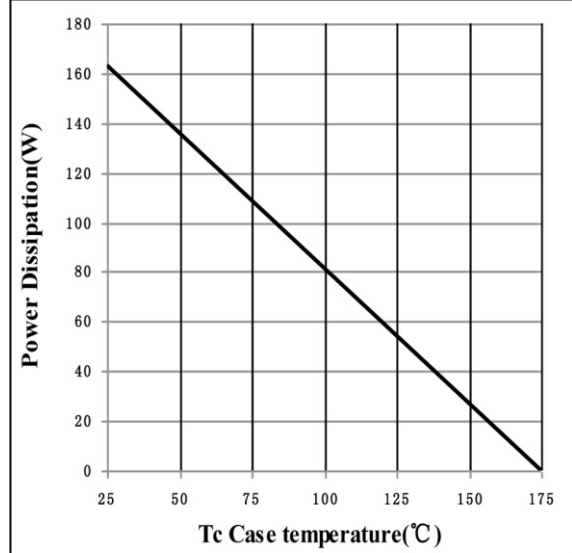


**Figure 2. Typical Reverse Characteristics Test Temperature:  $T_J$**

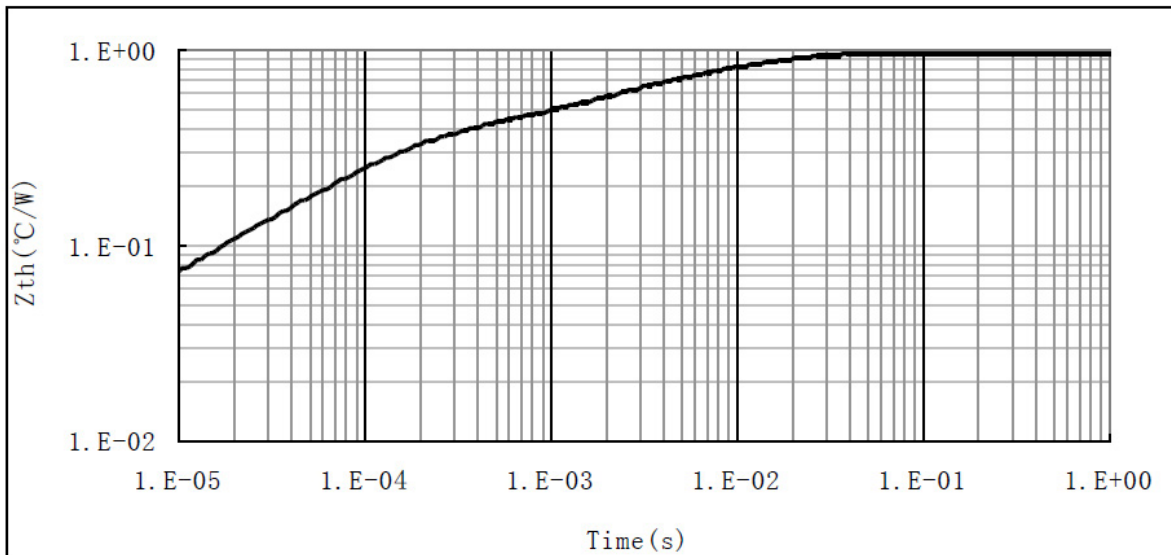
**Typical Characteristics Curves**



**Figure 3. Typical Capacitance-Reverse Voltage Curve Test Temperature: T<sub>J</sub>**



**Figure 4. Power Dissipation Rate**

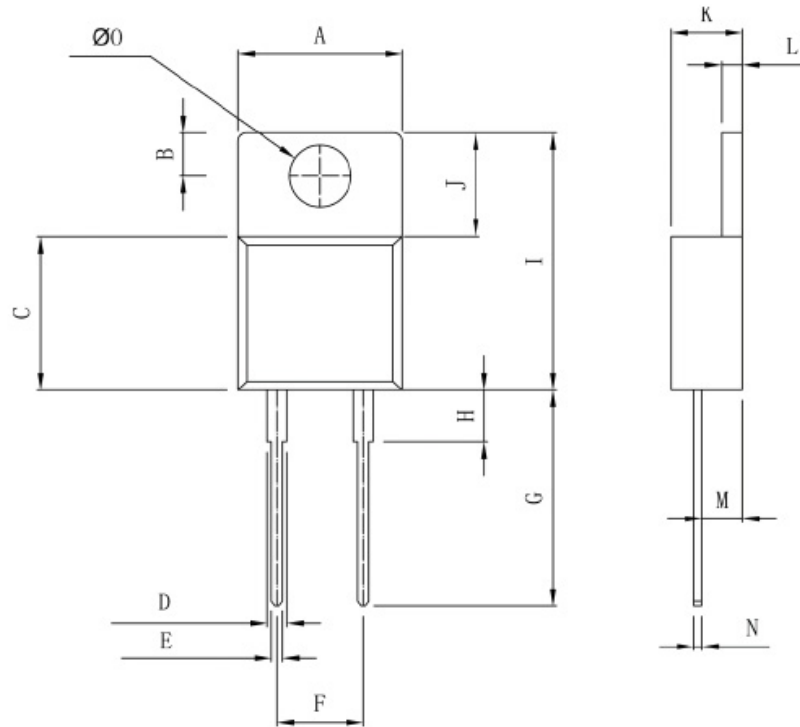


**Figure 5. Transient Thermal Resistance**

# GS2S12004A

## Silicon Carbide Schottky Rectifier

### Package Outline Dimensions TO-220AC



DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	9.677	9.931	0.381	0.391
B	2.540	3.048	0.100	0.120
C	9.018	9.271	0.355	0.365
D	1.144	1.397	0.145	0.055
E	0.635	0.889	0.025	0.035
F	5.080		0.200	
G	12.701	12.954	0.500	0.511
H	3.049	3.030	0.120	0.130
I	15.113	16.620	0.595	0.615
J	6.096	6.350	0.240	0.250
K	4.191	4.699	0.165	0.185
L	1.219	1.321	0.048	0.052
M	2.386	2.489	0.094	0.098
N	0.458	0.635	0.018	0.025
Ø0	3.632	3.734	0.143	0.146