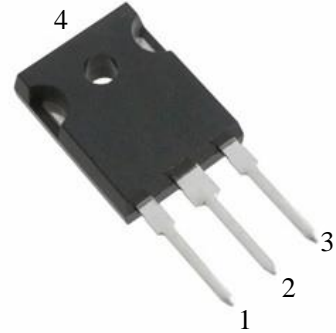


GS2S12040C

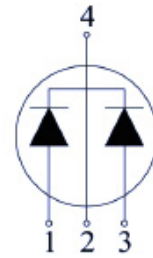
Silicon Carbide Schottky Rectifier

Features

- 1200V Schottky barrier rectifiers
- Ultra high speed and temperature-insensitive switching characteristics
- High working frequency
- Working temperature up to 175°C
- Very low reverse recovery current
- Very low forward recovery voltage
- Unipolar rectifiers, instead of standard bipolar rectifiers
- Reduces the cooling requirement
- High efficiency
- Very low switching loss



TO-247



Schematic Diagram

Applications

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

Absolute Maximum Ratings

Parameter	Symbol	Test Condition	Value	Units
DC Reverse Voltage	V_{DC}		1200	V
DC Forward Current(Per Leg/Per Device)	I_F	$T_C < 150^\circ C$	20/40	A
Power Dissipation	P_{TOT}	$T_C = 25^\circ C$	263	W
Reverse Recovery Time	T_{rr}	$I_F = 20A, di/dt = 200A/\mu s$	15	ns
Working & Storage Temperature	T_J/T_{stg}		-55 to 175	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Value			Unit
		Min	Typ.	Max	
Thermal Resistance(Junction to Case)	$R_{th,JC}$	-	0.57	-	$^\circ C/W$

Electrical Characteristics

Parameter	Symbol	Test Condition	Value			Unit
			Min	Typ.	Max	
Forward Voltage	V_F	$I_F=20A, T_J=25^{\circ}C$	-	1.7	2	V
		$I_F=20A, T_J=175^{\circ}C$	-	2.5	3	
Reverse Leakage Current	I_R	$V_R=1200V, T_J=25^{\circ}C$	-	80	200	μA
		$V_R=1200V, T_J=175^{\circ}C$	-	130	400	
Total Storage Charge	Q_C	$V_R=1200V, I_F=20A$ $di/dt=200A/\mu s, T_J=25^{\circ}C$	-	129	-	nC
Capacitance	C	$V_R=0V, f=1MHZ$	-	1300	1500	pF
		$V_R=200V, f=1MHZ$	-	95	110	
		$V_R=400V, f=1MHZ$	-	94	105	

Typical Characteristics Curves

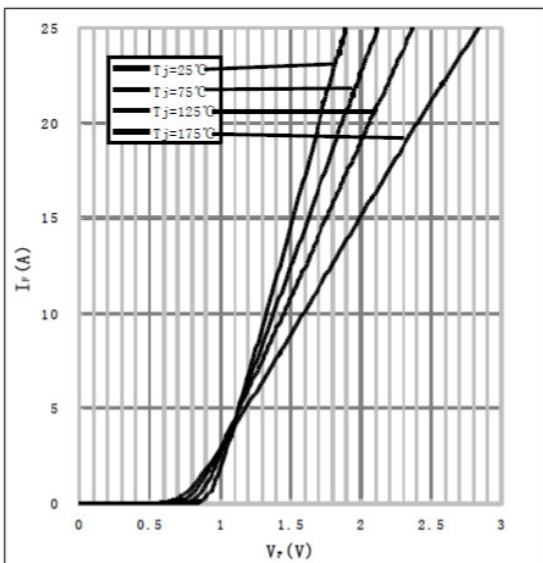


Figure 1. Typical Forward Characteristics Test Temperature: T_J

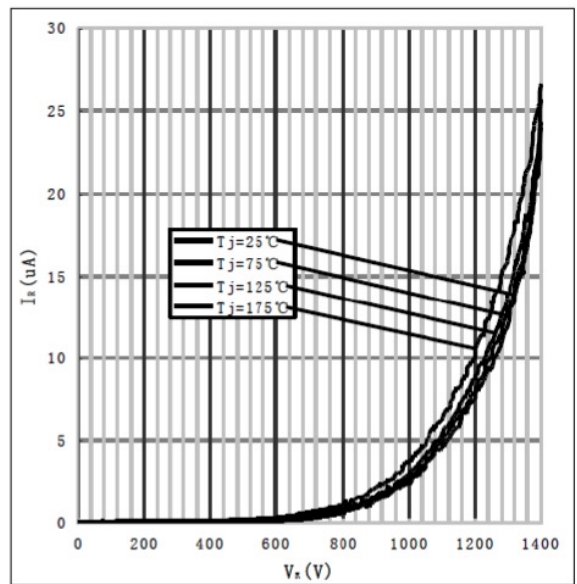


Figure 2. Typical Reverse Characteristics Test Temperature: T_J

Typical Characteristics Curves

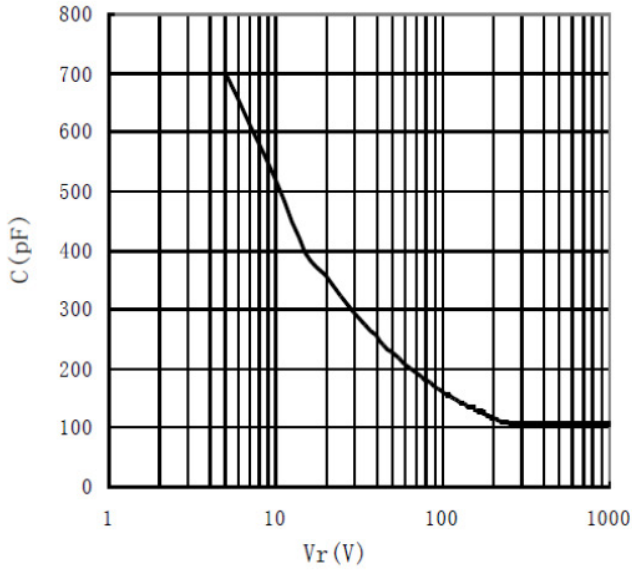


Figure 3. Typical Capacitance-Reverse Voltage Curve. T_c=25°C ,f=1MHz

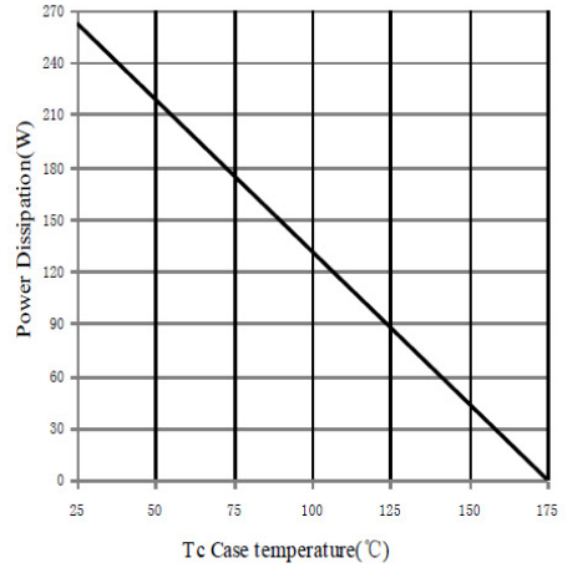


Figure 4. Power Dissipation Rate

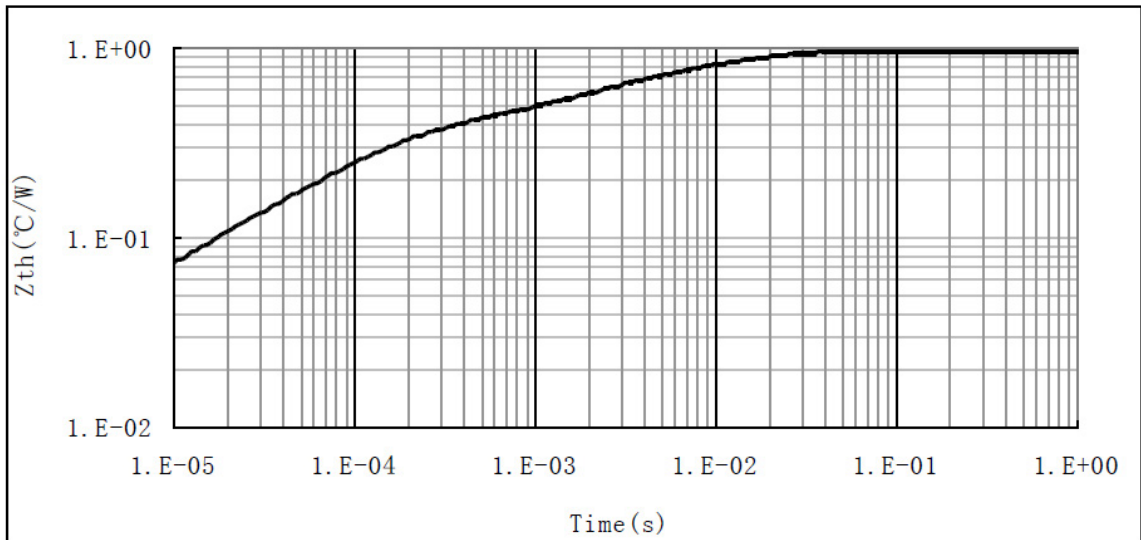
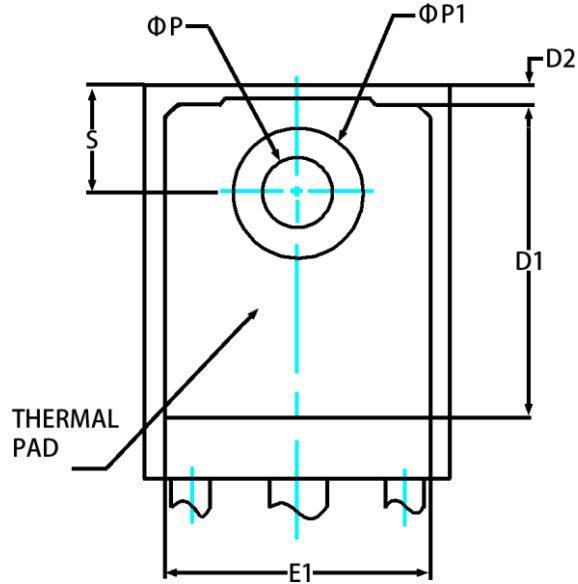
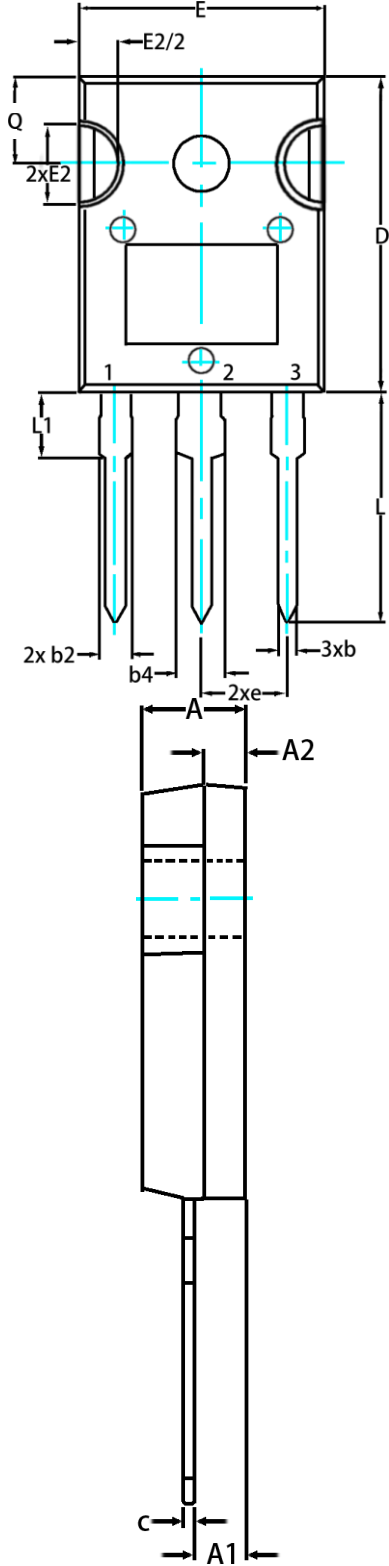


Figure 5. Transient Thermal Resistance

GS2S12040C Silicon Carbide Schottky Rectifier

Package Outline Dimensions TO-247



SYM-BOLS	DIMENSIONS			
	mm		inch	
	MIN.	MAX.	MIN.	MAX.
A	4.83	5.13	0.190	0.20
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
c	0.38	0.89	0.015	0.035
D	19.71	20.70	0.776	0.815
D1	13.08	-	0.515	-
D2	0.51	1.35	0.020	0.053
E	15.29	15.87	0.602	0.625
E1	13.46	-	0.530	-
E2	4.52	5.49	0.178	0.216
e	5.46BSC		0.215BSC	
L	14.2	16.1	0.559	0.634
L1	3.71	4.29	0.146	0.169
ΦP	3.56	3.66	0.140	0.144
ΦP1	-	7.39	-	0.291
Q	5.31	5.69	0.209	0.224
S	5.51BSC		0.217BSC	