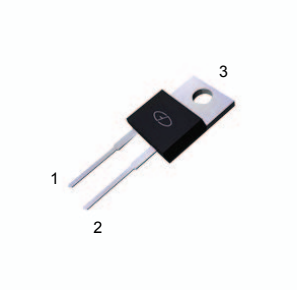
GOOD-ARK SEMICONDUCTOR

GS2S12020A
Silicon Carbide Schottky Rectifier

Features

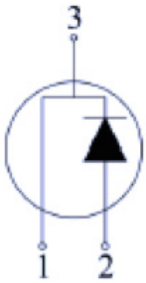
- Positive temperature coefficient, easier for parallel connection
- Temperature-insensitive switching characteristics
- Working temperature up to 175°C
- Reverse recovery current I_{rr} = 0
- Forward recovery Voltage V_{FR} = 0



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°C	1200	V
Peak Reverse Surge Voltage	V_{RSM}	T_J=25°C	1300	
DC Reverse Voltage	V_{DC}	T_J=25°C	1200	
Average Forward Current	I_F	T_C=135°C, no AC component	20	A
Repetitive Peak Forward Current	I_{FRM}	T_C=25°C, t_p=10ms,Half Sine Pulse	95	A
		T_C=110°C, t_p=10ms,Half Sine Pulse	65	A
Non Repetitive Peak Forward Current	I_{FSM}	T_C=25°C, t_p=10ms,Half Sine Pulse	135	A
		T_C=110°C, t_p=10ms,Half Sine Pulse	113	A
Total Power Dissipation	P_{TOT}	T_C=25°C	263	W
		T_C=110°C	114	W
Reverse Recovery Time	T_{rr}	I_F=20A,di/dt=200A/μs	15	ns
Case Temperature	T_C		135	°C
Junction Temperature	T_J		-55 to 175	°C
Storage Temperature	T_{stg}		-55 to 175	°C

Thermal Characteristics

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

Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Value			Unit
			Min	Typ.	Max	
Forward Voltage	V_F	I_F=20A,T_J=25°C	-	1.7	2	V
		I_F=20A,T_J=175°C	-	2.3	2.8	
Reverse Leakage Current	I_R	V_R=1200V,T_J=25°C	-	33	100	μA
		V_R=1200V,T_J=175°C	-	65	200	
Total Storage Charge	Q_C	V_R=1200V,I_F=20A di/dt=200A/μs,T_J=25°C	-	129	-	nC
Capacitance	C	V_R=0V,T_J=25°C, f=1MHZ	-	1300	1500	pF
		V_R=400V,T_J=25°C, f=1MHZ	-	95	110	
		V_R=800V,T_J=25°C, f=1MHZ	-	94	105	

Typical Characteristics Curves

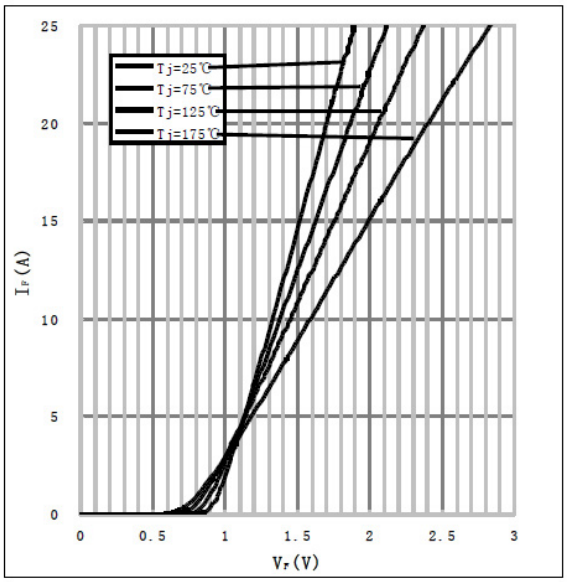


Figure 1. Typical Forward Characteristics Test Temperature: T_J

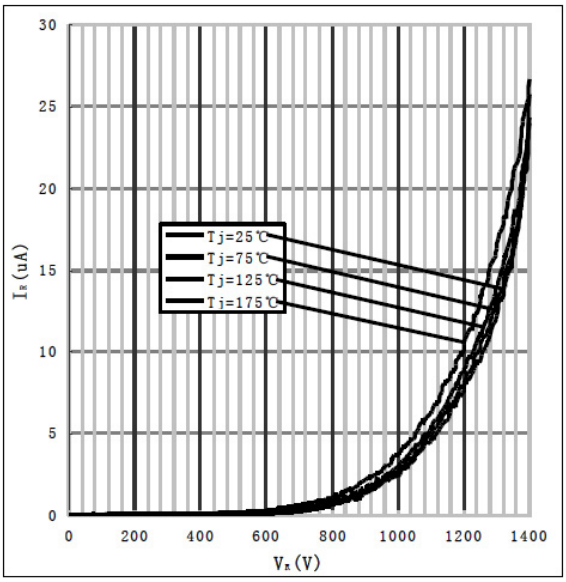


Figure 2. Typical Reverse Characteristics Test Temperature: T_J

Typical Characteristics Curves

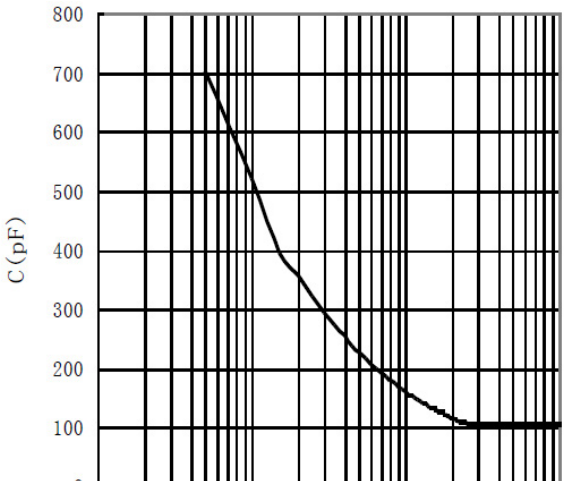


Figure 3. Typical Capacitance-Reverse Voltage Curve Test Temperature:T_J

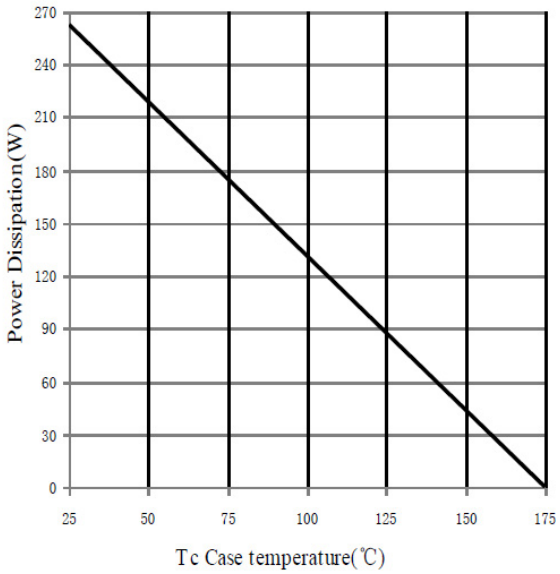


Figure 4. Power Dissipation Rate

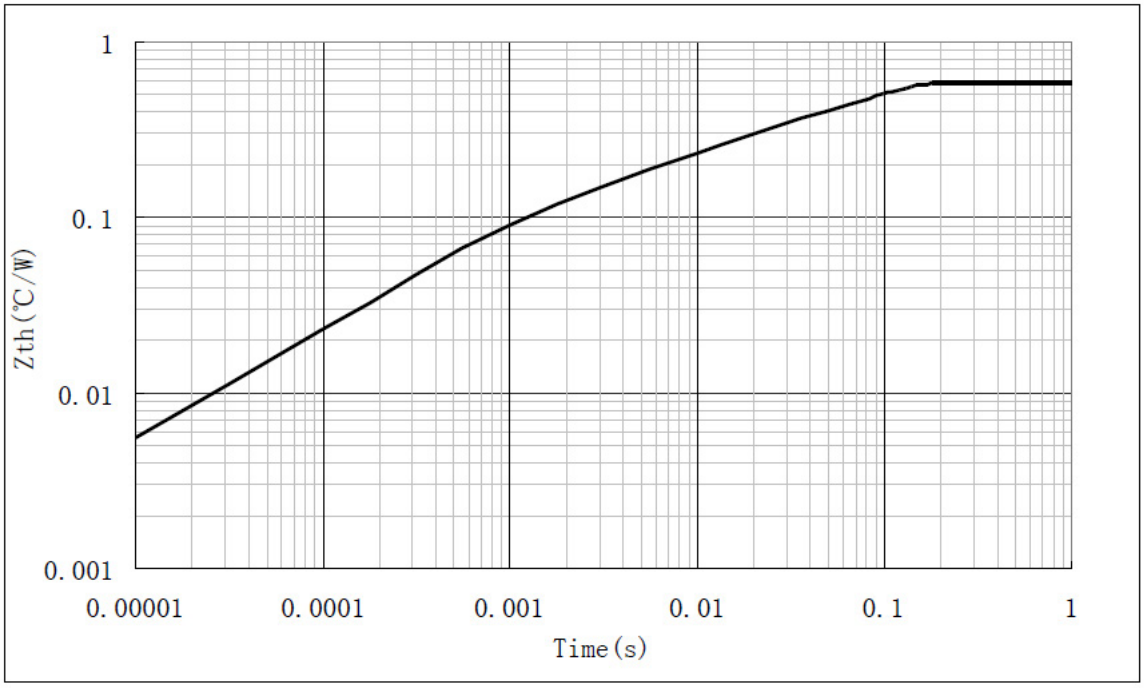
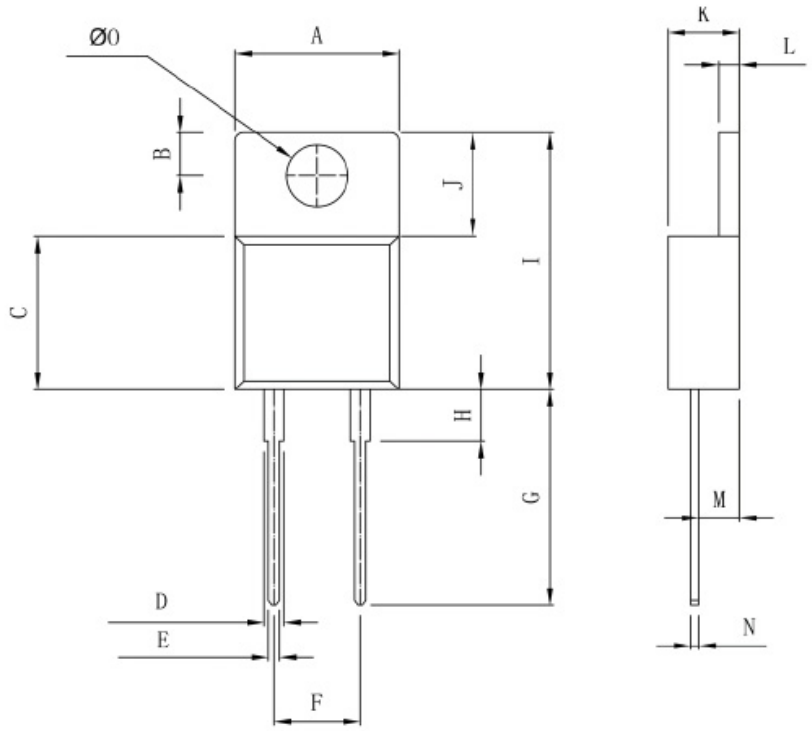


Figure 5. Transient Thermal Resistance

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