

Datasheet V2020.A.0

G5S12005A

1200V/5A Silicon Carbide Power Schottky Barrier Diode

Features

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

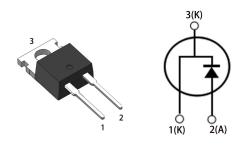
Benefits

- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements

Applications

- SMPS, e.g., CCM PFC;
- Motor drives, Solar application, UPS, Wind turbine, Rail traction, EV/HEV

Key Characteristics			
V _{RRM}	1200	V	
Ι_{Ϝ,} Τ ϲ≪158℃	5	Α	
Q _c	28.7	nC	





Part No.	Package Type	Marking
G5S12005A	TO-220AC	G5S12005A

Maximum Ratings

Parameter	Symbol	Test Condition	Value	Unit	
Repetitive Peak Reverse Voltage	V _{RRM}		1200	V	
Surge Peak Reverse Voltage	V _{RSM}		1200	V	
DC Blocking Voltage	V _{DC}		1200	V	
Continuous Forward		T _C =25°C	20.5		
	I _F	T _C =125°C	11	А	
Current		Tc=158°C	5		
Repetitive Peak Forward	I	$T_c=25^{\circ}C$, tp=10ms , Half Sine	30	А	
Surge Current	I _{FRM}	Wave, D=0.3	50	A	
Non-repetitive Peak		$T_{C}\text{=}25^{\circ}\text{C}\text{, tp}\text{=}10\text{ms}\text{,}$ Half Sine	78	Α	
Forward Surge Current	rge Current I _{FSM} Wave		78	~	
Power Dissipation	Р	T _C =25°C	104	W	
	P _{TOT}	T _c =110°C	45	W	
Operating Junction	Tj		-55°C to 175°C	°C	
Storage Temperature	T _{stg}		-55°C to 175°C	°C	
Mounting Torque		M3 Screw	1	Nm	
Mounting Torque		6-32 Screw	8.8	lbf-in	

Thermal Characteristics

Parameter	Symbol	Test Condition	Value	Unit
Farameter	Symbol	lest condition	Тур.	Unit
Thermal resistance from junction to case	R_{thJC}		1.45	°C/W

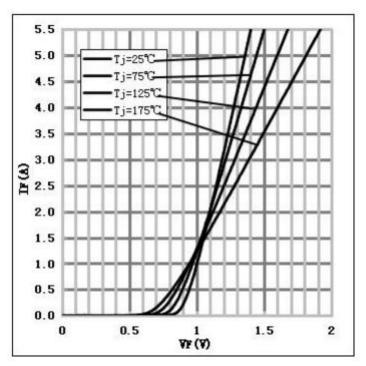
Deremeter	Sumbal	Test Conditions	Nume	erical	
Parameter	Symbol	Test Conditions	Тур.	Max.	Unit
Forward Voltage	VF	I _F =5A, T _j =25°C	1.36	1.7	V
Forward Voltage		I _F =5A, T _j =175°C	1.81	2.5	V
Deverse Current	I _R	V _R =1200V, T _j =25°C	1.9	50	
Reverse Current		V _R =1200V, T _j =175°C	16	100	μA
		V _R =800V, T _j =150°C			
Total Capacitive Charge	Q _c	$Qc = \int_0^{VR} C(V)dV$	28.7	-	nC
		V _R =0V, T _j =25°C, f=1MHZ	424	440	
Total Capacitance	C	V _R =400V, T _j =25°C, f=1MHZ	26.8	27.8	рF
		V _R =800V, T _j =25°C, f=1MHZ	22.06	23.06	

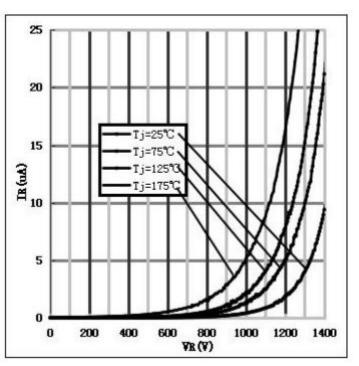
Electrical Characteristics

Performance Graphs

1) Forward IV characteristics as a function of Tj :

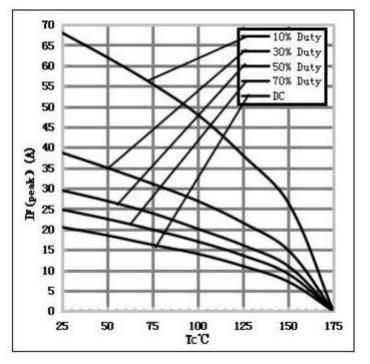


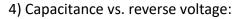


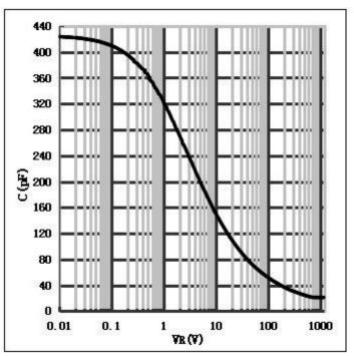


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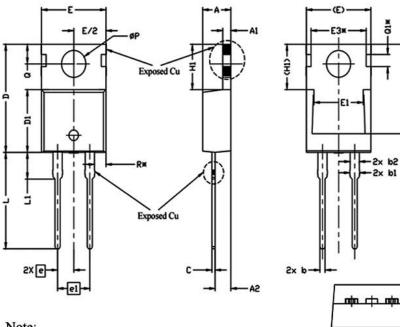
3) Current Derating:







Package TO-220AC



Note:

- 1. Package Reference: JEDEC TO220, Variation AB.
- 2. All Dimensions Are In mm.
- 3. Slot Required, Notch May Be Rounded
- 4. Dimension D & E Do Not Include Mold Flash. Mold Flash Shall Not Exceed 0.127mm Pre Side. These Dimensions Are Measured At The Outermost Extreme Of The Plastic Body.
- 5. Thermal Pad Contour Optional Within Dimensions E, H1, D2 & E1.
- 6. Dimension E2 & H1 Define A Zone Where Stamping And Singulation Irregularities Are Allowed.
- 7. "*" is reference .

单位:mm

				单位:mm
SYMBOL	DIMENSIONS			NOTES
UTWIDUE	MIN.	NOM.	MAX.	
Α	4.24	4.44	4.64	
A1	1.15	1.27	1.40	
A2	2.30	2.48	2.70	
ь	0.70	0.80	0.90	
b1	1.20	1.55	1.75	
b2	1.20	1.45	1.70	
с	0.40	0.50	0.60	
D	14.70	15.37	16.00	4
D1	8.82	8.92	9.02	
D2	12.63	12.73	12.83	5
E	9.96	10.16	10.36	4,5
E1	6.86	7.77	8.89	5
E3*		8.70REF.		
е		2.54BSC		
e1		5.08BSC		
H1	6.30	6.45	6.60	5,6
L	13.47	13.72	13.97	
L1	3.60	3.80	4.00	
ØP	3.75	3.84	3.93	
Q	2.60	2.80	3.00	
Q1*		1.73REF.		
R*		1.82REF.		

Note: The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC(RoHS2). RoHS Certification and other certifications can be obtained from GPT sales representatives or GPT website: http://globalpowertech.cn/English/index.asp

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