

GS5A THRU GS5M

GENERAL PURPOSE RECTIFIERS



VOLTAGE: 50~1000 Volts

CURRENT: 5.0 Amperes

SMC(DO-214AB)

Marking and Polarity

FEATURES

- Low cost
- Diffused junction
- Low reverse leakage current
- Low forward voltage drop
- High current capability
- The plastic material carries UL recognition 94V-0

MECHANICAL DATA

- **Case:** Molded Plastic
- **Epoxy:** UL 94V-0 rate flame retardant
- **Mounting position:** Any
- **Weight:** App.0.24 grams

TYPICAL APPLICATIONS

- For use in low voltage ,high frequency inverters ,DC/DC converters,LED driver, free wheeling ,and polarity protection applications



Remark:

- ①.NH=niuhang trademark;
- ②.FF=Production line,According to actual changes;
YWW=Date Code,According to actual changes;
- ③.GS5X=Module;
- ④.White edge=Polarity mark

Maximum Ratings and Electrical Characteristics(Ratings at 25℃ ambient temperature unless otherwise specified)

Parameter				Symbol	GS5A	GS5B	GS5D	GS5G	GS5J	GS5K	GS5M	Unit
Maximum repetitive peak reverse voltage				V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS voltage				V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC blocking voltage				V_{DC}	50	100	200	400	600	800	1000	V
Maximum average forward rectified current(see fig.1)				$I_{F(AV)}$	5.0							A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)				I_{FSM}	120							A
Maximum instantaneous forward voltage at 8.0 A (Note 1)				V_F	1.1							V
Maximum instantaneous reversecurrent at rated DC blockingvoltage (Note 2)	T _A =25℃	VR= V _{RRM}	I_{RRM}	5							uA	
	T _A =125℃	VR= 80%*V _{RRM}		200								
Typical junction capacitance (Note 3)				C_J	65							pF
Operating junction and Storage temperature range				T_J	-65 to +150							℃
Storage temperature range				T_{STG}	-65 to +150							

Thermal Characteristics (Ratings at 25℃ ambient temperature unless otherwise specified)

Parameter	Symbol	GS5A THRU GS5M	Unit
Typical thermal resistance (Note 4)	$R_{\theta JA}$	47	$^{\circ}\text{C/W}$
	$R_{\theta JL}$	13	

- Note:
- 1.Pulse test: 300 μs pulse width,1% duty cycle
 - 2.Pulse test: pulse width $\leq$ 40ms
 - 3.Measured at 1MHz and applied reverse voltage of 4.0V D.C.
 - 4.Thermal resistance from junction to lead vertical P.C.B. mounted , 0.375"(9.5mm)lead length

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RATING AND CHARACTERISTIC CURVES

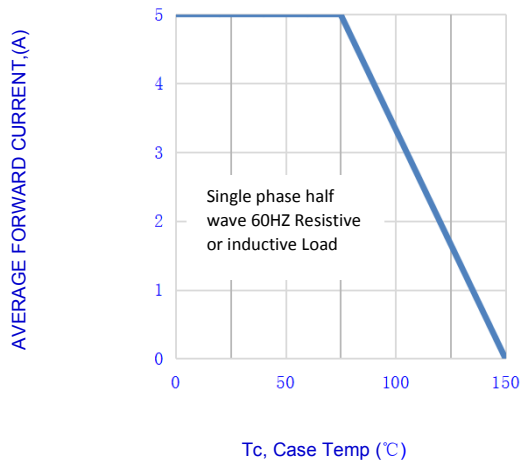


Fig.1-FORWARD CURRENT DERATING CURVE

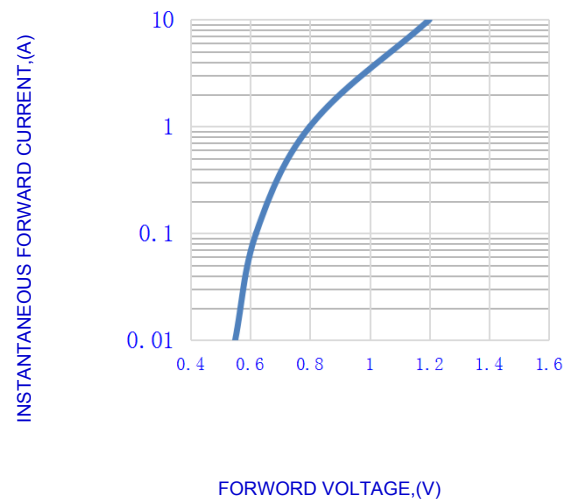


Fig.2- TYPICAL INSTANTANEOUS FORWARD

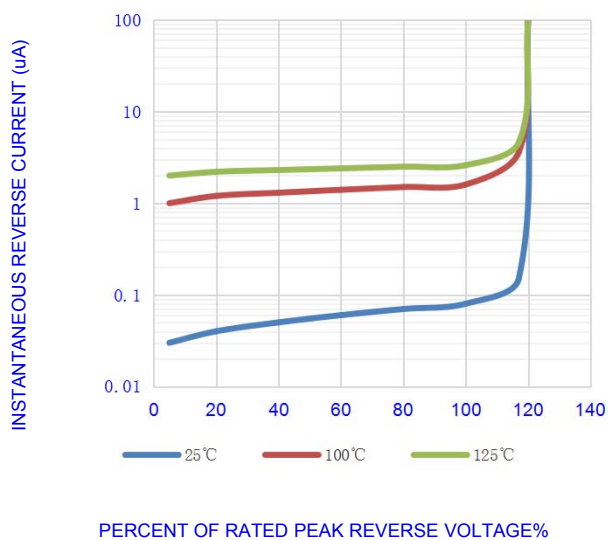


Fig.3- TYPICAL REVERSE CHARACTERISTICS

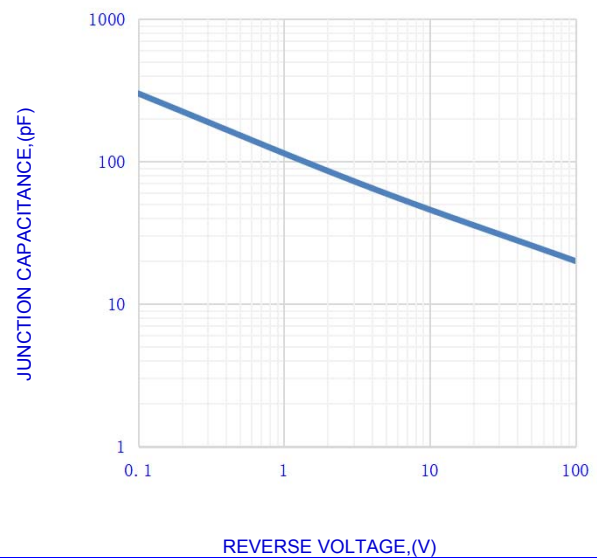


Fig.4- TYPICAL JUNCTION CAPACITANCE

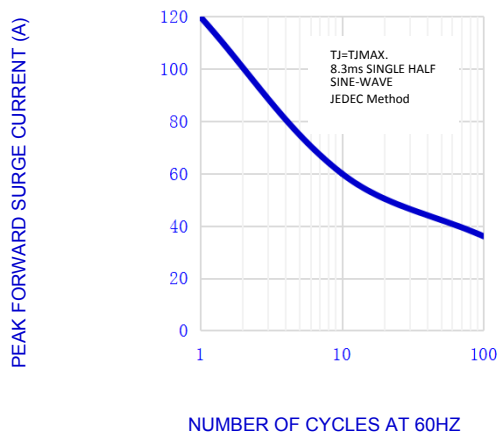
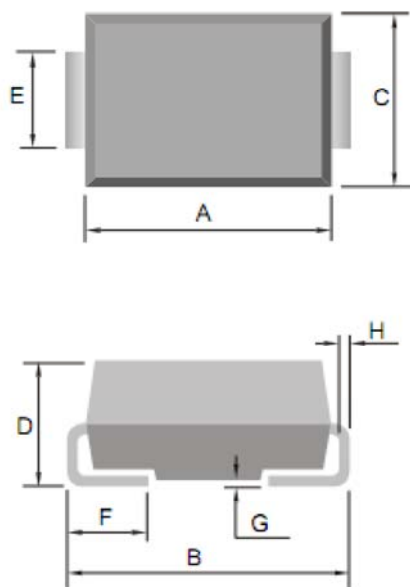


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

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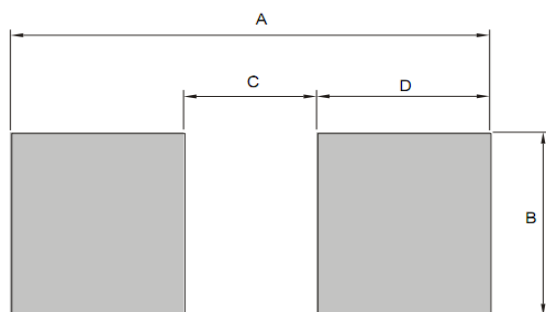
OUTLINE DRAWINGS



SMC(DO-214AB)

OUTLINE DIMENSIONS						
DIM	MILLIMETERS			INCHES		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	6.600	-	7.110	0.260	-	0.280
B	7.750	-	8.130	0.305	-	0.320
C	5.590	-	6.220	0.220	-	0.245
D	2.000	-	2.620	0.079	-	0.103
E	2.750	-	3.250	0.108	-	0.128
F	0.760	-	1.520	0.030	-	0.060
G	0.051	-	0.203	0.002	-	0.008
H	0.152	-	0.305	0.006	-	0.012

RECOMMENDED LAYOUT DRAWINGS



SMC(DO-214AB)

RECOMMENDED MOUNTING PAD DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	9.900	-	-	0.390	-
B	-	3.820	-	-	0.150	-
C	-	3.840	-	-	0.151	-
D	-	3.030	-	-	0.119	-

PACKING INFORMATION

SMC(DO-214AB)

Package Method	Reel Size (mm)	Quantity (pcs/reel)	Inner Box Size L×W×H(mm)	Quantity (pcs/Inner Box)	Carton Size L×W×H(mm)	Quantity (pcs/carton)
Tape Reel	Φ330	3000	340×340×45	6000	360×360×470	60000

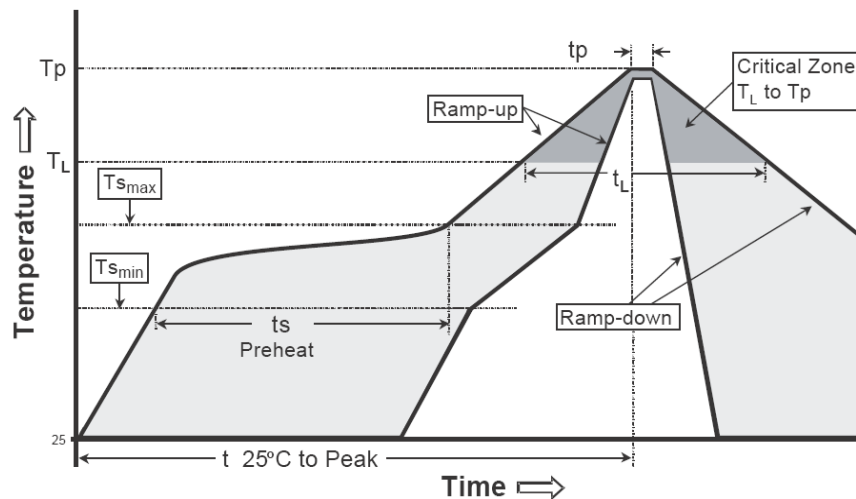
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Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(T _s min) -Temperature Max(T _s max) -Time(t _s min to t _s max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (T _L) - Time (t _L)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(T _P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

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