TAIWAN SEMICONDUCTOR

The Smartest Choice

HS5A - HS5M

5.0AMPS High Efficient Surface Mount Rectifiers

SMC/DO-214AB

Features

- ✧ Glass passivated junction chip.
- ✧ For surface mounted application
- ✧ Low forward voltage drop
- ✧ Low profile package
- ✧ Built-in stain relief, ideal for automatic placement
- ✧ Fast switching for high efficiency
- ✧ High temperature soldering: 260℃/10 seconds at terminals
- ✧ Meet MSL level 1, per J-STD-020D, lead free maximum peak of 260℃
- ✧ Plastic material used carries Underwriters Laboratory Classification 94V-0
- ✧ Green compound with suffix "G" on packing code & prefix "G" on datecode



Pb-Free

RoHS COMPLIANT

Mechanical Data

- ✧ Cases: Molded plastic
- ✧ Terminal: Pure tin plated, lead free
- ✧ Polarity: Indicated by cathode band
- ✧ Packing: 16mm tape per EIA STD RS-481
- ✧ Weight: 0.21 grams

Ordering Information (example)

Part No.	Package	Packing	Packing code	Packing code (Green)
HS5A	SMC	850 / 7" REEL	R7	R7G

Maximum Ratings and Electrical Characteristics

Rating at 25 ℃ ambient temperature unless otherwise specified.

Parameter	Symbol	HS 5A	HS 5B	HS 5D	HS 5F	HS 5G	HS 5J	HS 5K	HS 5M	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	300	400	600	800	1000	V
Maximum RMS Voltage	V_{RMS}	35	70	140	210	280	420	560	700	V
Maximum DC Blocking Voltage	V_{DC}	50	100	200	300	400	600	800	1000	V
Maximum Average Forward Rectified Current	$I_{F(AV)}$	5								A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I_{FSM}	150								A
Maximum Instantaneous Forward Voltage (Note 1) @ 5 A	V_F	1.0				1.3	1.7			V
Maximum DC Reverse Current @ T_A=25 ℃ at Rated DC Blocking Voltage @ T_A=125 ℃	I_R	10 250								uA
Maximum Reverse Recovery Time (Note 2)	Trr	50					75			nS
Typical Junction Capacitance (Note 3)	Cj	80					50			pF
Typical Thermal Resistance	$R_{\theta jA}$	60								^{O}C/W
Operating Temperature Range	T_J	- 55 to + 150								^{O}C
Storage Temperature Range	T_{STG}	- 55 to + 150								^{O}C

Note 1: Pulse Test with PW=300 usec, 1% Duty Cycle

Note 2: Reverse Recovery Test Conditions: I_F=0.5A, I_R=1.0A, I_{RR}=0.25A

Note 3: Measured at 1 MHz and Applied V_R=4.0 Volts

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RATINGS AND CHARACTERISTIC CURVES (HS5A THRU HS5M)

FIG.1- MAXIMUM FORWARD CURRENT DERATING CURVE

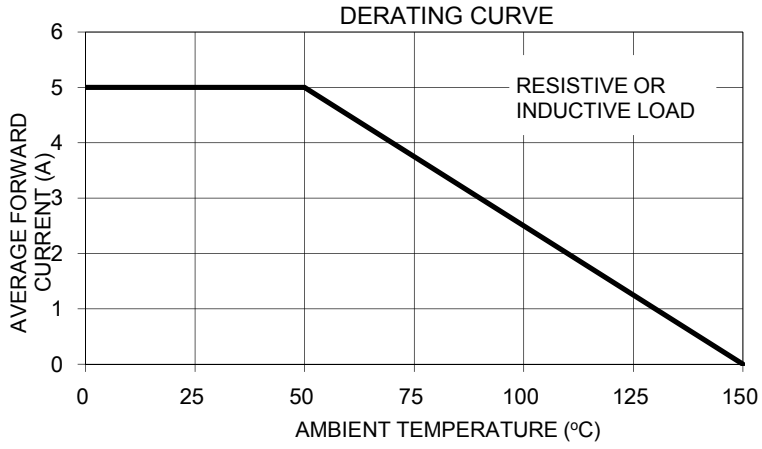


FIG. 2- TYPICAL REVERSE CHARACTERISTICS

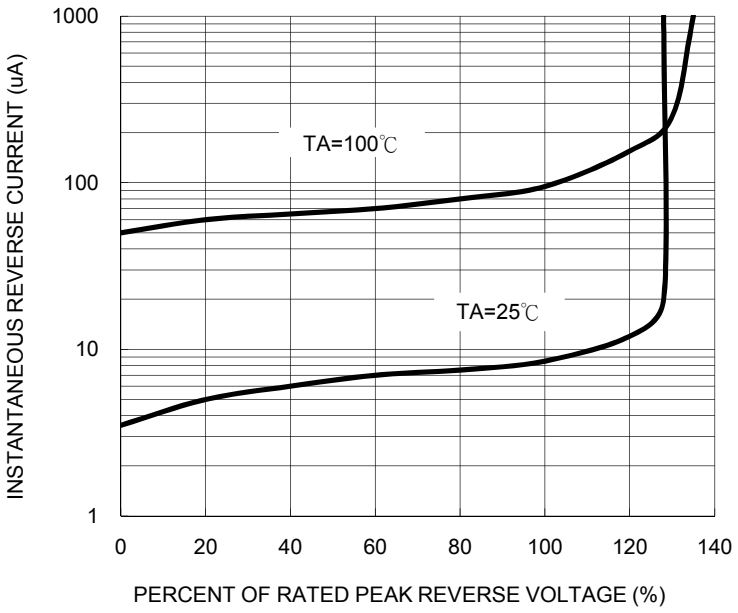


FIG. 3- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

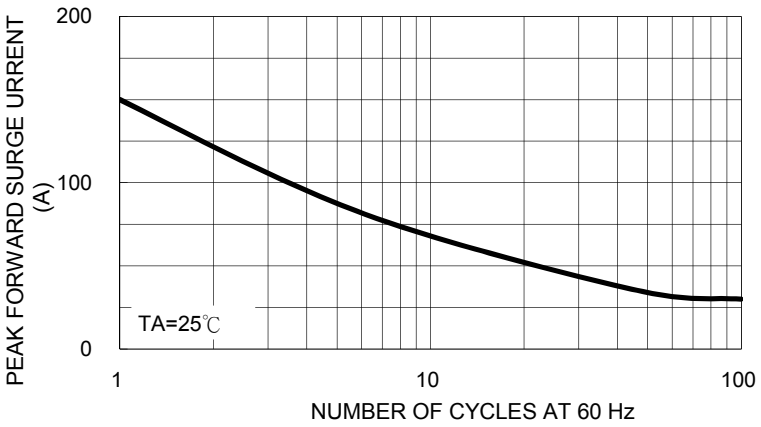


FIG. 4- TYPICAL JUNCTION CAPACITANCE

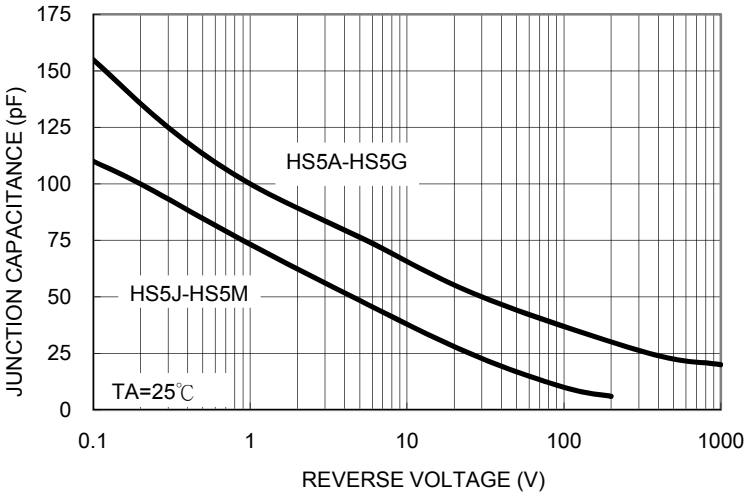


FIG. 5- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

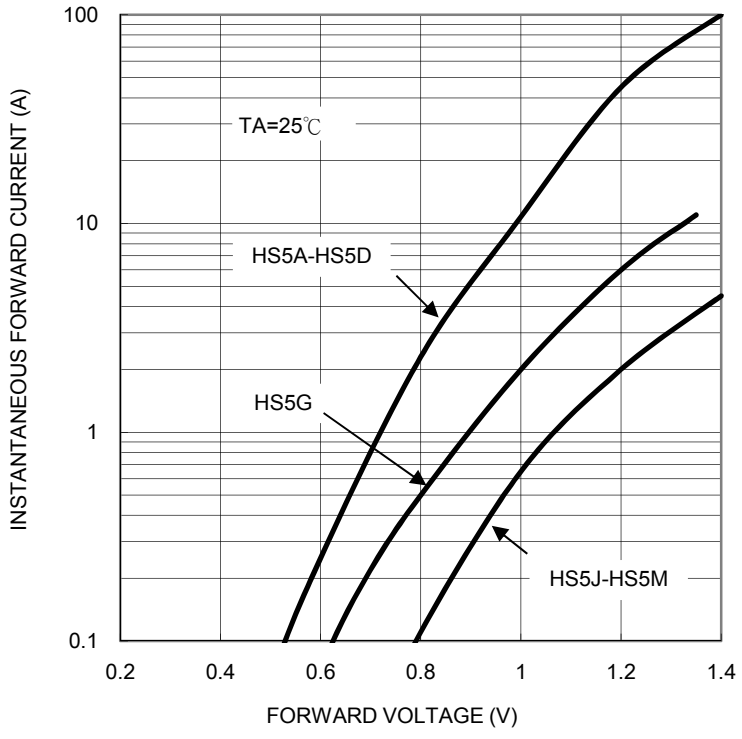
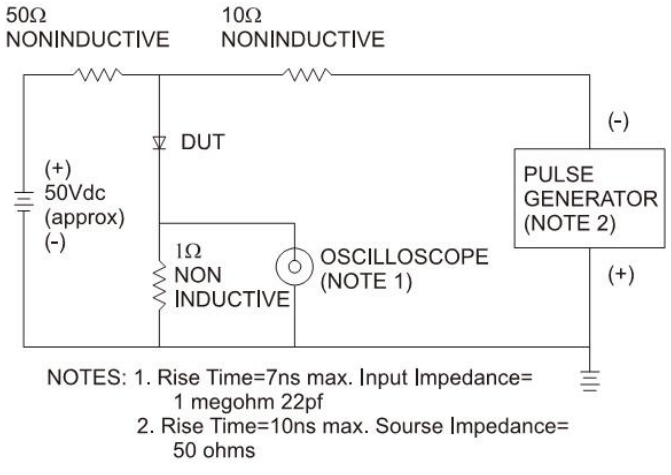
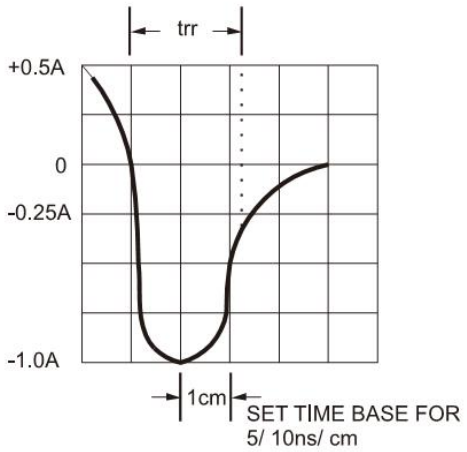


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



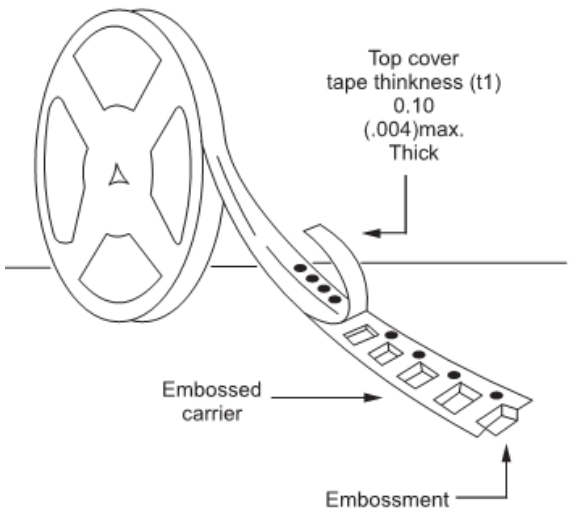


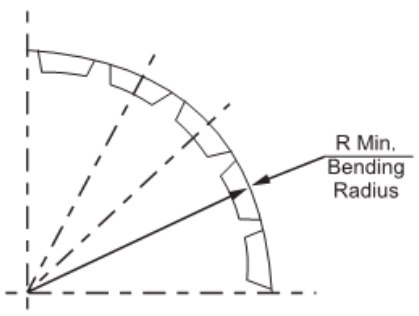
Ordering information

Part No.	Package	Packing	Packing code	Packing code (Green)
HS5x (Note)	SMC	850 / 7" REEL	R7	R7G
	SMC	3K / 13" REEL	R6	R6G
	SMC	3K / 13" Plastic REEL	M6	M6G

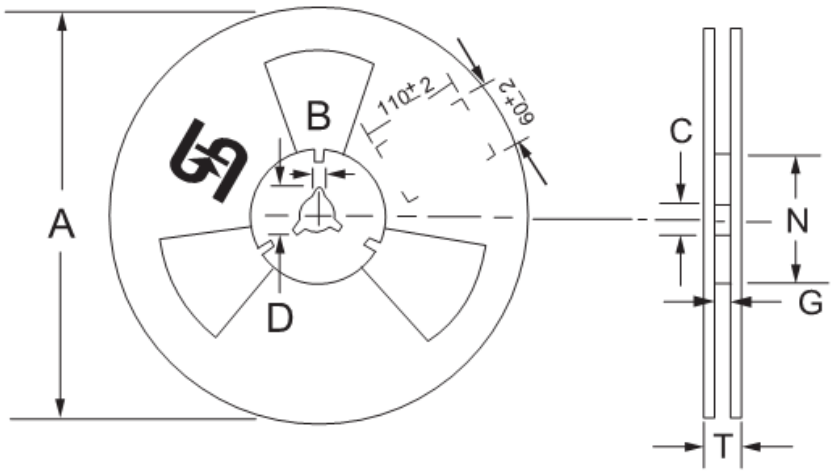
Note: "x" is Device Code from "A" thru "M".

Tape & Reel specification





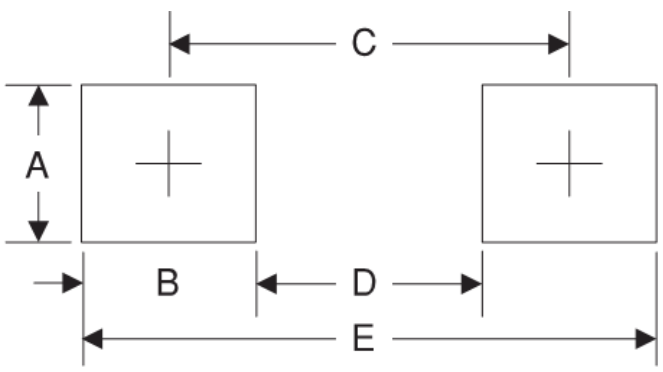
Tape with components shall pass around bending radius without damage, for reels with hub diameters approaching minimum dimension



Reel Size	Tape Size	A	B	C	D	N	G	T
		±2.0	±0.4	+0.5;-0.2	min	±1.0	+0.8;-0	max
7"	16mm	178	1.9	13	21	62	16.2	18.6
Reel Size	Tape Size	A	B	C	D	N	G	T
		max	±0.5	±0.5	min	±0.5	+2.0;-0	max
13"	16mm	330	2	13	20.2	75	16.4	22.4

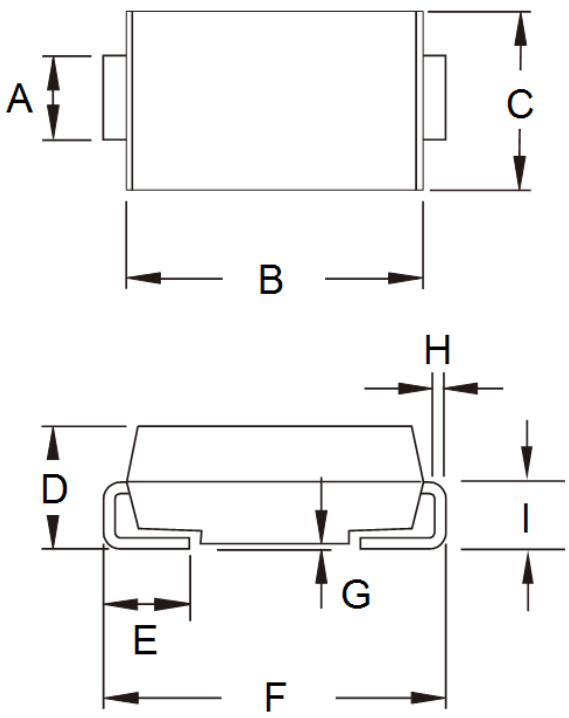
Unit (mm)

Suggested PAD Layout



Symbol	Unit(mm)
A	3.3
B	2.5
C	6.8
D	4.4
E	9.3

Dimensions



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	2.90	3.20	0.114	0.126
B	6.60	7.11	0.260	0.280
C	5.59	6.22	0.220	0.245
D	2.00	2.62	0.079	0.103
E	1.00	1.60	0.039	0.063
F	7.75	8.13	0.305	0.320
G	0.10	0.20	0.004	0.008
H	0.15	0.31	0.006	0.012
I	1.26	1.56	0.050	0.061

Marking Diagram



P/N = Specific Device Code
G = Green Compound
YW = Date Code
F = Factory Code