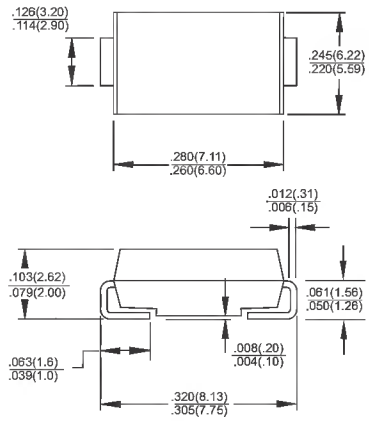
TAIWAN SEMICONDUCTOR

RoHS COMPLIANCE

HS3A - HS3M

3.0 AMPS. High Efficient Surface Mount Rectifiers

SMC/DO-214AB



Dimensions in inches and (millimeters)

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°C/10 seconds at terminals
- ✧ Plastic material used carries Underwriters Laboratory Classification 94V0
- ✧ Green compound with suffix "G" on packing code & prefix "G" on datecode.

Mechanical Data

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

Marking Diagram

HS3X = Specific Device Code
G = Green Compound
Y = Year
M = Work Month

Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%

Type Number	Symbol	HS 3A	HS 3B	HS 3D	HS 3F	HS 3G	HS 3J	HS 3K	HS 3M	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 See Fig. 1	$I_{(AV)}$	3.0								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 @ 3.0A	V_F	1.0				1.3	1.7			V
Maximum DC Reverse Current @ T_A =25 °C at Rated DC Blocking Voltage @ T_A=125 °C	I_R	10 250								uA uA
Maximum Reverse Recovery Time (Note 1)	Trr	50					75			nS
Typical Junction Capacitance (Note 2)	Cj	80					50			pF
Maximum Thermal Resistance (Note 3)	RθJA	60								°C/W
Operating Temperature Range	T_J	-55 to +150								°C
Storage Temperature Range	T_{STG}	-55 to +150								°C

Notes: 1. Reverse Recovery Test Conditions: I_F=0.5A, I_R=1.0A, I_{RR}=0.25A
2. Measured at 1 MHz and Applied V_R=4.0 Volts.
3. Mounted on P.C.Board with 0.6" x 0.6"(16mm x 16mm) Copper Pad Area.

RATINGS AND CHARACTERISTIC CURVES (HS3A THRU HS3M)

FIG.1- MAXIMUM FORWARD CURRENT DERATING CURVE

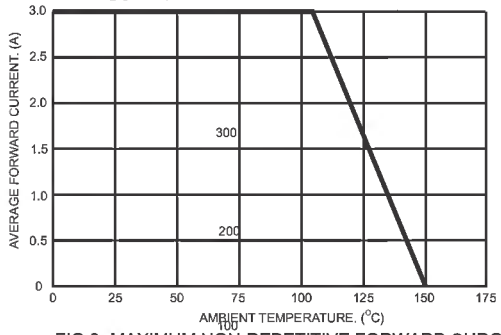


FIG.2- TYPICAL REVERSE CHARACTERISTICS

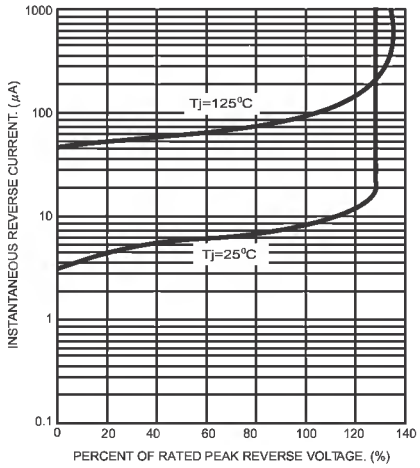


FIG.3- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

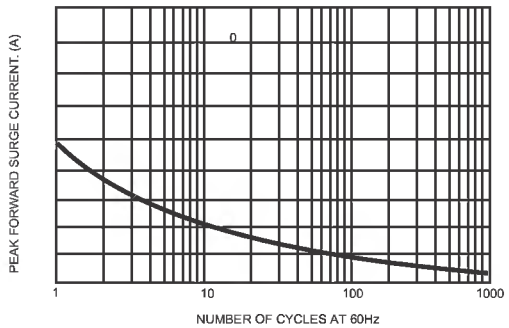


FIG.4- TYPICAL JUNCTION CAPACITANCE

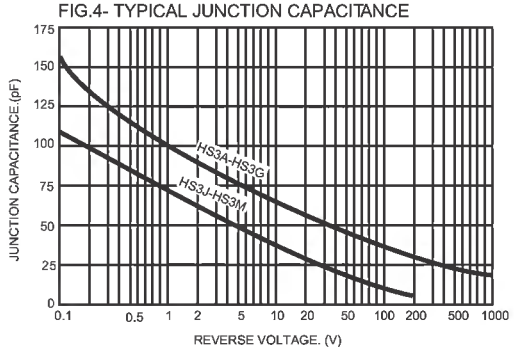


FIG.5- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

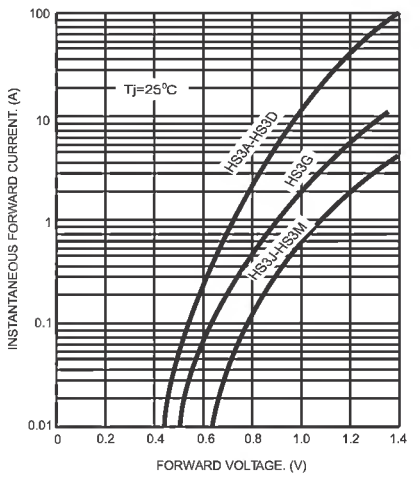


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM