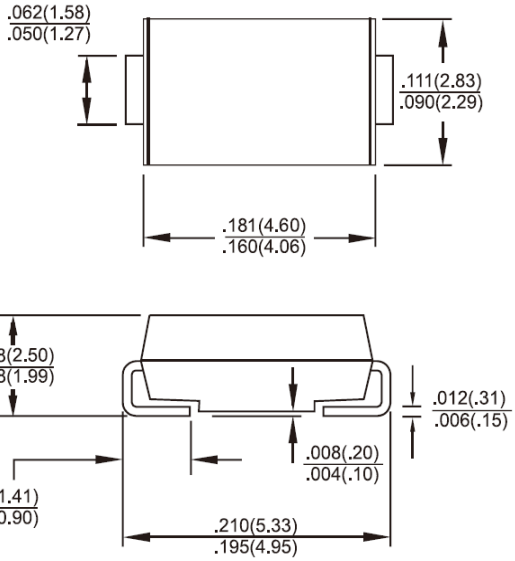
TAIWAN SEMICONDUCTOR

ESH1B - ESH1D

1.0AMP Surface Mount Super Fast Rectifiers

SMA/DO-214AC



Dimensions in inches and (millimeters)

Features

- ✧ Glass passivated junction chip
- ✧ For surface mounted application
- ✧ Low profile package
- ✧ Built-in strain rellef
- ✧ Ideal for automated placement
- ✧ Easy pick and place
- ✧ Super fast recovery time for high efficiency
- ✧ Qualified as per AEC-Q101
- ✧ High temperature soldering: 260℃/10 seconds at terminals
- ✧ Plastic material used carries Underwriters Laboratory Classification 94V-0
- ✧ Green compound with suffix "G" on packing code & prefix "G" on datecode

Mechanical Data

- ✧ Case: Molded plastic
- ✧ Terminals: Pure tin plated, lead free
- ✧ Polarity: Indicated by cathode band
- ✧ Packing: 12mm tape per EIA STD RS-481
- ✧ Weight: 0.064 grams

Marking Diagram

ESH1X = Specific Device Code
G = Green Compound
Y = Year
M = Work Month

Maximum Ratings and Electrical Characteristics

Rating at 25 ℃ 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	ESH1B	ESH1C	ESH1D	Unit
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	100	150	200	V
Maximum RMS Voltage	V_{RMS}	70	105	140	V
Maximum DC Blocking Voltage	V_{DC}	100	150	200	V
Maximum Average Forward Rectified Current	$I_{F(AV)}$	1.0			A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load	I_{FSM}	30			A
Maximum Instantaneous Forward Voltage (Note 1) @ 1.0A	V_F	0.95			V
Maximum Reverse Current @ Rated VR T_A=25 ℃ T_A=125 ℃	I_R	1 25			uA
Maximum Reverse Recovery Time (Note 2)	Trr	15			nS
Typical Junction Capacitance (Note 3)	Cj	16			pF
Typical Thermal Resistance	$R_{\theta JA}$ $R_{\theta JL}$	85 35			^{O}C/W
Operating Temperature Range	T_J	- 55 to + 175			^{O}C
Storage Temperature Range	T_{STG}	- 55 to + 175			^{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 Reverse Voltage of 4.0V D.C.

RATINGS AND CHARACTERISTIC CURVES (ESH1B THRU ESH1D)

FIG.1 FORWARD CURRENT DERATING CURVE

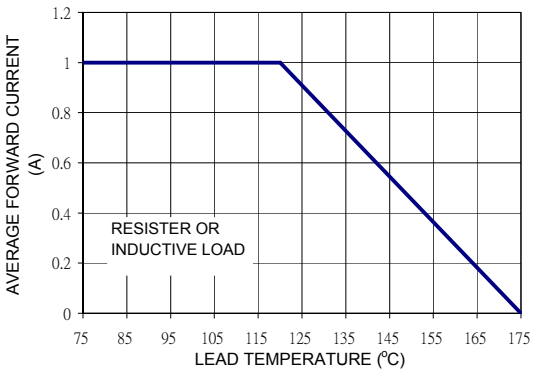


FIG. 3 TYPICAL FORWARD CHARACTERISRICS

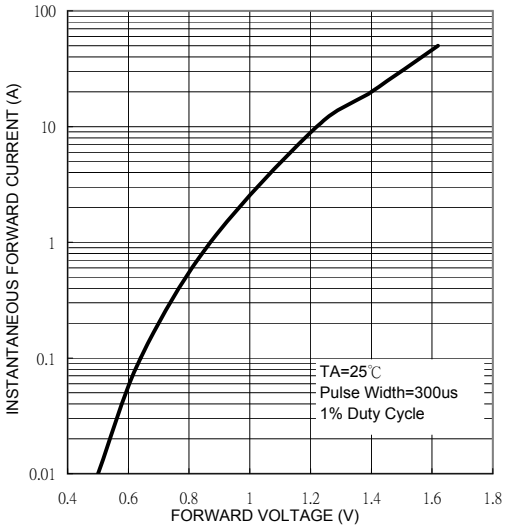


FIG. 2 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

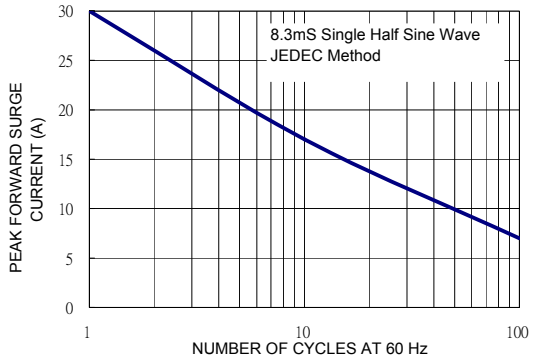


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

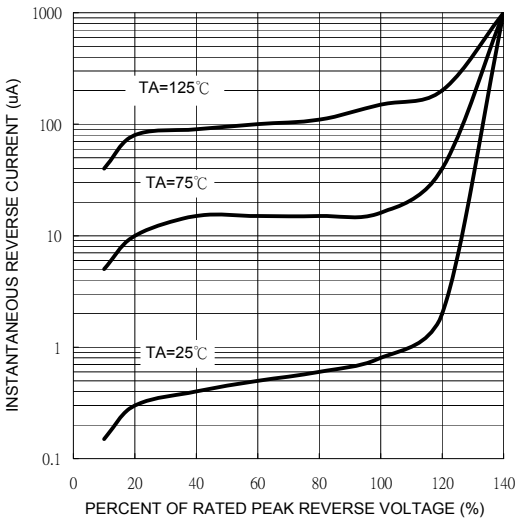


FIG. 5 TYPICAL JUNCTION CAPACITANCE

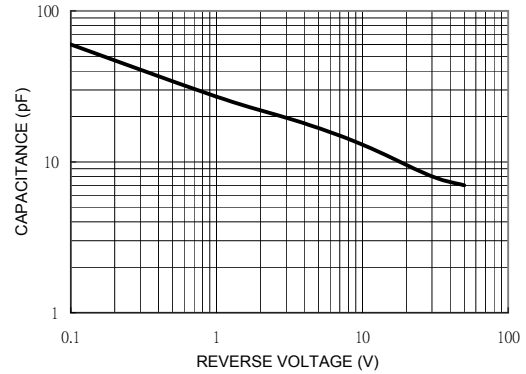


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM