

Features

- ◇ Glass passivated junction chip
- ◇ For surface mounted application
- ◇ Low profile package
- ◇ Built-in strain relief
- ◇ Ideal for automated placement
- ◇ Easy pick and place
- ◇ Ultra fast recovery time for high efficiency
- ◇ High temperature soldering:
260°C/10 seconds at terminals
- ◇ Meet MSL level 1, per J-STD-020D
lead free, maximum peak of 260°C
- ◇ 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

Ordering Information (example)

Part No.	Package	Packing	Packing code	Packing code (Green)
ESH1B	SMA	1.8K / 7" REEL	R3	R3G

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	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 $T_A=25\text{ }^\circ\text{C}$ $T_A=125\text{ }^\circ\text{C}$	I_R	1 25			μA
Maximum Reverse Recovery Time (Note 2)	T_{rr}	15			nS
Typical Junction Capacitance (Note 3)	C_j	16			pF
Typical Thermal Resistance	$R_{\theta JA}$ $R_{\theta JL}$	85 35			$^\circ\text{C/W}$
Operating Temperature Range	T_J	- 55 to + 175			$^\circ\text{C}$
Storage Temperature Range	T_{STG}	- 55 to + 175			$^\circ\text{C}$

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

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

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

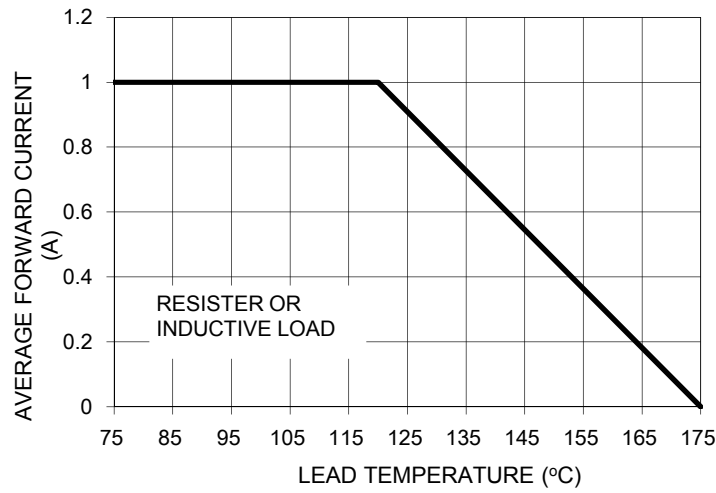


FIG. 2 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

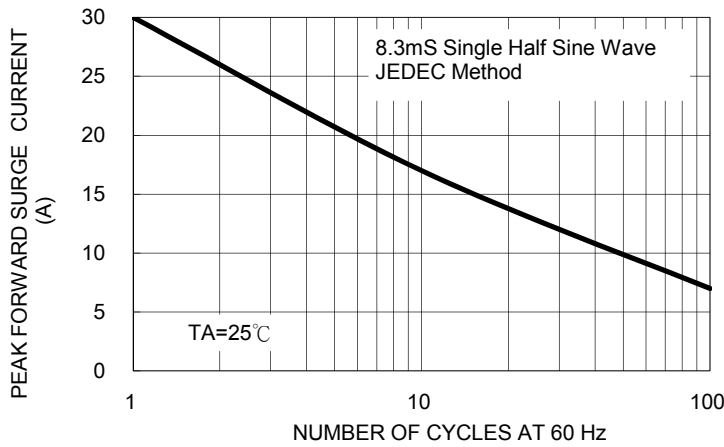


FIG. 5 TYPICAL JUNCTION CAPACITANCE

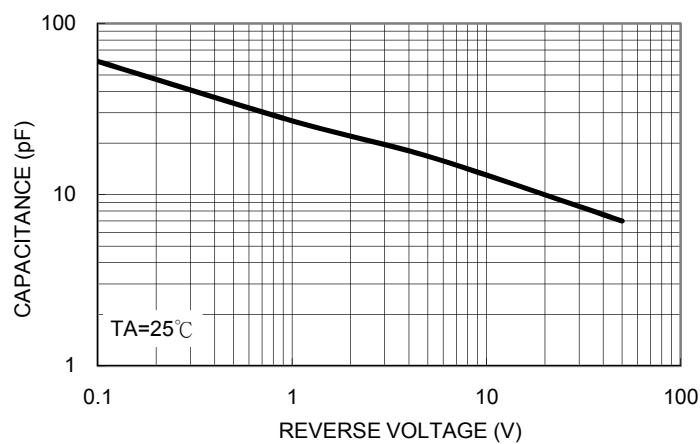


FIG. 3 TYPICAL FORWARD CHARACTERISTICS

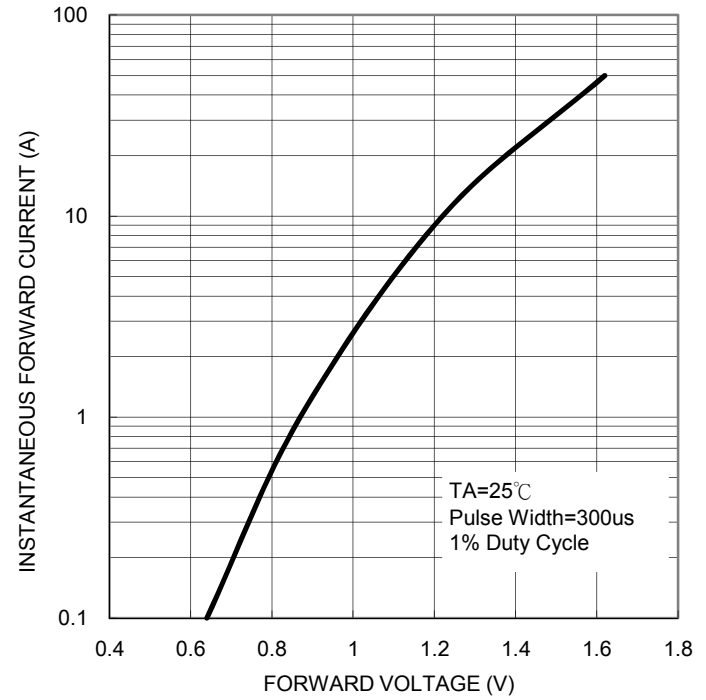


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

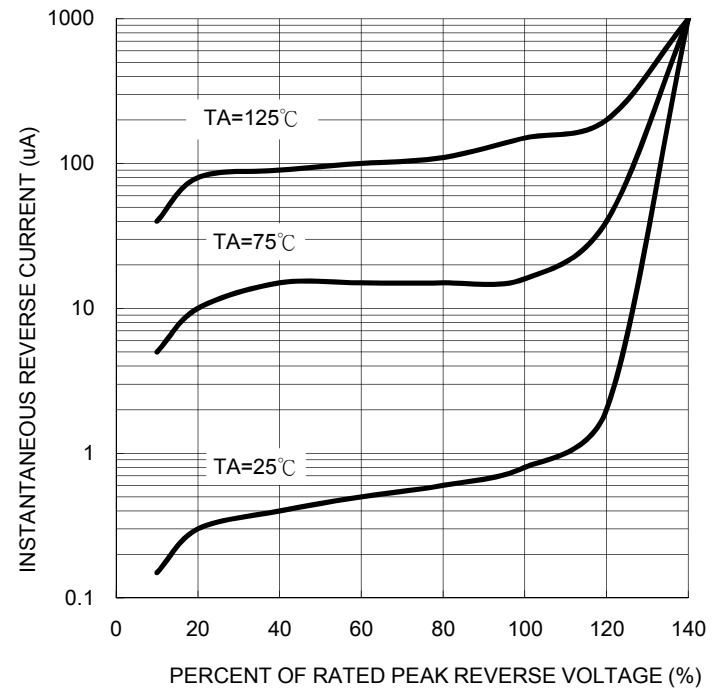
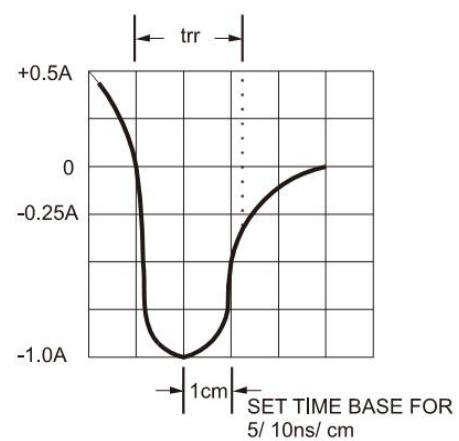
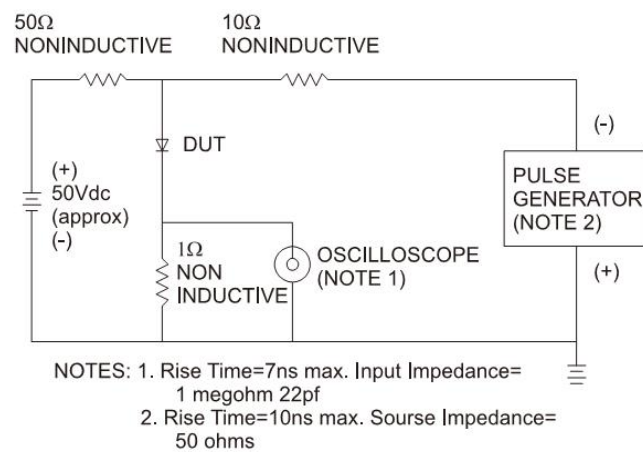


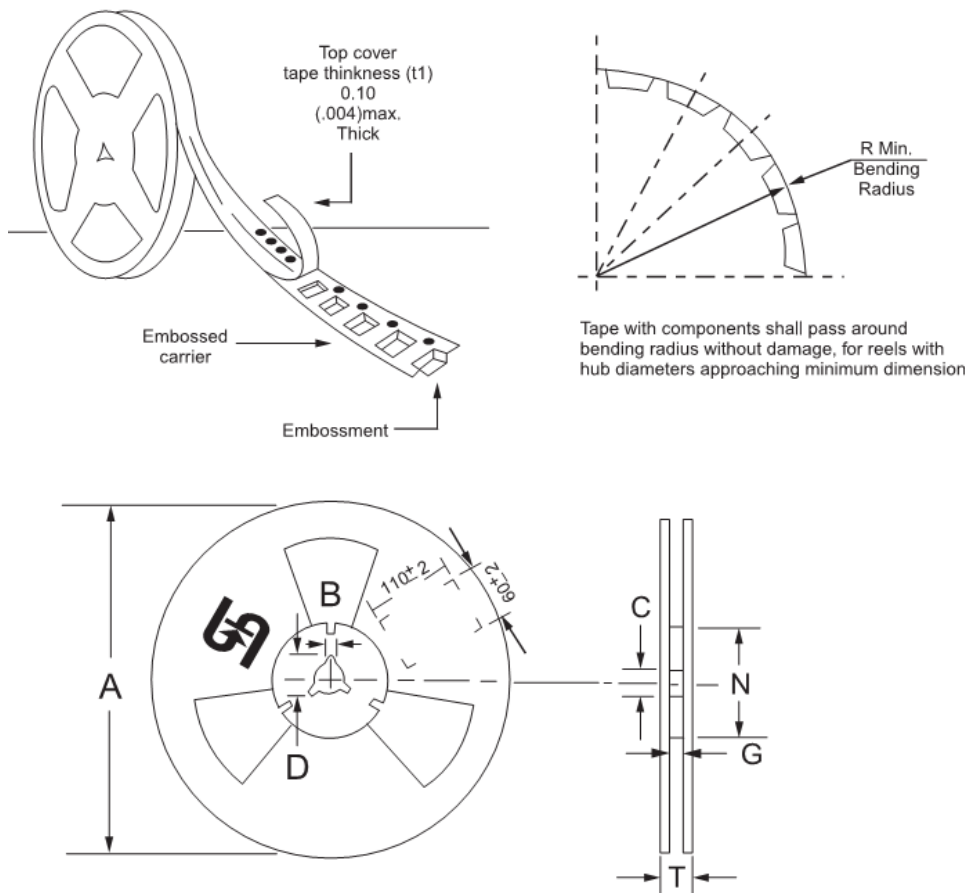
FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



Ordering information

Part No.	Package	Packing	Packing code	Packing code (Green)
ESH1x (Note)	SMA	1.8K / 7" REEL	R3	R3G
	SMA	7.5K / 13" REEL	R2	R2G
	SMA	7.5K / 13" Plastic REEL	M2	M2G
	Folded SMA	1.8K / 7" REEL	F3	F3G
	Folded SMA	7.5K / 13" REEL	F2	F2G
	Folded SMA	7.5K / 13" Plastic REEL	F4	F4G
	C SMA	1.8K / 7" REEL	E3	E3G
	C SMA	7.5K / 13" REEL	E2	E2G

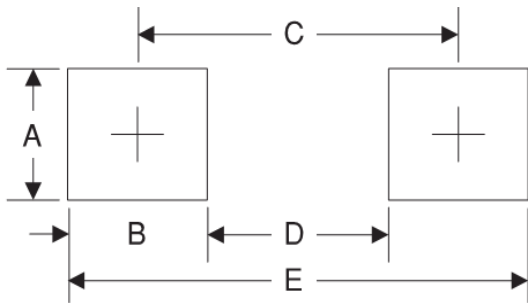
Note: "x" is Device Code from "B" thru "D".

Tape & Reel specification


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"	12mm	178	1.9	13	21	62	12.2	14.6
Reel Size	Tape Size	A	B	C	D	N	G	T
		max	±0.5	±0.5	min	±0.5	+2.0;-0	max
13"	12mm	330	2	13	20.2	75	12.4	18.4

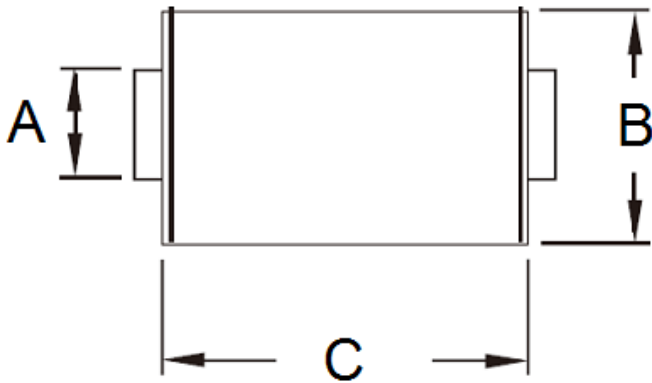
Unit (mm)

Suggested PAD Layout

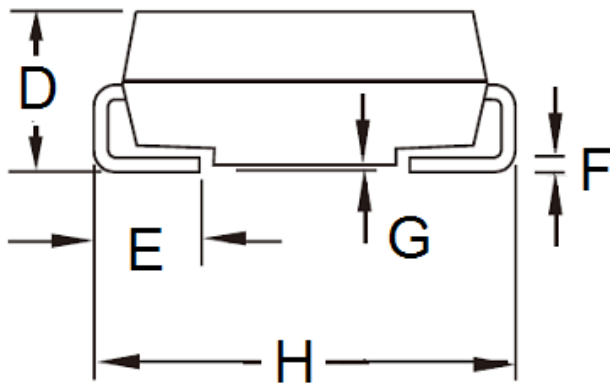


Symbol	Unit(mm)
A	1.78
B	1.51
C	3.92
D	2.41
E	4.43

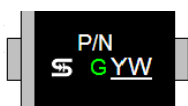
Package Outline Dimensions



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	1.27	1.58	0.050	0.062
B	2.29	2.83	0.090	0.111
C	4.06	4.60	0.160	0.181
D	1.99	2.50	0.078	0.098
E	0.90	1.41	0.035	0.056
F	0.15	0.31	0.006	0.012
G	0.10	0.20	0.004	0.008
H	4.95	5.33	0.195	0.210



Marking Diagram



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