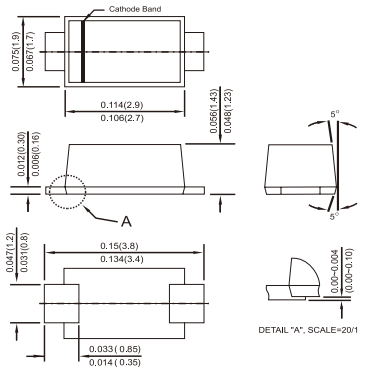
TAIWAN SEMICONDUCTOR

ES1AL - ES1JL

1.0 AMP. Surface Mount Super Fast Rectifiers

Sub SMA

Pb RoHS COMPLIANCE



Dimensions in inches and (millimeters)

Features

- ✧ For surface mounted application
- ✧ Low profile package
- ✧ Low power loss, high efficiency,
- ✧ Ideal for automated placement
- ✧ Glass passivated chip junction
- ✧ High temperature soldering: 260°C/10 seconds at terminals
- ✧ Green compound with suffix "G" on packing code & prefix "G" on datecode.

Mechanical Data

- ✧ Cases: Sub SMA plastic case
- ✧ Terminal : Pure tin plated, lead free.
- ✧ Polarity: Color band cathode end
- ✧ Packing: 8mm / 12mm tape per EIA STD RS-481
- ✧ Weight: 0.015 grams

Marking Diagram

EXL = 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	ES 1AL	ES 1BL	ES 1CL	ES 1DL	ES 1FL	ES 1GL	ES 1HL	ES 1JL	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	500	600	V
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	350	420	V
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	500	600	V
Maximum Average Forward Rectified Current See Fig. 1	$I_{F(AV)}$	1.0								A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I_{FSM}	30								A
Maximum Instantaneous Forward Voltage @ 1.0A	V_F	0.95				1.3		1.7		V
Maximum DC Reverse Current at @ T_A=25°C Rated DC Blocking Voltage (Note 1) @ T_A=125°C	I_R	5.0 100								uA uA
Maximum Reverse Recovery Time (Note 2)	Trr	35								nS
Typical Junction Capacitance (Note 3)	Cj	10				8				pF
Maximum Thermal Resistance (Note 4)	$R_{\theta JA}$ $R_{\theta JL}$	85 35								°C/W
Operating Temperature Range	T_J	-55 to +150								°C
Storage Temperature Range	T_{STG}	-55 to +150								°C

Notes: 1. Pulse Test with PW=300 usec,1% Duty Cycle
2. Reverse Recovery Test Conditions: I_F=0.5A, I_R=1.0A, I_{RR}=0.25A
3. Measured at 1 MHz and Applied V_R=4.0 Volts
4. P.C.B. Mounted on 0.2 x 0.2" (5.0 x 5.0mm) Copper Pad Area.

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RATINGS AND CHARACTERISTIC CURVES (ES1AL THRU ES1JL)

FIG.1- MAXIMUM FORWARD CURRENT DERATING CURVE

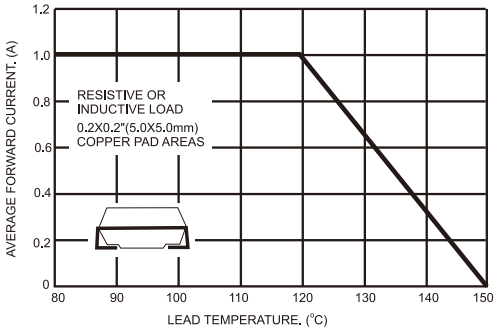


FIG.2- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

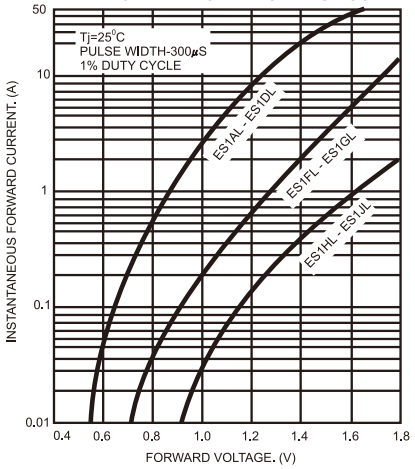


FIG.3- MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

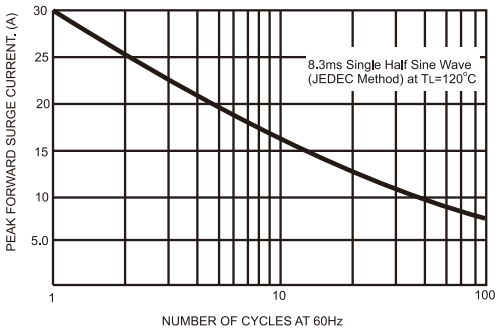


FIG.4- TYPICAL JUNCTION CAPACITANCE

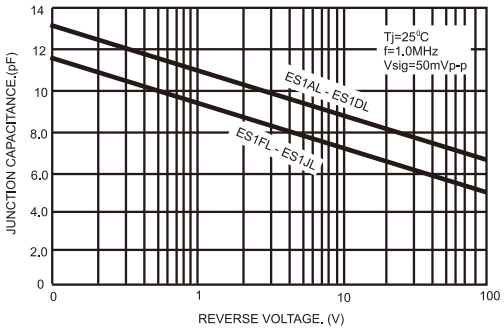


FIG.5- TYPICAL REVERSE CHARACTERISTICS

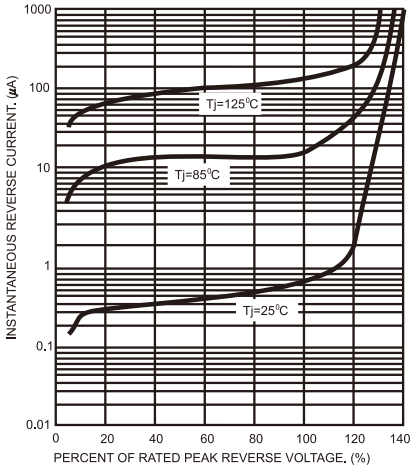
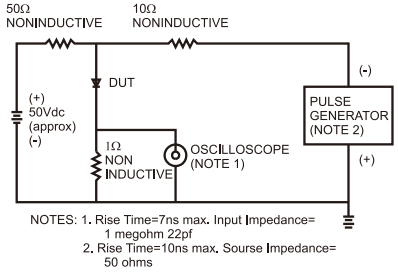
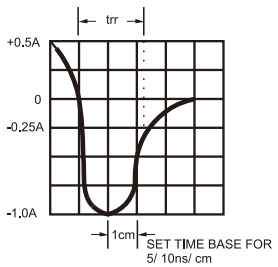


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time=7ns max. Input Impedance= 1 megohm 22pf
2. Rise Time=10ns max. Sourse Impedance= 50 ohms



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