

# ES1A THRU ES1M

**1 Amperes Surface Mount Super Fast Rectifiers**  
**VOLTAGE : 50 TO 1000Volts**

Features	Outline
<ul style="list-style-type: none"> <li>• Low profile surface mounted application in order to optimize board space.</li> <li>• High current capability, low forward voltage drop.</li> <li>• High surge capability.</li> <li>• Superfast recovery time for switching mode application.</li> <li>• Glass passivated chip junction.</li> <li>• Suffix "G" indicates Halogen-free part, ex.ES1AG.</li> <li>• Lead-free parts meet environmental standards of MIL-STD-19500 /228</li> </ul>	<p>SMA(DO-214AC)</p> <p>Dimensions in inches and (millimeters)</p>
Mechanical data	
<ul style="list-style-type: none"> <li>• Epoxy:UL94-V0 rated flame retardant</li> <li>• Case : Molded plastic, DO-214AC / SMA</li> <li>• Terminals : Solder plated, solderable per MIL-STD-750, Method 2026</li> <li>• Polarity : Indicated by cathode band</li> <li>• Weight : 0.002 ounce, 0.064 gram</li> </ul>	

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	ES1A	ES1B	ES1D	ES1G	ES1J	ES1K	ES1M	UNIT
Making code		ES1A	ES1B	ES1D	ES1G	ES1J	ES1K	ES1M	
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V
Maximum RMS Voltage	$V_{RMS}$	35	70	140	280	420	560	700	
Maximum DC Blocking Voltage	$V_{DC}$	50	100	200	400	600	800	1000	
Maximum Forward Voltage	$V_F$	0.95			1.25	1.70			V
Operating Temperature	$T_J$	-50 ~ +150							°C

Parameter	Conditions	Symbol	MIN.	TYP.	MAX.	UNIT
Forward rectified current		$I_O$			1.0	A
Forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC methode)	$I_{FSM}$			30	A
Reverse current	$V_R = V_{RRM} T_A = 25^\circ C$	$I_R$			1.0	uA
	$V_R = V_{RRM} T_A = 125^\circ C$				300	
Maximum reverse recovery time	$I_F = 0.5A, I_R = 1.0A, I_{RR} = 0.25A$	$T_{rr}$			35	nS
Typical thermal resistance	8.0mm <sup>2</sup> (0.013mm thick) land areas	$R_{\theta JA}$		35		°C/W
Typical junction capacitance	f=1MHz and applied 4V DC reverse voltage	$C_J$		7.0		pF

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## Rating and characteristic curves

FIG.1-TYPICAL FORWARD CHARACTERISTICS

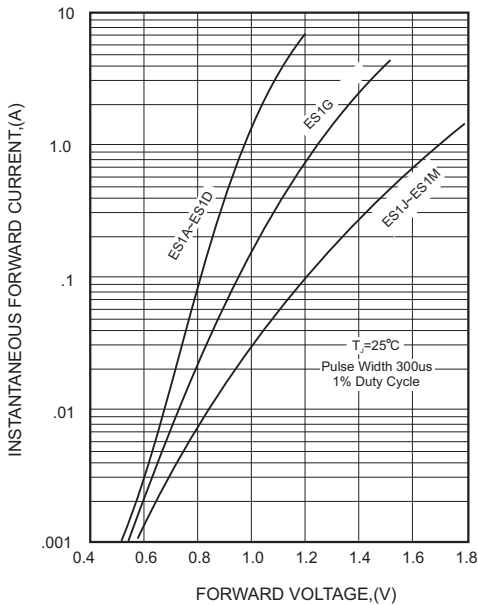


FIG.2-TYPICAL FORWARD CURRENT DERATING CURVE

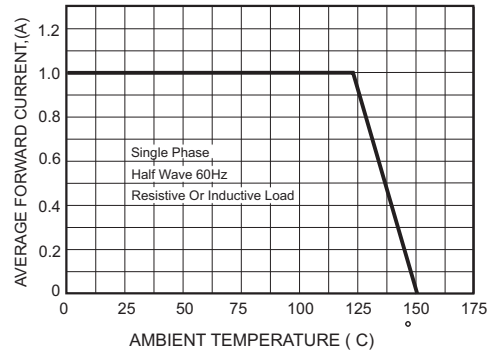


FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

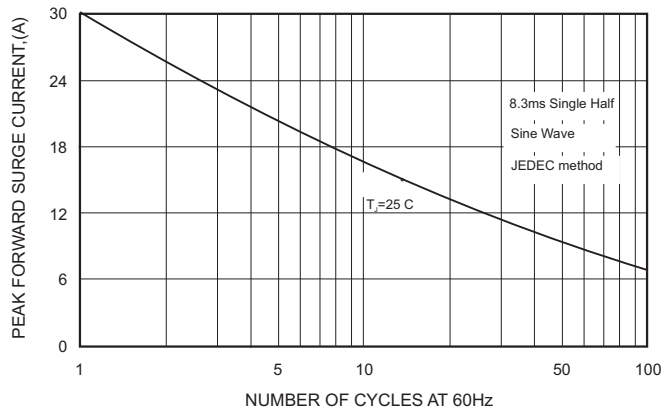
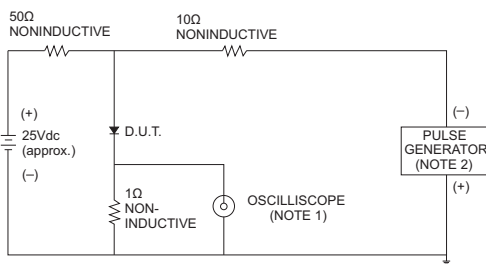


FIG.3- TEST CIRCUIT DIAGRAM AND REVERSE

### RECOVERY TIME CHARACTERISTICS



NOTES: 1. Rise Time= 7ns max., Input Impedance= 1 megohm.22pF.  
2. Rise Time= 10ns max., Source Impedance= 50 ohms.

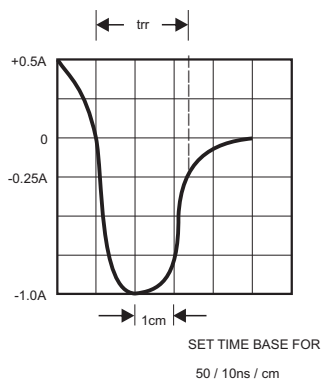


FIG.5-TYPICAL JUNCTION CAPACITANCE

