



# ES1A THRU ES1J

1.0 AMP. SUPER FAST RECOVERY SILICON RECTIFIERS



## FEATURES

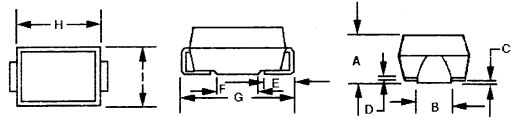
- \* For surface mount application
- \* Extremely low thermal resistance
- \* Easy pick and place
- \* High temp soldering: 250°C for 10 seconds at terminals
- \* Superfast recovery times for high efficiency

## MECHANICAL DATA

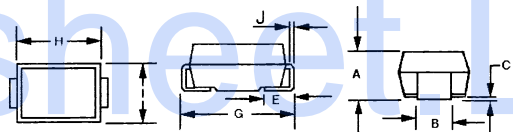
- \* Case: Molded plastic
- \* Terminals: Solder plated
- \* Polarity: Indicated by cathod band
- \* Standard Packaging: 12mm tape per (EIA STD RS-481)
- \* Weight: 0.091 gram (SMA\*)  
0.064 gram ((SMA))

VOLTAGE RANGE  
50 to 600 Volts

### SMA/DO-214AC\*



### SMA/DO-214AC



### DIMENSIONS

	SMA/DO-214AC*		SMA/DO-214AC	
	inches	mm	inches	mm
A	.078 to .116(L)	1.98 to 2.95(L)	.078 to .090	1.98 to 2.29
A	.110 to .117(H)	2.80 to 2.98(H)		
B	.067 to .088	1.7 to 2.24	0.052 to .058	1.32 to 1.47
C	.005MAX	0.20MAX	.008MAX	0.20MAX
D	.008MAX	.51MAX		
E	.030 to .060	.76 to 1.52	.030 to .050	.76 to 1.27
F	.078 to .094	1.85 to 2.39		
G	.204 to .220	5.21 to 5.59	.194 to .208	4.93 to 5.28
H	.180 to .179	4.06 to 4.55	.157 to .177	3.98 to 4.50
I	.101 to .112	2.56 to 2.85	.100 to .110	2.54 to 2.79
J			.008 to .012	.152 to .305

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Maximum thermal resistance: 15°C/W Junction to lead.  
Rating at 25°C ambient temperature unless otherwise specified.

TYPE NUMBER	SYMBOLS	ES1A	ES1B	ES1C	ES1D	ES1G	ES1J	UNITS
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	50	100	150	200	400	600	V
Maximum RMS Voltage	$V_{RMS}$	35	70	105	140	280	420	V
Maximum DC Blocking Voltage	$V_{DC}$	50	100	50	200	400	600	V
Maximum Average Forward Rectified Current $T_L = 75^\circ\text{C}$	$I_{F(AV)}$				1.0			A
Peak Forward Surge Current, 8.3 ms half sine	$I_{FSM}$				30			A
Maximum Instantaneous $I_{FM} = 2.0\text{A}$ Forward Voltage (Note 1)	$V_F$	0.95				1.35	1.7	V
Maximum D. C Reverse Current @ $T_A = 25^\circ\text{C}$ at Rated D. C. Blocking Voltage @ $T_A = 100^\circ\text{C}$	$I_R$				5 100			$\mu\text{A}$
Maximum Reverse Recovery Time (Note 2)	$T_{rr}$				35			nS
Typical Junction Capacitance (Note 3)	$C_J$	15				10		pF
Operating and Storage Temperature Range	$T_J / T_{STG}$				- 50 to + 150 / - 50 to + 150			$^\circ\text{C}$

NOTES: 1. Pulse test: Pulse width 300  $\mu\text{sec}$ , Duty cycle 2%  
2. Reverse Recovery Test Conditions:  $I_F = 0.5\text{A}$ ,  $I_R = 1.0\text{A}$ ,  $I_{RR} = 0.25\text{A}$   
3. Measured at 1 MHz and applied reverse voltage of 4.0V DC.

## RATINGS AND CHARACTERISTIC CURVES (ES1A THRU ES1J)

Figure 1 – Typical Forward Characteristics

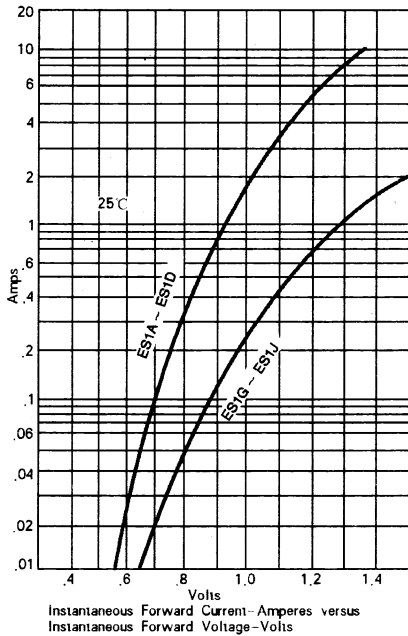


Figure 2 – Forward Current Derating Curve

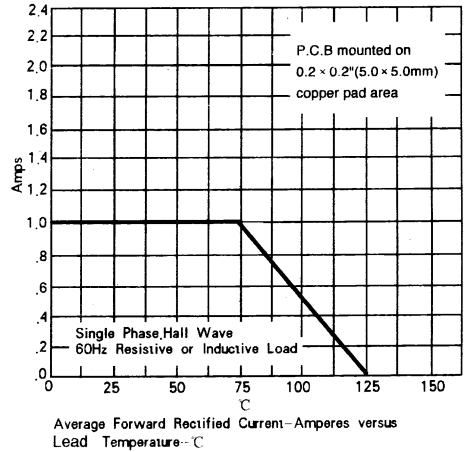
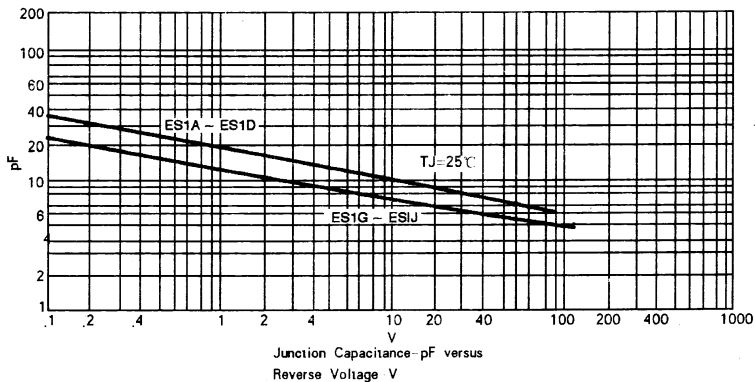
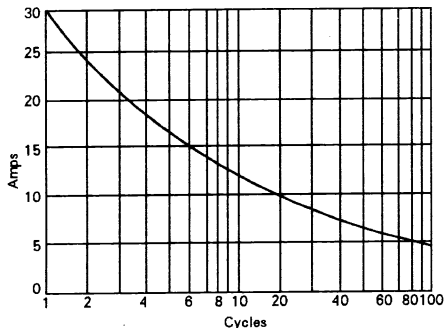


Figure 3 – Typical Junction Capacitance



## RATINGS AND CHARACTERISTIC CURVES (ES1A THRU ES1J)

Figure 4 – Maximum Non-repetitive Surge Current



Peak Forward Surge Current—Amperes versus  
Number of Cycles At 60Hz—Cycles

SUGGESTED SOLDER  
PAD LAYOUT

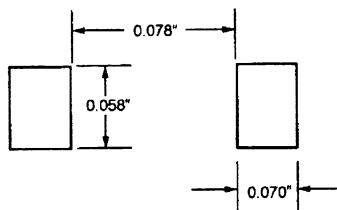
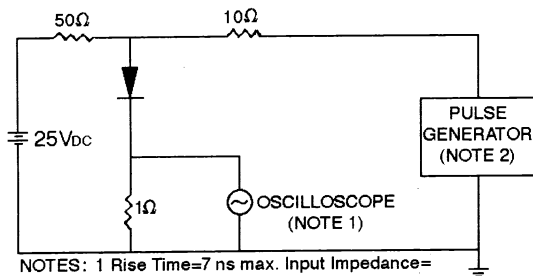


Figure 5 – Reverse Recovery Time Characteristic And Test Circuit Diagram



- NOTES: 1 Rise Time=7 ns max. Input Impedance=  
1 megohm 22pF  
2 Rise Time=10ns max. Source Impedance=  
50 ohms  
3 Resistors are non-inductive

