

NOT RECOMMENDED FOR NEW DESIGNS
USE ES1A-LTP~ES1J-LTP Series



Micro Commercial Components



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 20736 Marilla Street Chatsworth
 CA 91311
 Phone: (818) 701-4933
 Fax: (818) 701-4939

ES1AE THRU ES1ME

**1 Amp Ultra Fast
Recovery
Silicon Rectifier
50 to 1000 Volts**

Features

- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- High Temp Soldering: 260°C for 10 Seconds At Terminals
- Superfast Recovery Times For High Efficiency
- Halogen free available upon request by adding suffix "-HF"

Maximum Ratings

- Operating Temperature: -50°C to +150°C
- Storage Temperature: -50°C to +150°C
- Maximum Thermal Resistance; 15°C/W Junction To Lead

| MCC Part Number | Device Marking | Maximum Recurrent Peak Reverse Voltage | Maximum RMS Voltage | Maximum DC Blocking Voltage |
|-----------------|----------------|--|---------------------|-----------------------------|
| ES1AE | ES1A | 50V | 35V | 50V |
| ES1BE | ES1B | 100V | 70V | 100V |
| ES1CE | ES1C | 150V | 105V | 150V |
| ES1DE | ES1D | 200V | 140V | 200V |
| ES1GE | ES1G | 400V | 280V | 400V |
| ES1JE | ES1J | 600V | 420V | 600V |
| ES1KE | ES1K | 800V | 560V | 800V |
| ES1ME | ES1M | 1000V | 700V | 1000V |

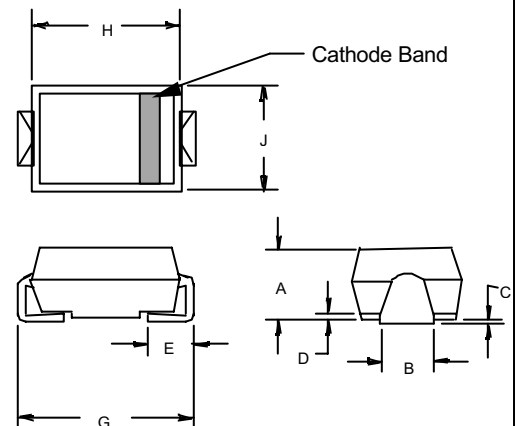
Electrical Characteristics @ 25°C Unless Otherwise Specified

| | | | |
|---|-------------|--|---|
| Average Forward Current | $I_{F(AV)}$ | 1.0A | $T_J = 75^\circ\text{C}$ |
| Peak Forward Surge Current | I_{FSM} | 30A | 8.3ms, half sine |
| Maximum Instantaneous Forward Voltage | V_F | ES1AE-DE .975V ES1GE-JE 1.35V ES1KE~ME 1.70V | $I_{FM} = 1.0A$; $T_J = 25^\circ\text{C}^*$ |
| Maximum DC Reverse Current At Rated DC Blocking Voltage | I_R | 5 μA 100 μA | $T_J = 25^\circ\text{C}$ $T_J = 100^\circ\text{C}$ |
| Maximum Reverse Recovery Time | T_{rr} | ES1AE-DE 50ns ES1GE-KE 75ns ES1ME 100ns | $I_F = 0.5A$, $I_R = 1.0A$, $I_{rr} = 0.25A$ |
| Typical Junction Capacitance | C_J | 45pF | Measured at 1.0MHz, $V_R = 4.0V$ |

*Pulse test: Pulse width 200 μsec , Duty cycle 2%

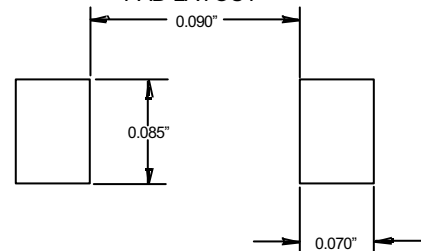
Note: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.

DO-214AC (SMAE)



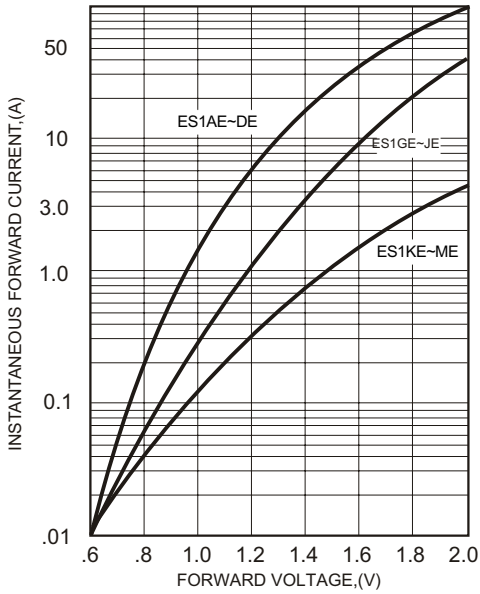
| DIM | DIMENSIONS | | | | NOTE |
|-----|------------|------|------|------|------|
| | INCHES | | MM | | |
| A | .079 | .096 | 2.01 | 2.44 | |
| B | .045 | .071 | 1.15 | 1.80 | |
| C | .002 | .008 | .05 | .20 | |
| D | — | .02 | — | .51 | |
| E | .030 | .060 | .76 | 1.52 | |
| G | .189 | .208 | 4.80 | 5.30 | |
| H | .157 | .180 | 4.00 | 4.57 | |
| J | .090 | .115 | 2.29 | 2.92 | |

SUGGESTED SOLDER PAD LAYOUT



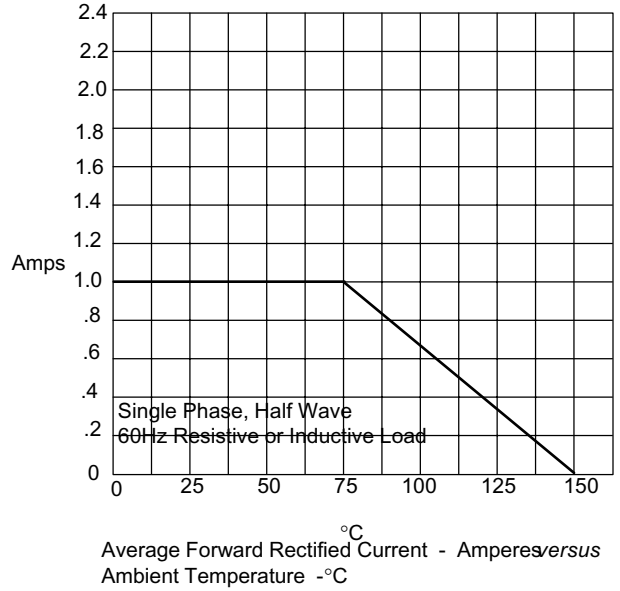
ES1AE thru ES1ME

Figure 1
Typical Forward Characteristics



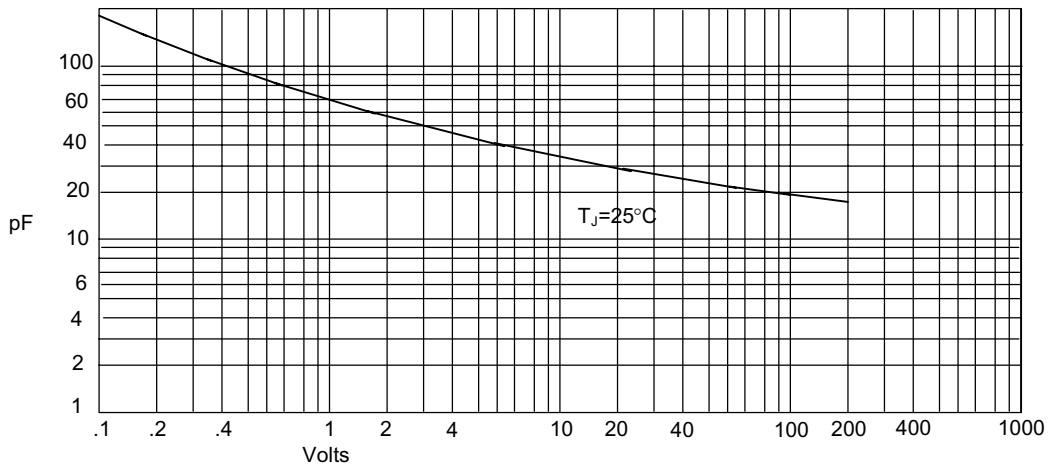
Instantaneous Forward Current - Amperes *versus*
Instantaneous Forward Voltage - Volts

Figure 2
Forward Derating Curve



Average Forward Rectified Current - Amperes *versus*
Ambient Temperature - °C

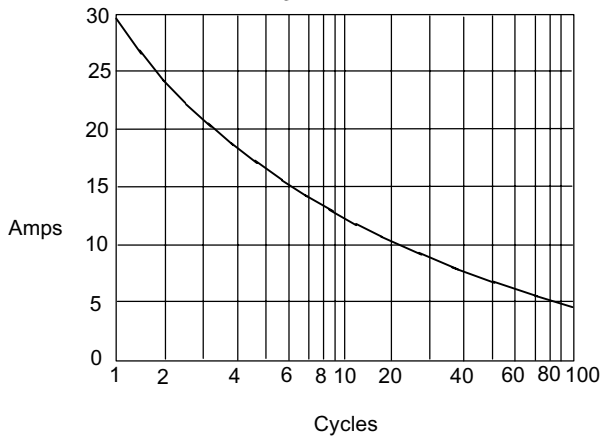
Figure 3
Junction Capacitance



Junction Capacitance - pF *versus*
Reverse Voltage - Volts

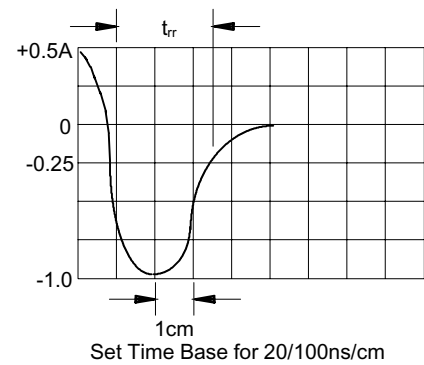
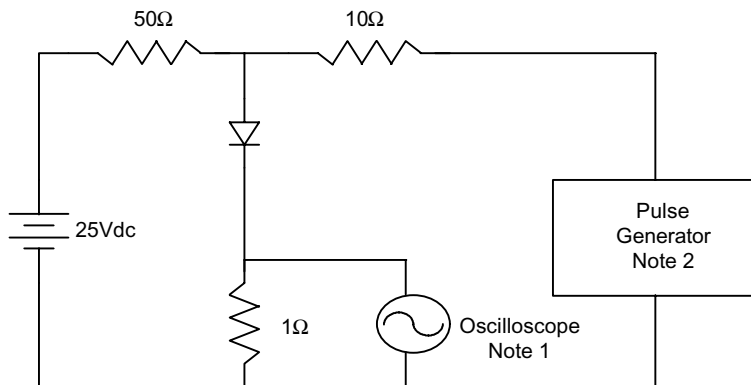
ES1AE thru ES1ME

Figure 4
Peak Forward Surge Current



Peak Forward Surge Current - Amperes versus
Number Of Cycles At 60Hz - Cycles

Figure 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.
Source impedance = 50 ohms
3. Resistors are non-inductive



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Ordering Information :

| Device | Packing |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 6Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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