

## ES1A THRU ES1M

### Features

- Halogen free available upon request by adding suffix "-HF"
- 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

### 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 |
|-----------------|----------------|----------------------------------------|---------------------|-----------------------------|
| ES1A            | ES1A           | 50V                                    | 35V                 | 50V                         |
| ES1B            | ES1B           | 100V                                   | 70V                 | 100V                        |
| ES1C            | ES1C           | 150V                                   | 105V                | 150V                        |
| ES1D            | ES1D           | 200V                                   | 140V                | 200V                        |
| ES1G            | ES1G           | 400V                                   | 280V                | 400V                        |
| ES1J            | ES1J           | 600V                                   | 420V                | 600V                        |
| ES1K            | ES1K           | 800V                                   | 560V                | 800V                        |
| ES1M            | ES1M           | 1000V                                  | 700V                | 1000V                       |

### Electrical Characteristics @ 25°C Unless Otherwise Specified

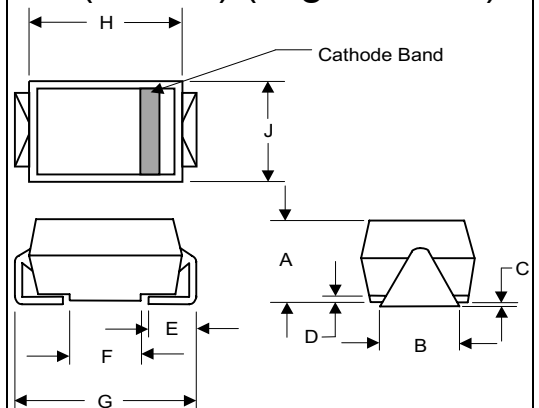
|                                                                     |             |                                      |                                                       |
|---------------------------------------------------------------------|-------------|--------------------------------------|-------------------------------------------------------|
| Average Forward Current                                             | $I_{F(AV)}$ | 1.0A                                 | $T_a = 75^\circ\text{C}$                              |
| Peak Forward Surge Current                                          | $I_{FSM}$   | 30A                                  | 8.3ms, half sine                                      |
| Maximum Instantaneous Forward Voltage<br>ES1A-D<br>ES1G-J<br>ES1K-M | $V_F$       | .975V<br>1.35V<br>1.70V              | $I_{FM} = 1.0A$ ;<br>$T_J = 25^\circ\text{C}^*$       |
| Maximum DC Reverse Current At Rated DC Blocking Voltage             | $I_R$       | 5 $\mu\text{A}$<br>100 $\mu\text{A}$ | $T_J = 25^\circ\text{C}$<br>$T_J = 100^\circ\text{C}$ |
| Maximum Reverse Recovery Time<br>ES1A-D<br>ES1G-K<br>ES1M           | $T_{rr}$    | 50ns<br>75ns<br>100ns                | $I_F = 0.5A$ , $I_R = 1.0A$ ,<br>$I_{rr} = 0.25A$     |
| Typical Junction Capacitance                                        | $C_J$       | 45pF                                 | Measured at 1.0MHz, $V_R = 4.0V$                      |

\*Pulse test: Pulse width 200  $\mu\text{sec}$ , Duty cycle 2%

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

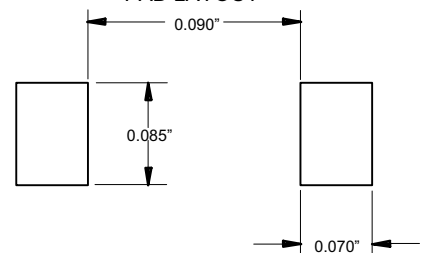
## 1 Amp Ultra Fast Recovery Silicon Rectifier 50 to 1000 Volts

### DO-214AC (HSMA) (High Profile)



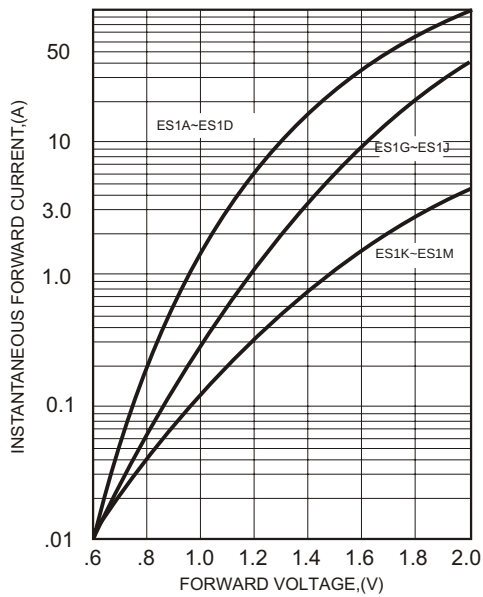
| DIMENSIONS |        |      |      |      |      |
|------------|--------|------|------|------|------|
| DIM        | INCHES |      | MM   |      | NOTE |
|            | MIN    | MAX  | MIN  | MAX  |      |
| A          | .078   | .116 | 1.98 | 2.95 |      |
| B          | .067   | .089 | 1.70 | 2.25 |      |
| C          | .002   | .008 | .05  | .20  |      |
| D          | ---    | .02  | ---  | .51  |      |
| E          | .035   | .055 | .89  | 1.40 |      |
| F          | .065   | .096 | 1.65 | 2.45 |      |
| G          | .205   | .224 | 5.21 | 5.69 |      |
| H          | .160   | .180 | 4.06 | 4.57 |      |
| J          | .100   | .112 | 2.57 | 2.84 |      |

### SUGGESTED SOLDER PAD LAYOUT



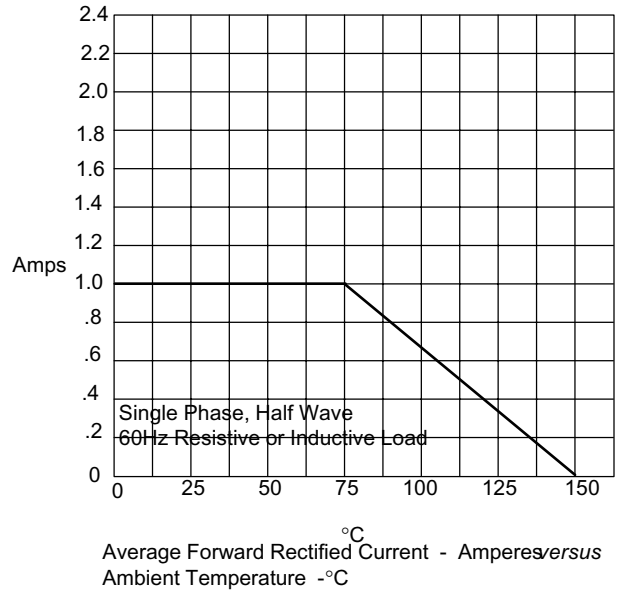
# ES1A thru ES1M

Figure 1  
Typical Forward Characteristics



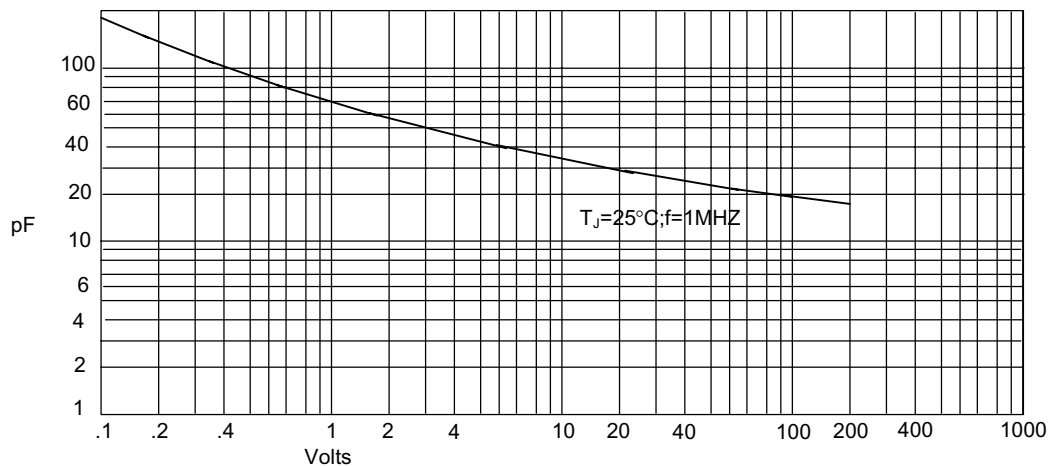
Instantaneous Forward Current - Amperes  
Instantaneous Forward Voltage - Volts

Figure 2  
Forward Derating Curve



Average Forward Rectified Current - Amperes  
Ambient Temperature - °C

Figure 3  
Junction Capacitance



Junction Capacitance - pF  
Reverse Voltage - Volts

# ES1A thru ES1M

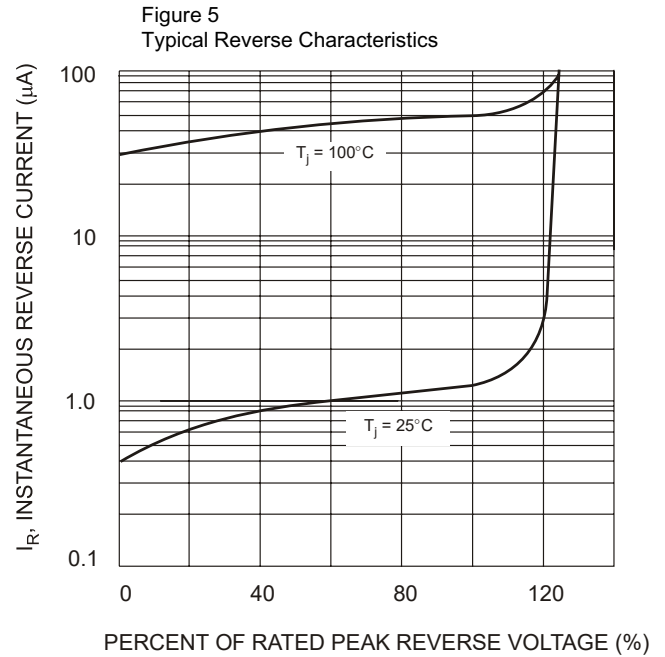
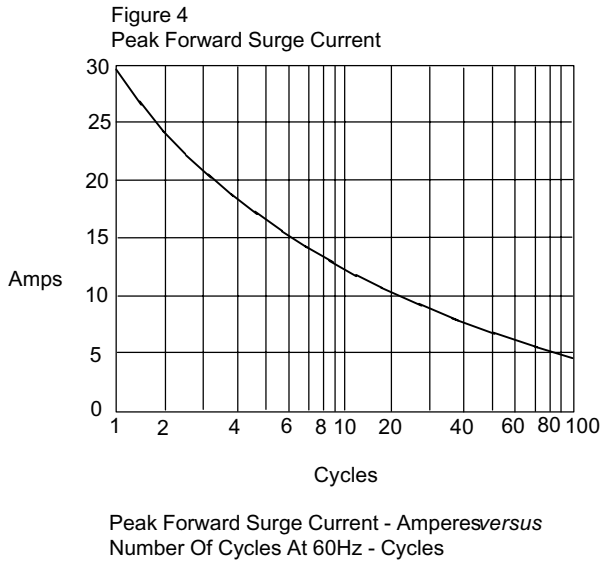
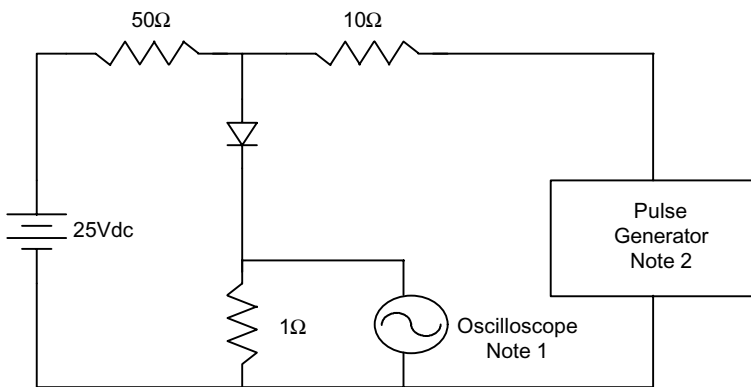
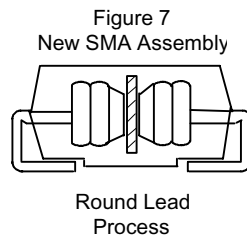
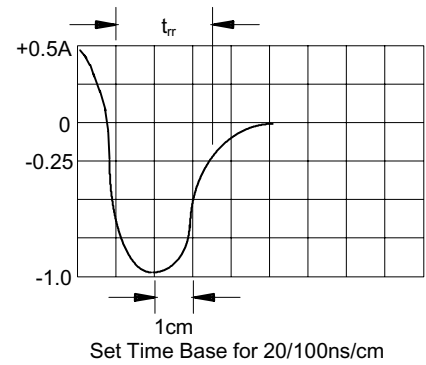


Figure 6  
Reverse Recovery Time Characteristic And Test Circuit Diagram



- 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



## Ordering Information :

| Device         | Packing               |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

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

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**Наши контакты:**

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331