Micro Commercial Components

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# ES1A THRU ES1M

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

## Features

- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- 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

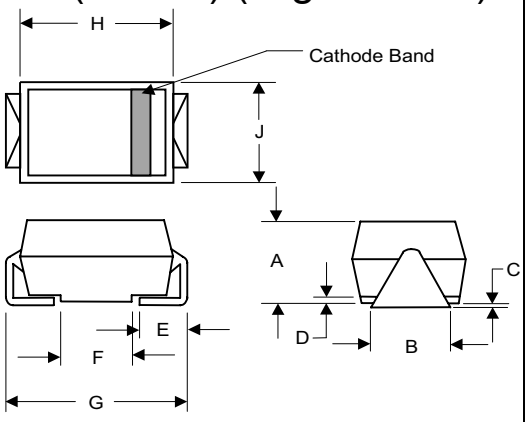
| MCC Part Number | Device Marking | Maximum Recurrent Peak Reverse Voltage | Maximum RMS Voltage | Maximum DC Blocking Voltage |
|---|---|---|---|---|
| ES1A | ES1A | 50V | 35V | 50V |
| ES1B | ES1B | 100V | 70V | 100V |
| ES1C | ES1C | 150V | 105V | 150V |
| ES1D | ES1D | 200V | 140V | 200V |
| ES1G | 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°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°C* |
| Maximum DC Reverse Current At Rated DC Blocking Voltage | $I_R$ | 5μA<br>100μA | $T_J$ = 25°C<br>$T_J$ = 100°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 μsec, Duty cycle 2%

DO-214AC
(HSMA) (High Profile)




| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| | INCHES | | MM | | |
| DIM | MIN | MAX | MIN | MAX | NOTE |
| 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

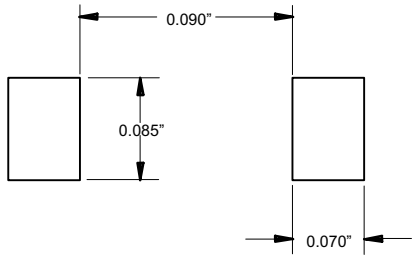
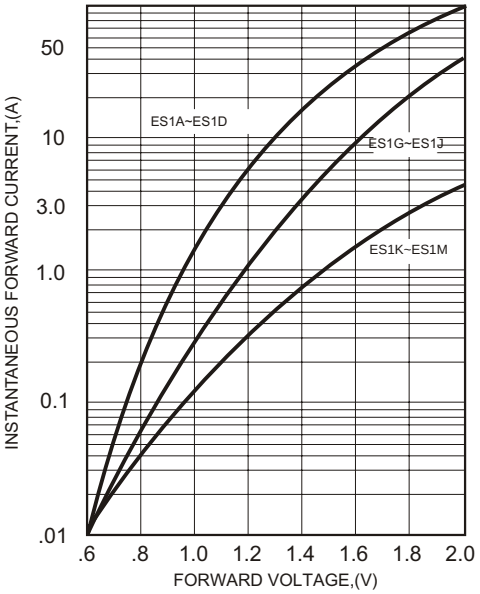
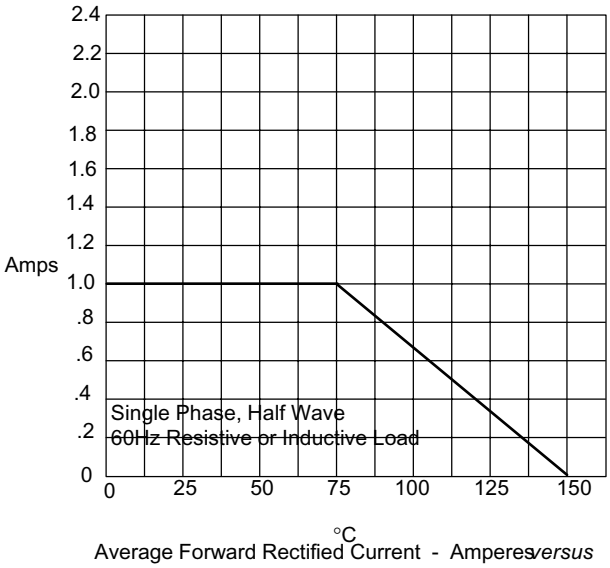


Figure 1
Typical Forward Characteristics



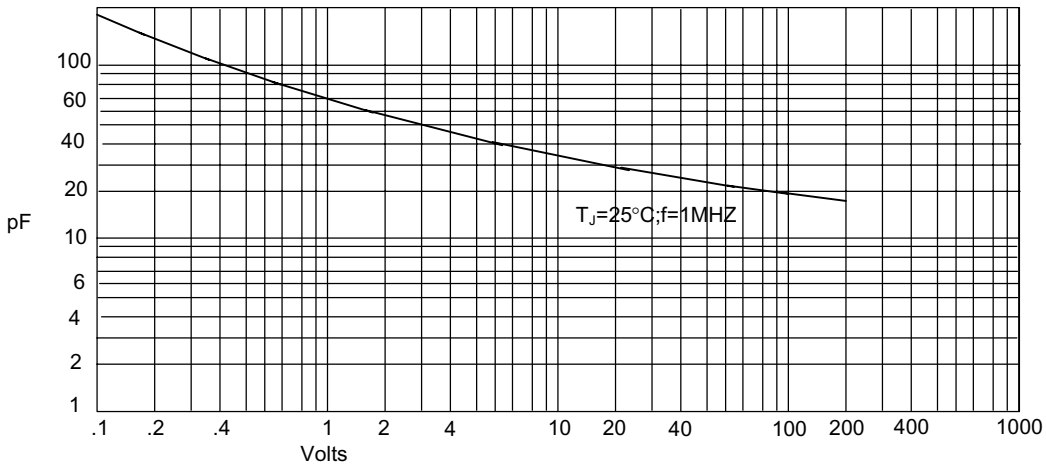

Instantaneous Forward Current - Amperes*versus*
Instantaneous Forward Voltage - Volts

Figure 2
Forward Derating Curve



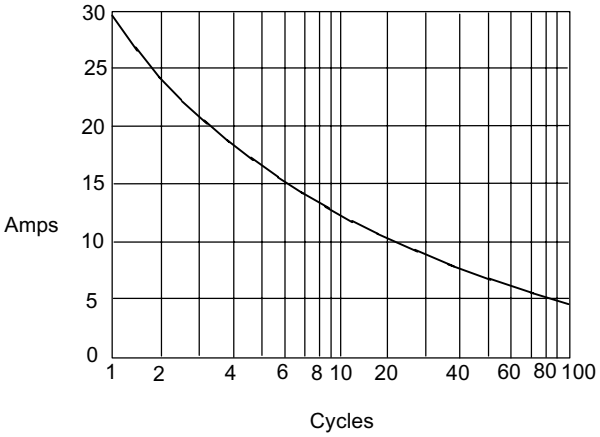

Average Forward Rectified Current - Amperes*versus*
Ambient Temperature -°C

Figure 3
Junction Capacitance




Junction Capacitance - pF*versus*
Reverse Voltage - Volts

Figure 4
Peak Forward Surge Current




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

Figure 5
Typical Reverse Characteristics

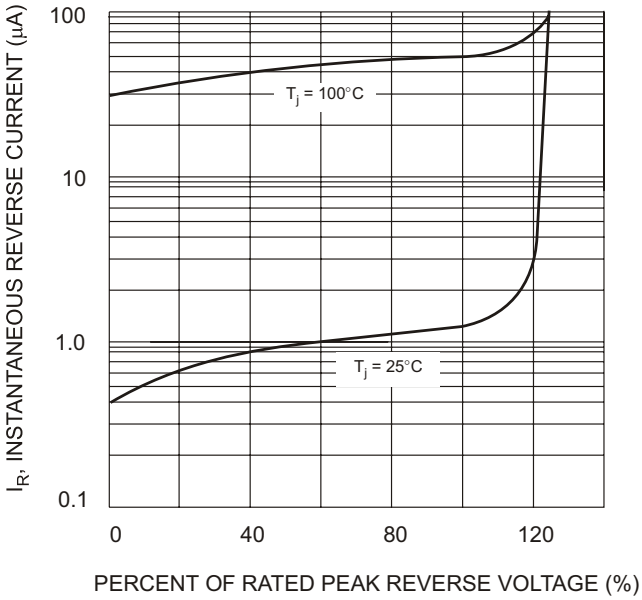
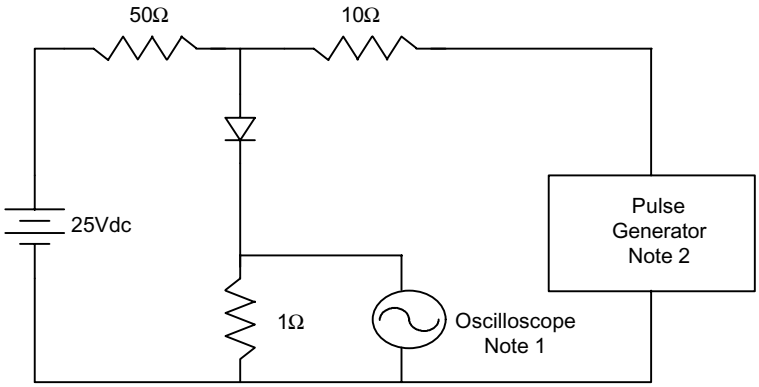
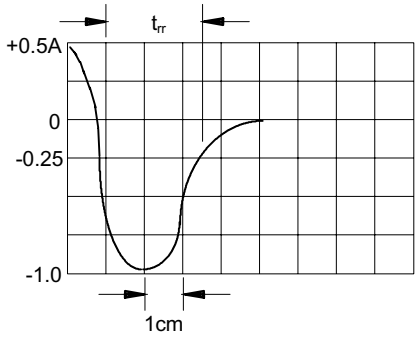


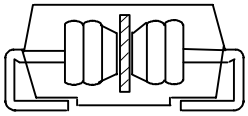

Figure 6
Reverse Recovery Time Characteristic And Test Circuit Diagram




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

Figure 7
New SMA Assembly



Round Lead
Process

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