

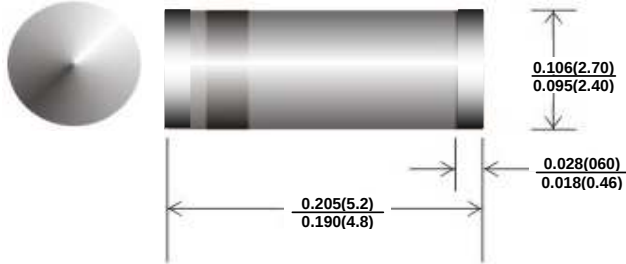


# ESM1A THRU ESM1J

## SURFACE MOUNT SUPER FAST RECOVERY RECTIFIER

Reverse Voltage - 50 to 600 Volts Forward Current - 1.0 Ampere

### MELF



Dimensions in inches and (millimeters)

### FEATURES

- ◆ Low power loss, high efficiency
- ◆ Low leakage
- ◆ Low forward voltage drop
- ◆ High current capability
- ◆ High speed switching
- ◆ High current surge
- ◆ High reliability
- ◆ Pb free product : 99% Sn above can meet RoHS environment substance directive request

### MECHANICAL DATA

Case: MELF(JEDEC DO-213AB), Molded plastic

Terminals: Solderable per MIL-STD-750 Method 2026

Approx. Weight: 0.15 gram

Polarity: Color band denotes cathode end

Mounting Position: Any

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

| PARAMETER                                                                                                             | SYMBOLS           | ESM1A      | ESM1B | ESM1C | ESM1D | ESM1G | ESM1J | UNITS |
|-----------------------------------------------------------------------------------------------------------------------|-------------------|------------|-------|-------|-------|-------|-------|-------|
| Maximum repetitive peak reverse voltage                                                                               | V <sub>RRM</sub>  | 50         | 100   | 150   | 200   | 400   | 600   | Volts |
| Maximum RMS voltage                                                                                                   | V <sub>RMS</sub>  | 35         | 70    | 105   | 140   | 420   | 560   | Volts |
| Minimum Reverse Breakdown Voltage                                                                                     | V <sub>R</sub>    | 50         | 100   | 150   | 200   | 400   | 600   | Volts |
| Average Rectified current at T <sub>L</sub> =55℃                                                                      | I <sub>(AV)</sub> | 1.0        |       |       |       |       |       | Amp   |
| Non-repetitive Peak Forward Surge Current<br>8.3ms single half sine-wave superimposed on rated load<br>(JEDEC Method) | I <sub>FSM</sub>  | 30         |       |       |       |       |       | Amps  |
| Maximum Forward Voltage at I <sub>F</sub> =1.0A                                                                       | V <sub>F</sub>    | 0.95       |       |       | 1.25  | 1.70  |       | Volts |
| Reverse Leakage Current at V <sub>RRM</sub>                                                                           | I <sub>R</sub>    | 5          |       |       |       |       |       | μA    |
| Maximum reverse recovery time (NOTE 1)                                                                                | t <sub>rr</sub>   | 35         |       |       |       |       |       | nS    |
| Typical Junction Capacitance (NOTE 2)                                                                                 | C <sub>J</sub>    | 17         |       |       |       |       |       | pF    |
| Typical Thermal Resistance (NOTE 3)                                                                                   | R <sub>θJA</sub>  | 180        |       |       |       |       |       | ℃/W   |
| Operating Junction Temperature Range                                                                                  | T <sub>J</sub>    | 150        |       |       |       |       |       | ℃     |
| Storage Temperature Range                                                                                             | T <sub>STG</sub>  | -55 ~ +150 |       |       |       |       |       | ℃     |

- Note:** 1. Reverse recovery condition  $I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A$   
2. Measured at 1MHz and applied reverse voltage of 4.0V D.C.  
3. Mounted with minimum recommended padsize, PCBBoard FR4.



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## RATINGS AND CHARACTERISTIC CURVES

FIG. 1- FORWARD CURRENT DERATING CURVE

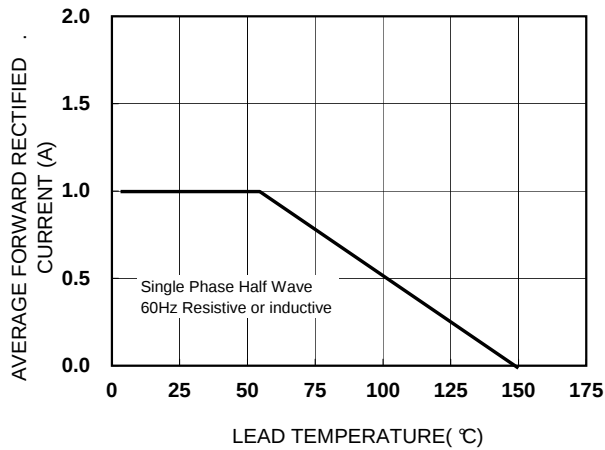


FIG. 2--MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

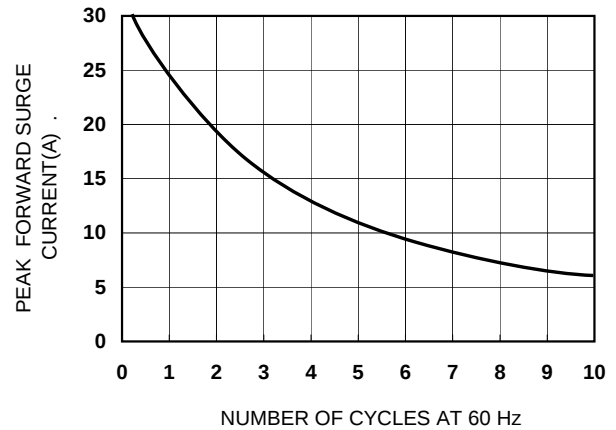


FIG. 3-TYPICAL REVERSE CHARACTERISTICS

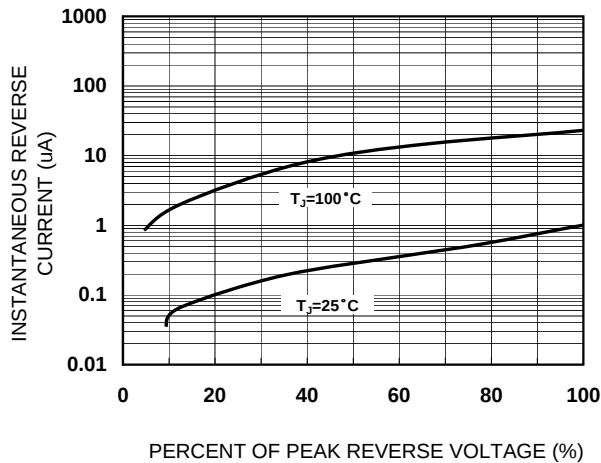


FIG. 4-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

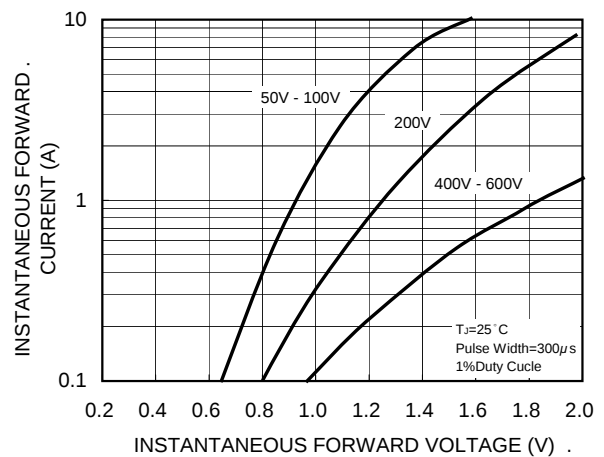


FIG. 5-TYPICAL JUNCTION CAPACITANCE

