



# ES1A~ES1J

## SURFACE MOUNT SUPERFAST RECTIFIER

**VOLTAGE** 50 to 600 Volt **CURRENT** 1 Ampere

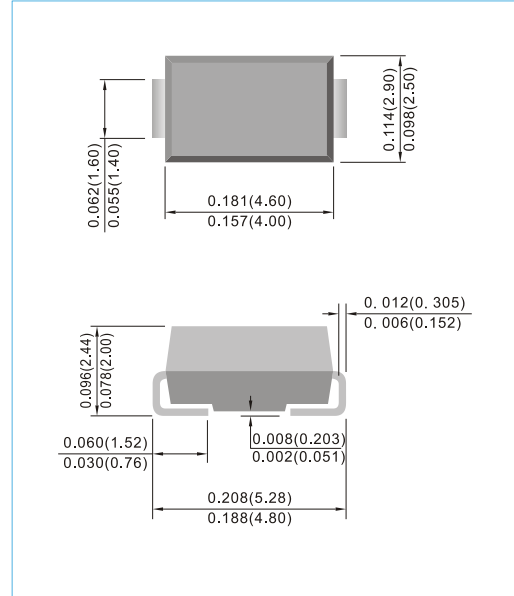
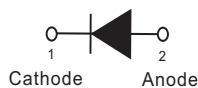
**SMA / DO-214AC** Unit : inch(mm)

### FEATURES

- For surface mounted applications in order to optimize board space
- Built-in strain relief
- Easy pick and place
- Superfast recovery times for high efficiency.
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated junction
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### MECHANICAL DATA

- Case: JEDEC DO-214AC molded plastic
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Indicated by cathode band
- Standard packaging: 12mm tape (EIA-481)
- Weight: 0.0023 ounces, 0.0679 grams



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

| PARAMETER  | SYMBOL          | ES1A | ES1B | ES1C | ES1D        | ES1E | ES1G | ES1J | UNITS                       |
|--|-----------------|------|------|------|-------------|------|------|------|-----------------------------|
| Maximum Recurrent Peak Reverse Voltage   | $V_{RRM}$       | 50   | 100  | 150  | 200         | 300  | 400  | 600  | V                           |
| Maximum RMS Voltage  | $V_{RMS}$       | 35   | 70   | 105  | 140         | 210  | 280  | 420  | V                           |
| Maximum DC Blocking Voltage  | $V_{DC}$        | 50   | 100  | 150  | 200         | 300  | 400  | 600  | V                           |
| Maximum Average Forward Current at $T_L=120^\circ\text{C}$   | $I_{F(AV)}$     | 1    |      |      |             |      |      |      | A                           |
| Peak Forward Surge Current : 8.3ms single half sine-wave superimposed on rated load                          | $I_{FSM}$       | 30   |      |      |             |      |      |      | A                           |
| Maximum Forward Voltage at 1A  | $V_F$           | 0.95 |      |      | 1.25        |      | 1.7  |      | V                           |
| Maximum DC Reverse Current at Rated DC Blocking Voltage<br>$T_J=25^\circ\text{C}$<br>$T_J=100^\circ\text{C}$ | $I_R$           |      |      |      | 1<br>150    |      |      |      | $\mu\text{A}$               |
| Maximum Reverse Recovery Time (Note 1)   | $t_{rr}$        |      |      |      | 35          |      |      |      | ns                          |
| Typical Junction Capacitance (Note 2)  | $C_J$           |      |      |      | 7           |      |      |      | pF                          |
| Typical Thermal Resistance (Note 3)  | $R_{\theta JL}$ |      |      |      | 35          |      |      |      | $^\circ\text{C} / \text{W}$ |
| Operating Junction and Storage Temperature Range   | $T_J, T_{STG}$  |      |      |      | -55 to +150 |      |      |      | $^\circ\text{C}$            |

#### NOTES:

- 1.Reverse Recovery Tset Conditions: $I_F=0.5\text{A}, I_R=1.0\text{A}, I_{rr}=0.25\text{A}$
- 2.Measured at 1.0MHz and applied reverse voltage of 4.0 volt
- 3.8.0mm<sup>2</sup>( 0.013mm thick ) land areas.



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## RATING AND CHARACTERISTIC CURVES

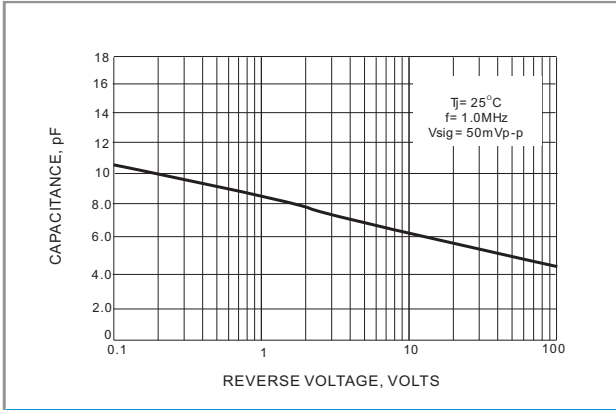


FIG. 1 TYPICAL JUNCTION CAPACITANCE

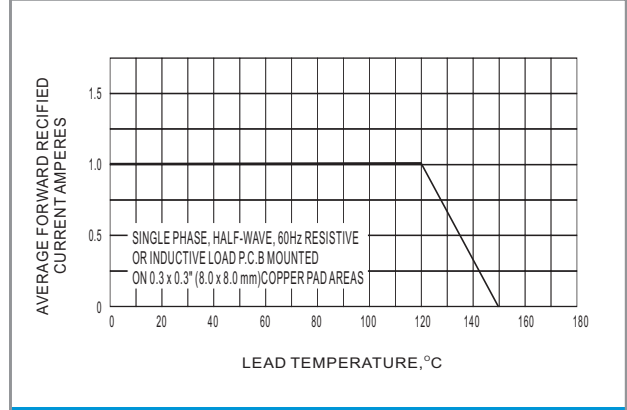


FIG. 2 MAXIMUM AVERAGE FORWARD CURRENT DERATING

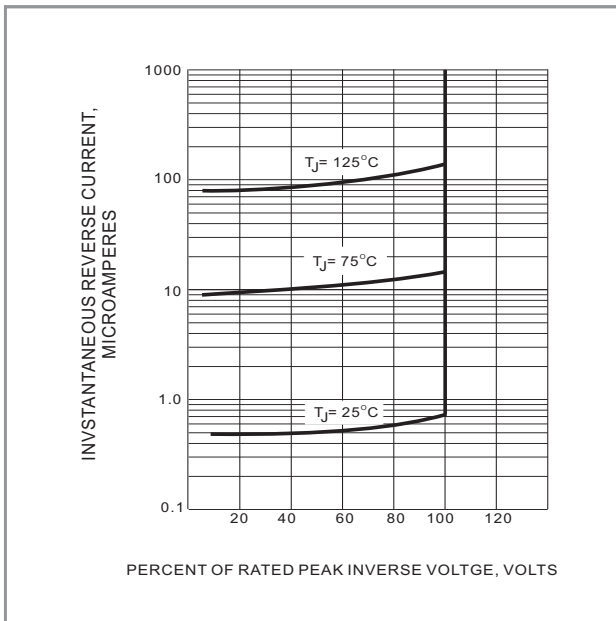


FIG. 3 TYPICAL REVERSE CHARACTERISTICS

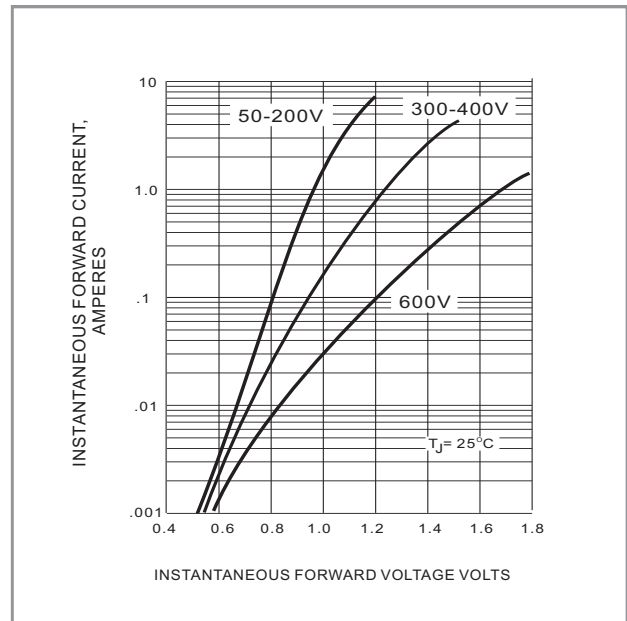


FIG. 4 TYPICAL FORWARD CHARACTERISTICS

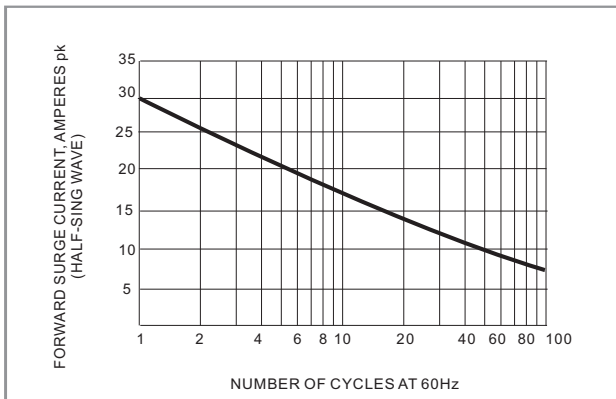
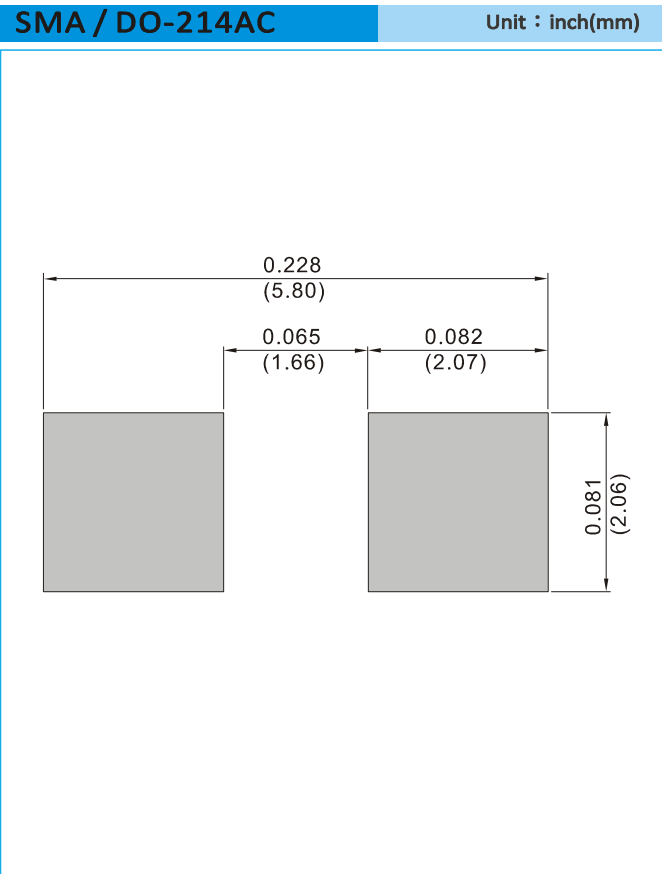


FIG. 5 MAXIMUM NON-REPEITIVE SURGE CURRENT



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## MOUNTING PAD LAYOUT



## ORDER INFORMATION

- Packing information  
T/R - 7.5K per 13" plastic Reel  
T/R - 1.8K per 7" plastic Reel



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## Part No\_packing code\_Version

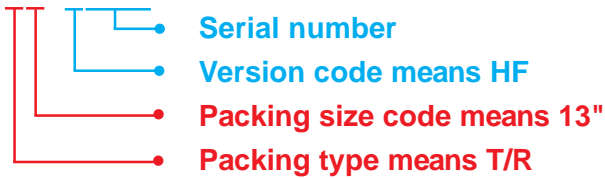
ES1A\_R1\_00001

ES1A\_R2\_00001

For example :

**RB500V-40\_R2\_00001**

Part No.



| Packing Code <b>XX</b>               |                      |                                  |                      | Version Code <b>XXXXX</b> |                      |                                       |
|--------------------------------------|----------------------|----------------------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type                         | 1 <sup>st</sup> Code | Packing size code                | 2 <sup>nd</sup> Code | HF or RoHS                | 1 <sup>st</sup> Code | 2 <sup>nd</sup> ~5 <sup>th</sup> Code |
| Tape and Ammunition Box (T/B)        | <b>A</b>             | N/A                              | <b>0</b>             | <b>HF</b>                 | <b>0</b>             | serial number                         |
| Tape and Reel (T/R)                  | <b>R</b>             | 7"                               | <b>1</b>             | <b>RoHS</b>               | <b>1</b>             | serial number                         |
| Bulk Packing (B/P)                   | <b>B</b>             | 13"                              | <b>2</b>             |                           |                      |                                       |
| Tube Packing (T/P)                   | <b>T</b>             | 26mm                             | <b>X</b>             |                           |                      |                                       |
| Tape and Reel (Right Oriented) (TRR) | <b>S</b>             | 52mm                             | <b>Y</b>             |                           |                      |                                       |
| Tape and Reel (Left Oriented) (TRL)  | <b>L</b>             | PANASERT T/B CATHODE UP (PBCU)   | <b>U</b>             |                           |                      |                                       |
| FORMING                              | <b>F</b>             | PANASERT T/B CATHODE DOWN (PBCD) | <b>D</b>             |                           |                      |                                       |



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