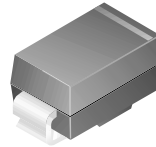


# ES1A - ES1D

## Features

- For surface mount applications.
- Glass passivated junction.
- Low profile package.
- Easy pick and place.
- Built-in strain relief.
- Superfast recovery times for high efficiency.



**SMA/DO-214AC**  
 COLOR BAND DENOTES CATHODE

## Fast Rectifiers

### Absolute Maximum Ratings\*

$T_A = 25^\circ\text{C}$  unless otherwise noted

| Symbol      | Parameter                                                                 | Value       |     |     |     | Units            |
|-------------|---------------------------------------------------------------------------|-------------|-----|-----|-----|------------------|
|             |                                                                           | 1A          | 1B  | 1C  | 1D  |                  |
| $V_{RRM}$   | Maximum Repetitive Reverse Voltage                                        | 50          | 100 | 150 | 200 | V                |
| $I_{F(AV)}$ | Average Rectified Forward Current, @ $T_A=120^\circ\text{C}$              | 1.0         |     |     |     | A                |
| $I_{FSM}$   | Non-repetitive Peak Forward Surge Current<br>8.3 ms Single Half-Sine-Wave | 30          |     |     |     | A                |
| $T_{stg}$   | Storage Temperature Range                                                 | -50 to +150 |     |     |     | $^\circ\text{C}$ |
| $T_J$       | Operating Junction Temperature                                            | -50 to +150 |     |     |     | $^\circ\text{C}$ |

\*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

### Thermal Characteristics

| Symbol          | Parameter                                | Value | Units              |
|-----------------|------------------------------------------|-------|--------------------|
| $P_D$           | Power Dissipation                        | 1.47  | W                  |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient* | 85    | $^\circ\text{C/W}$ |
| $R_{\theta JL}$ | Thermal Resistance, Junction to Lead*    | 35    | $^\circ\text{C/W}$ |

\*Device mounted on FR-4 PCB 0.013 mm.

### Electrical Characteristics

$T_A = 25^\circ\text{C}$  unless otherwise noted

| Symbol   | Parameter                                                                                       | Device     |    |    |    | Units                          |
|----------|-------------------------------------------------------------------------------------------------|------------|----|----|----|--------------------------------|
|          |                                                                                                 | 1A         | 1B | 1C | 1D |                                |
| $V_F$    | Forward Voltage @ 1.0 A                                                                         | 0.92       |    |    |    | V                              |
| $t_{rr}$ | Reverse Recovery Time<br>$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{RR} = 0.25\text{ A}$ | 15         |    |    |    | ns                             |
| $I_R$    | Reverse Current @ rated $V_R$<br>$T_A = 25^\circ\text{C}$<br>$T_A = 100^\circ\text{C}$          | 5.0<br>100 |    |    |    | $\mu\text{A}$<br>$\mu\text{A}$ |
| $C_T$    | Total Capacitance<br>$V_R = 4.0\text{ V}$ , $f = 1.0\text{ MHz}$                                | 7.0        |    |    |    | pF                             |

## Typical Characteristics

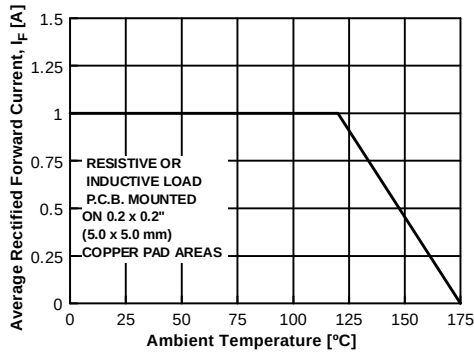


Figure 1. Forward Current Derating Curve

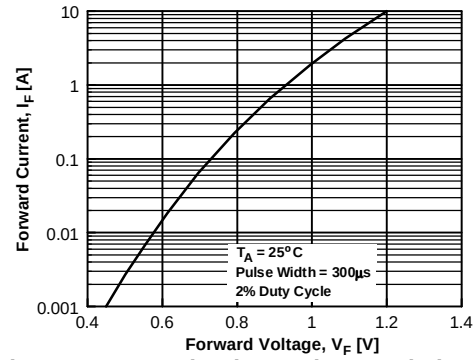


Figure 2. Forward Voltage Characteristics

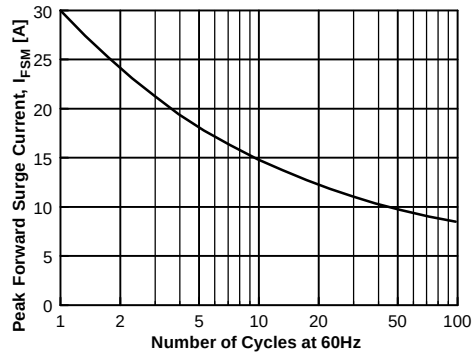


Figure 3. Non-Repetitive Surge Current

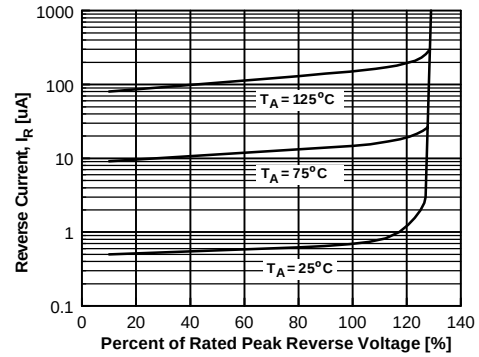


Figure 4. Reverse Current vs Reverse Voltage

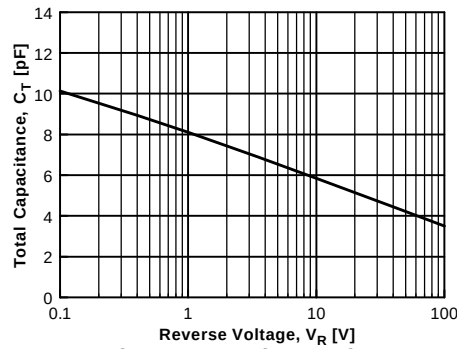
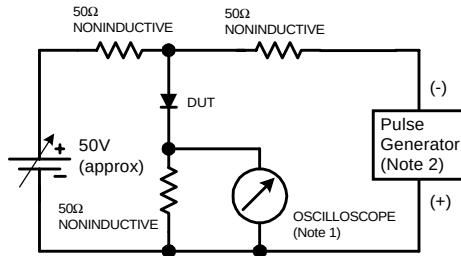
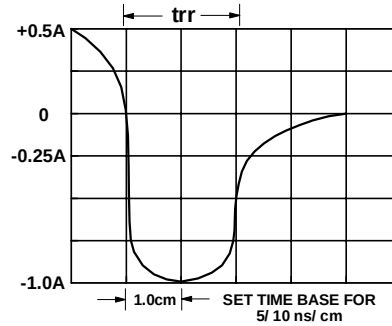


Figure 5. Total Capacitance



NOTES:

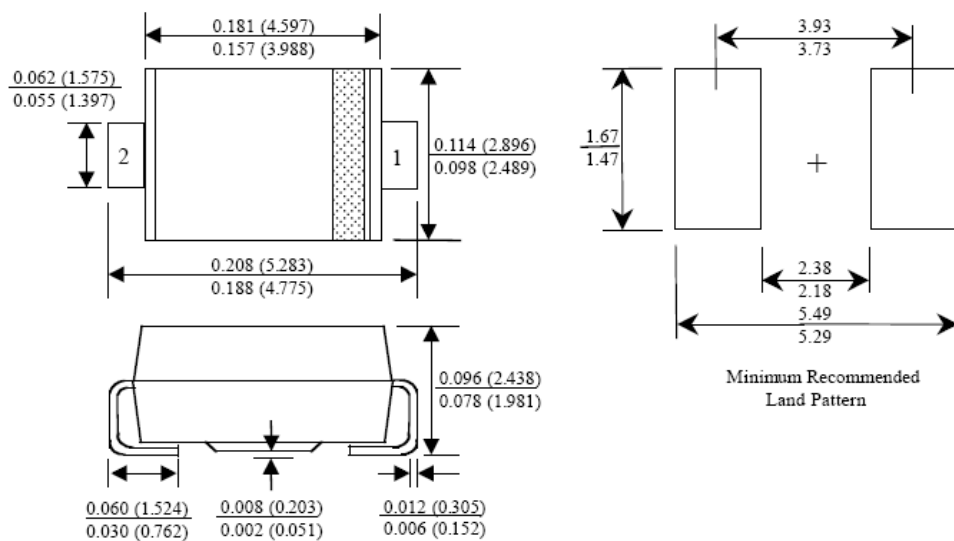
1. Rise time = 7.0 ns max; Input impedance = 1.0 megaohm 22 pf.
2. Rise time = 10 ns max; Source impedance = 50 ohms.



## Reverse Recovery Time Characteristic and Test Circuit Diagram

# Package Dimensions

## SMA / DO - 214AC



Dimensions in Millimeters

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| DenseTrench™         | GTO™                | Power247™                    | SuperSOT™-6           |      |
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