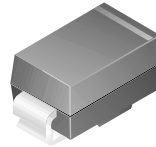


# ES1A - ES1D

## 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    | $^\circ\text{C}/\text{W}$ |
| $R_{\theta JL}$ | Thermal Resistance, Junction to Lead*    | 35    | $^\circ\text{C}/\text{W}$ |

\*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

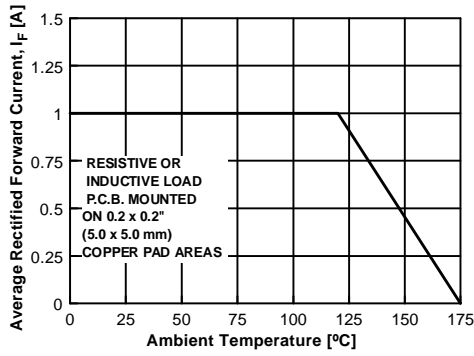


Figure 1. Forward Current Derating Curve

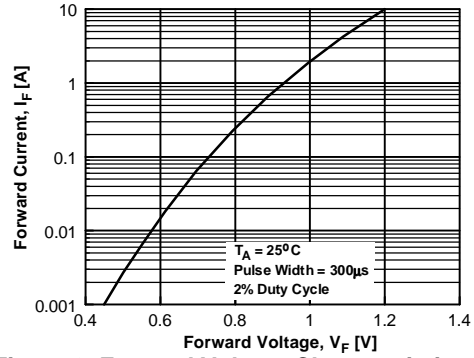


Figure 2. Forward Voltage Characteristics

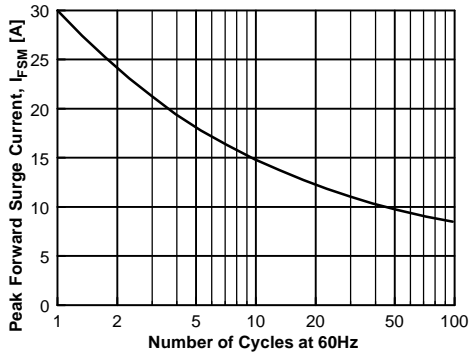


Figure 3. Non-Repetitive Surge Current

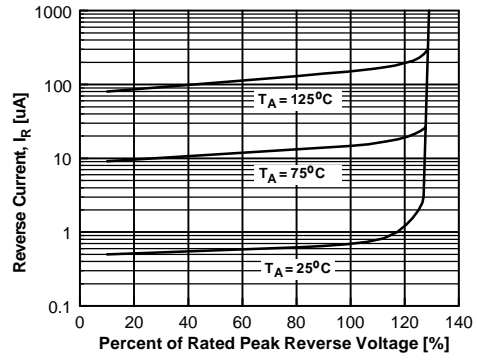


Figure 4. Reverse Current vs Reverse Voltage

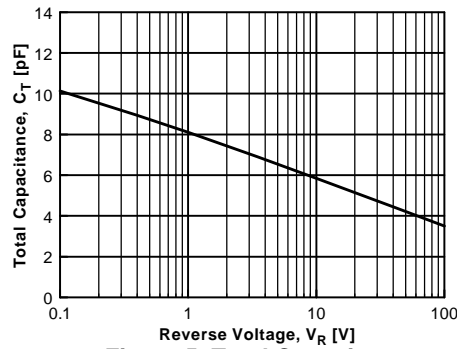
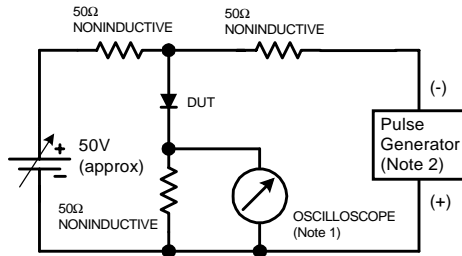
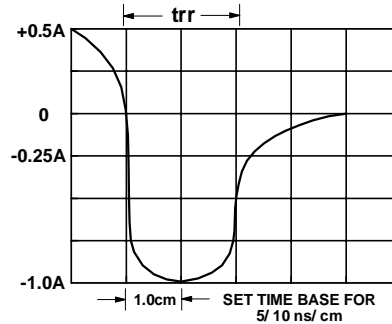


Figure 5. Total Capacitance

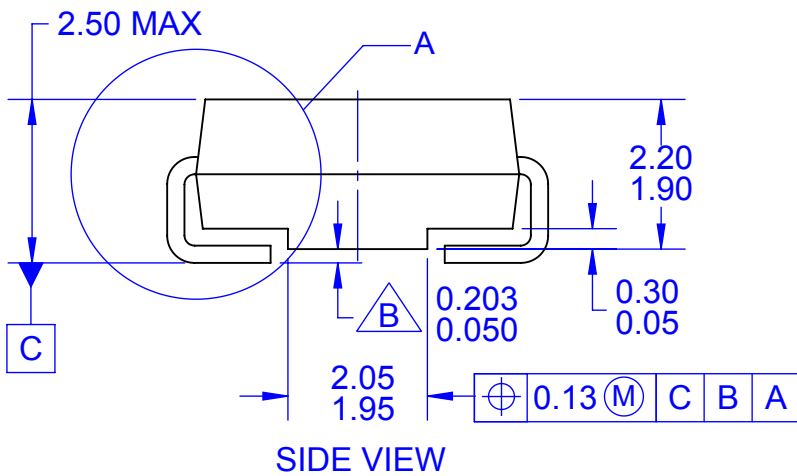
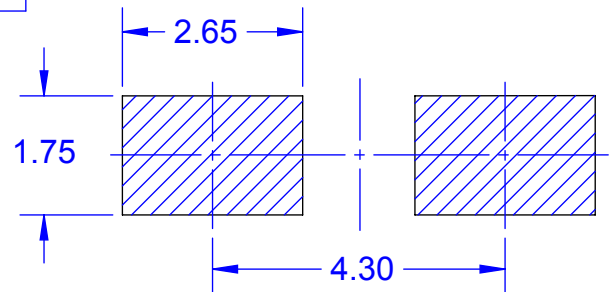
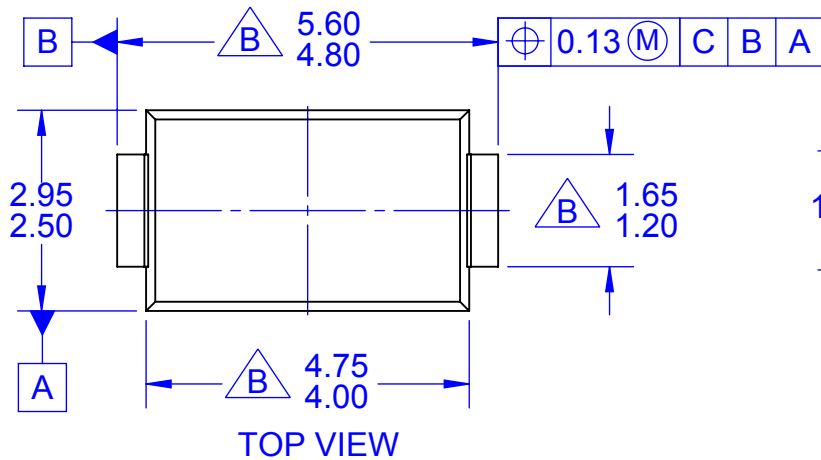


NOTES:

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

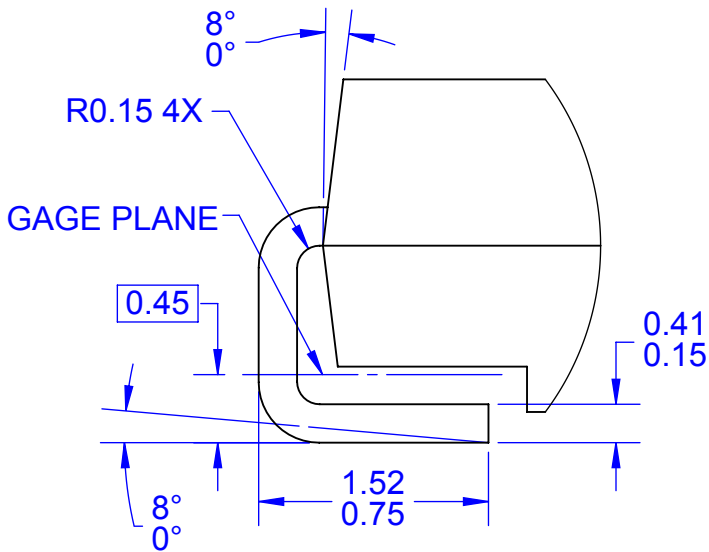


Reverse Recovery Time Characteristic and Test Circuit Diagram



**NOTES:**

- A. EXCEPT WHERE NOTED, CONFORMS TO JEDEC DO214 VARIATION AC.
- B. DOES NOT COMPLY JEDEC STANDARD VALUE.
- C. ALL DIMENSIONS ARE IN MILLIMETERS.
- D. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.
- E. DIMENSIONS AND TOLERANCE AS PER ASME Y14.5-2009.
- E. LAND PATTERN STD. DIOM5025X231M
- F. DRAWING FILENAME: MKT-DO214ACrev2



**SCALE 20 : 1**





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