



# ES2AB THRU ES2JB

Reverse Voltage - 50 to 600 Volts Forward Current - 2.0 Ampere

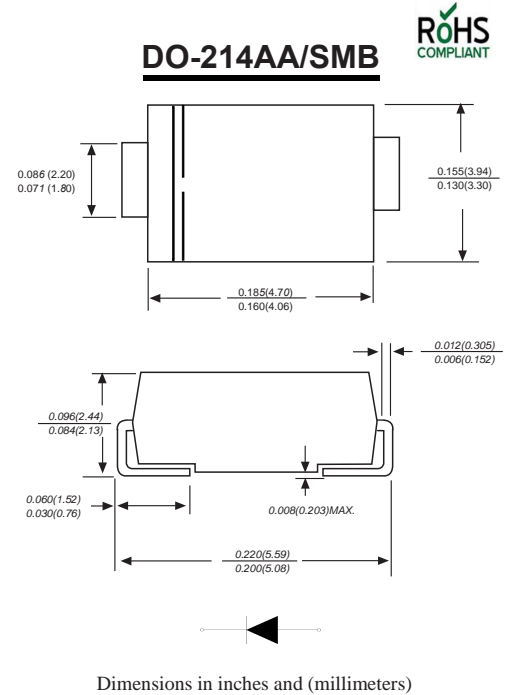
## SURFACE MOUNT SUPER FAST RECOVERY RECTIFIER

### Features

- ◆ The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- ◆ For surface mounted applications
- ◆ Low reverse leakage
- ◆ Built-in strain relief, ideal for automated placement
- ◆ High forward surge current capability
- ◆ High temperature soldering guaranteed:
- ◆ 250°C/10 seconds at terminals
- ◆ Glass passivated chip junction

### Mechanical Data

**Case :** JEDEC DO-214AA/SMB Molded plastic body  
**Terminals :** Solder plated, solderable per MIL-STD-750, Method 2026  
**Polarity :** Polarity symbol marking on body  
**Mounting Position :** Any  
**Weight :** 0.003 ounce, 0.095 grams



### 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         | ES2AB        | ES2BB        | ES2CB        | ES2DB        | ES2EB        | ES2GB        | ES2JB        | UNITS        |
|--|-----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|  |                 | MDD<br>ES2AB | MDD<br>ES2BB | MDD<br>ES2CB | MDD<br>ES2DB | MDD<br>ES2EB | MDD<br>ES2GB | MDD<br>ES2JB |              |
| Maximum repetitive 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 rectified current at $T_L=55^\circ C$  | $I_{(AV)}$      | 2.0          |              |              |              |              |              |              | A            |
| Peak forward surge current<br>8.3ms single half sine-wave<br>superimposed on rated load (JEDEC Method) | $I_{FSM}$       | 50           |              |              |              |              |              |              | A            |
| Maximum instantaneous forward voltage at 2.0A  | $V_F$           | 1            |              |              | 1.25         |              | 1.70         |              | V            |
| Maximum DC reverse current<br>at rated DC blocking voltage   | $I_R$           | 5.0          |              |              | 100.0        |              |              |              | $\mu A$      |
| Maximum reverse recovery time (NOTE 1)   | $t_{rr}$        | 35           |              |              |              |              |              |              | ns           |
| Typical junction capacitance (NOTE 2)  | $C_J$           | 60.0         |              |              |              |              |              |              | pF           |
| Typical thermal resistance (NOTE 3)  | $R_{\theta JA}$ | 40.0         |              |              |              |              |              |              | $^\circ C/W$ |
| Operating junction and storage temperature range   | $T_J, T_{STG}$  | -55 to +150  |              |              |              |              |              |              | $^\circ C$   |

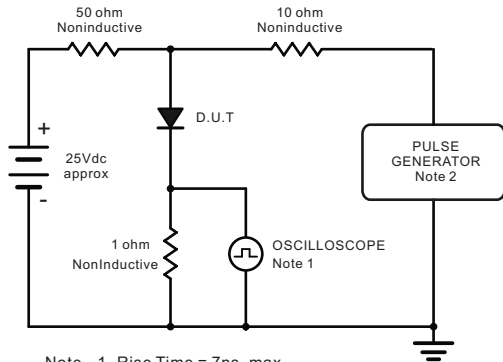
- Note:** 1.Reverse recovery condition  $I_F=0.5A, I_R=1.0A, I_{rr}=0.25A$   
 2.Measured at 1MHz and applied reverse voltage of 4.0V D.C.  
 3.Pulse test: Pulse width 200 sec, Duty cycle 2%  
 4.High Temperature Solder Exemptions Applied, see EU Directive Annex 7.



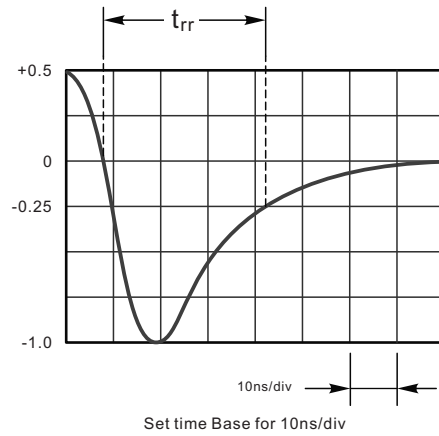
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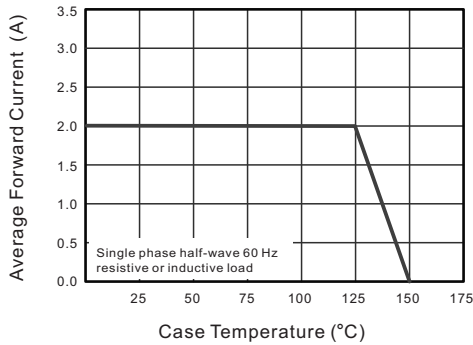
## Ratings And Characteristic Curves



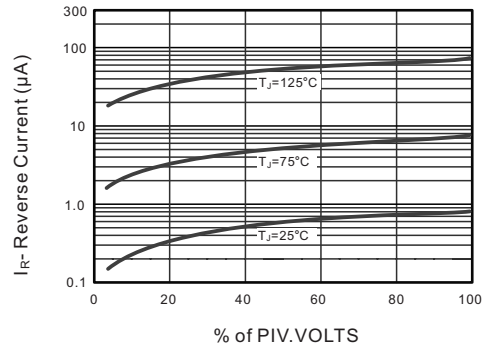
Note: 1. Rise Time = 7ns, max.  
Input Impedance = 1megohm, 22pF.  
2. Rise Time = 10ns, max.  
Source Impedance = 50 ohms.



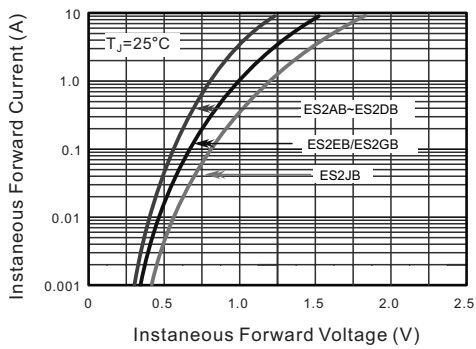
**Fig.2 Maximum Average Forward Current Rating**



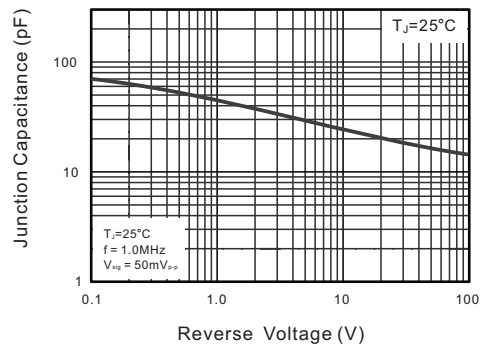
**Fig.3 Typical Reverse Characteristics**



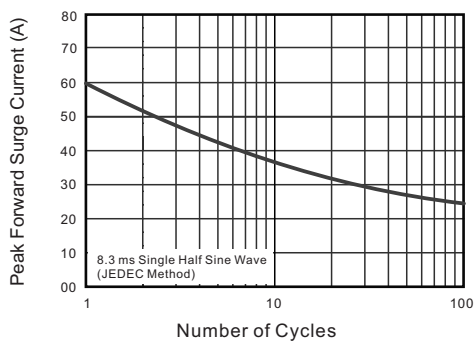
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Junction Capacitance**



**Fig.6 Maximum Non-Repetitive Peak Forward Surge Current**



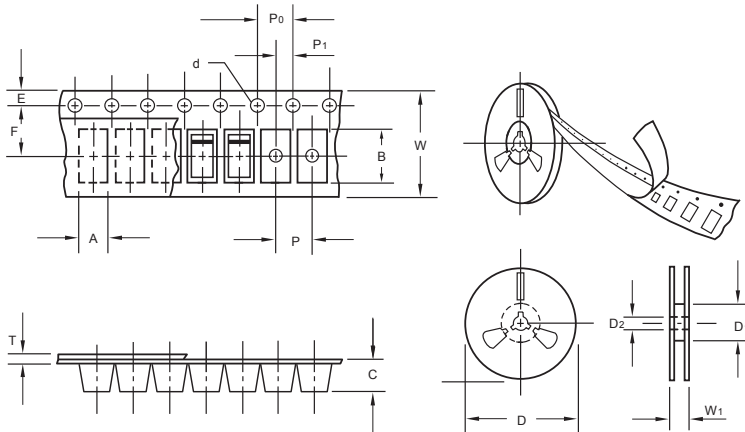
The curve above is for reference only.



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## Packing information



unit:mm

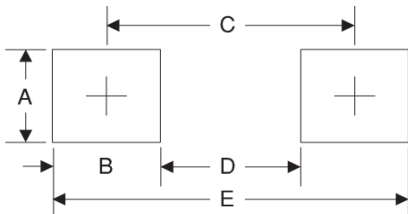
| Item                      | Symbol         | Tolerance | SMB    |
|---------------------------|----------------|-----------|--------|
| Carrier width             | A              | 0.1       | 3.81   |
| Carrier length            | B              | 0.1       | 5.41   |
| Carrier depth             | C              | 0.1       | 2.42   |
| Sprocket hole             | d              | 0.05      | 1 5.0  |
| 13" Reel outside diameter | D              | 2.0       | 330.00 |
| 13" Reel inner diameter   | D <sub>1</sub> | min       | 50.00  |
| Feed hole diameter        | D <sub>2</sub> | 0.5       | 13.00  |
| Sprocket hole position    | E              | 0.1       | 1.75   |
| Punch hole position       | F              | 0.1       | 5.55   |
| Punch hole pitch          | P              | 0.1       | 8.00   |
| Sprocket hole pitch       | P <sub>0</sub> | 0.1       | 4.00   |
| Embossment center         | P <sub>1</sub> | 0.1       | 2.00   |
| Overall tape thickness    | T              | 0.1       | 0.30   |
| Tape width                | W              | 0.3       | 12.00  |
| Reel width                | W <sub>1</sub> | 1.0       | 12.30  |

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

## Reel packing

| PACKAGE | REEL SIZE | REEL (pcs) | COMPONENT SPACING (mm) | BOX (pcs) | INNER BOX (mm) | REEL DIA, (mm) | CARTON SIZE (mm) | CARTON (pcs) | APPROX. GROSS WEIGHT (kg) |
|---------|-----------|------------|------------------------|-----------|----------------|----------------|------------------|--------------|---------------------------|
| SMB     | 13"       | 3,000      | 4.0                    | 6,000     | 190*190*41     | 330            | 365*365*360      | 48,000       | 14.0                      |

## Suggested Pad Layout



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A      | 2.8       | 0.110       |
| B      | 2.4       | 0.094       |
| C      | 4.6       | 0.181       |
| D      | 2.2       | 0.086       |
| E      | 7.0       | 0.276       |

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