



# ES5AC THRU ES5JC

Reverse Voltage - 50 to 600 Volts Forward Current - 5.0 Ampere

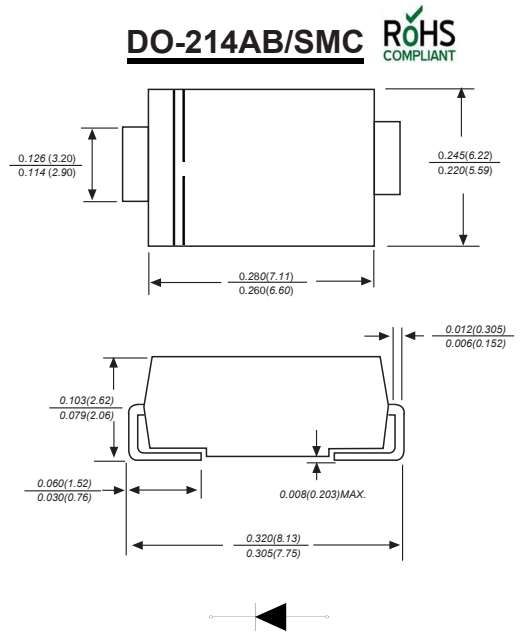
## SURFACE MOUNT SUPER FAST RECOVERY RECTIFIER

### 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-214AB/SMC Molded plastic body  
**Terminals** : Solder plated, solderable per MIL-STD-750, Method 2026  
**Polarity** : Polarity symbol marking on body  
**Mounting Position** : Any  
**Weight** : 0.007 ounce, 0.25 grams



Dimensions in inches and (millimeters)

### 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         | ES5AC             | ES5BC        | ES5CC        | ES5DC        | ES5EC        | ES5GC        | ES5JC        | UNITS                     |
|--|-----------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------------------|
|  |                 | MDD<br>ES5AC      | MDD<br>ES5BC | MDD<br>ES5CC | MDD<br>ES5DC | MDD<br>ES5EC | MDD<br>ES5GC | MDD<br>ES5JC |                           |
| 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 $T_L=55^\circ\text{C}$                                    | $I_{(AV)}$      | 5.0               |              |              |              |              |              |              | A                         |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)       | $I_{FSM}$       | 150               |              |              |              | 135          |              |              | A                         |
| Maximum instantaneous forward voltage at 5.0A  | $V_F$           | 1                 |              |              |              | 1.25         |              | 1.70         | V                         |
| Maximum DC reverse current at rated DC blocking voltage $T_A=25^\circ\text{C}$ $T_A=125^\circ\text{C}$ | $I_R$           | 10.0<br>100.0     |              |              |              |              |              |              | $\mu\text{A}$             |
| Maximum reverse recovery time (NOTE 1)   | $t_{rr}$        | 35                |              |              |              |              |              |              | ns                        |
| Typical junction capacitance (NOTE 2)  | $C_J$           | 95.0              |              |              |              |              |              |              | pF                        |
| Typical thermal resistance (NOTE 3)  | $R_{\theta JA}$ | 45.0              |              |              |              |              |              |              | $^\circ\text{C}/\text{W}$ |
| Operating junction and storage temperature range   | $T_J, T_{STG}$  | - 5 0 t o + 1 5 0 |              |              |              |              |              |              | $^\circ\text{C}$          |

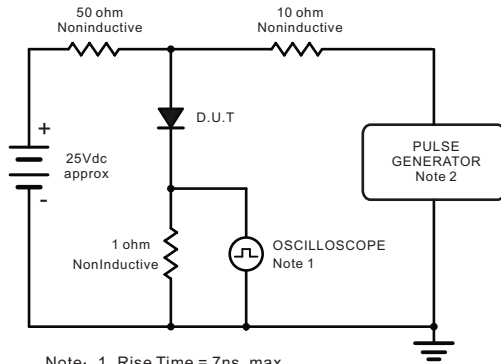
**Note:** 1. Reverse recovery condition  $I_F=0.5\text{A}$ ,  $I_R=1.0\text{A}$ ,  $I_{rr}=0.25\text{A}$   
 2. Measured at 1MHz and applied reverse voltage of 4.0V D.C.  
 3. P.C.B. mounted with 0.2x0.2" (5.0x5.0mm) copper pad areas



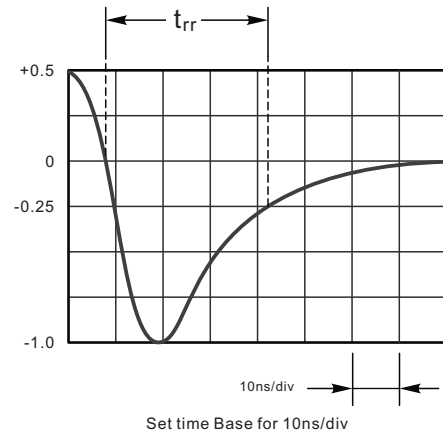
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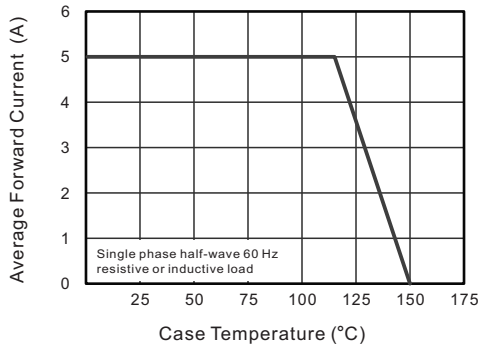
## Ratings And Characteristic Curves



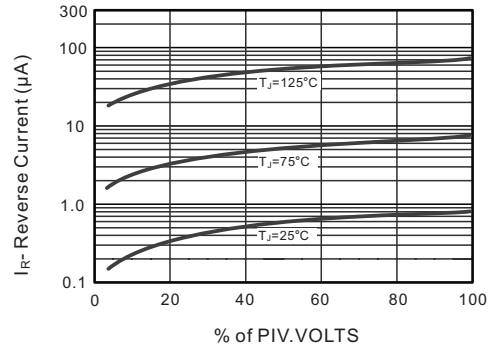
Note: 1. Rise Time = 7ns, max.  
Input Impedance = 1megohm, 22pF.  
2. Rise Time = 10ns, max.  
Source Impedance = 50 ohms.



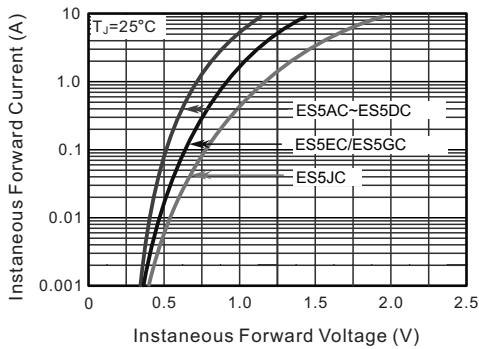
**Fig.2 Maximum Average Forward Current Rating**



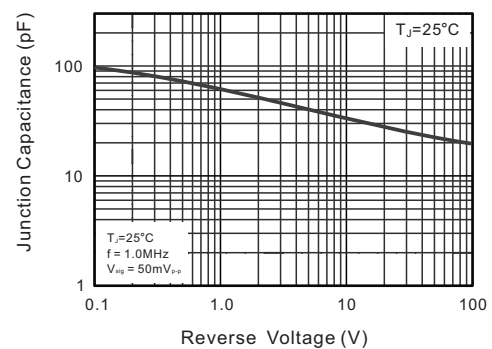
**Fig.3 Typical Reverse Characteristics**



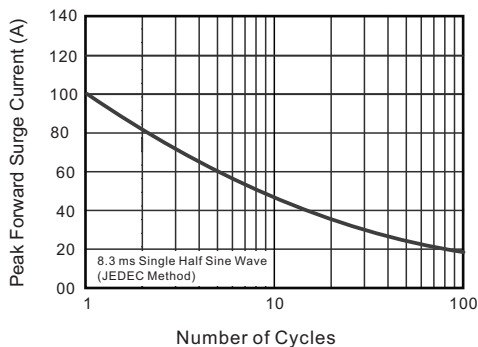
**Fig.4 Typical Forward Characteristics**



**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 | SMC    |
|---------------------------|--------|-----------|--------|
| Carrier width             | A      | 0.1       | 6.15   |
| Carrier length            | B      | 0.1       | 8.41   |
| Carrier depth             | C      | 0.1       | 2.42   |
| Sprocket hole             | d      | 0.05      | 1.50   |
| 13" Reel outside diameter | D      | 2.0       | 330.00 |
| 13" Reel inner diameter   | D1     | min       | 50.00  |
| Feed hole diameter        | D2     | 0.5       | 13.00  |
| Sprocket hole position    | E      | 0.1       | 1.75   |
| Punch hole position       | F      | 0.1       | 7.50   |
| Punch hole pitch          | P      | 0.1       | 8.00   |
| Sprocket hole pitch       | P0     | 0.1       | 4.00   |
| Embossment center         | P1     | 0.1       | 2.00   |
| Overall tape thickness    | T      | 0.1       | 0.25   |
| Tape width                | W      | 0.3       | 16.00  |
| Reel width                | W1     | 1.0       | 16.50  |

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) |
|---------|-----------|------------|------------------------|-----------|----------------|----------------|------------------|--------------|---------------------------|
| SMC     | 13"       | 3,000      | 4.0                    | 6000      | 190*190*41     | 330            | 365*365*340      | 42000        | 14.0                      |

## Suggested Pad Layout



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A      | 4.3       | 0.170       |
| B      | 4.1       | 0.160       |
| C      | 7.9       | 0.311       |
| D      | 3.8       | 0.150       |
| E      | 12        | 0.472       |

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