

**Surface Mount Superfast Recovery Rectifier**

**Reverse Voltage - 50 to 600 V**

**Forward Current - 5 A**

**FEATURES**

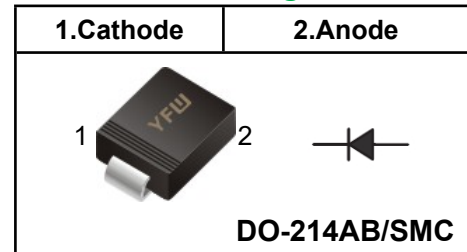
- ◆ Glass Passivated Chip Junction
- ◆ For surface mounted applications
- ◆ Low profile package
- ◆ Superfast reverse recovery time
- ◆ Lead free in comply with EU RoHS 2011/65/EU directives



**MECHANICAL DATA**

- ◆ Case: DO-214AB/SMC
- ◆ Terminals: Solderable per MIL-STD-750, Method 2026
- ◆ Approx. Weight: 0.22g / 0.0077oz

**Pinning**



**Marking Code**

|             |             |
|-------------|-------------|
| <b>ES5A</b> | <b>ES5A</b> |
| <b>ES5B</b> | <b>ES5B</b> |
| <b>ES5D</b> | <b>ES5D</b> |
| <b>ES5G</b> | <b>ES5G</b> |
| <b>ES5J</b> | <b>ES5J</b> |

**Absolute Maximum Ratings and characteristics**

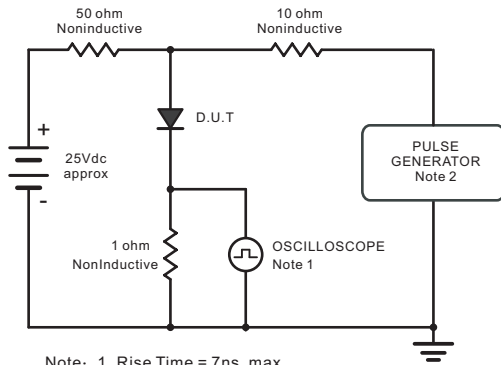
Ratings at 25 °C ambient temperature unless otherwise specified.  
Single phase half-wave 60 Hz, resistive or inductive load, for capacitive load current derate by 20 %.

| Parameter  | Symbols                         | ES5A       | ES5B | ES5D | ES5G | ES5J | Units              |
|--|---------------------------------|------------|------|------|------|------|--------------------|
| Maximum Repetitive Peak Reverse Voltage  | $V_{RRM}$                       | 50         | 100  | 200  | 400  | 600  | V                  |
| Maximum RMS voltage  | $V_{RMS}$                       | 35         | 70   | 140  | 280  | 420  | V                  |
| Maximum DC Blocking Voltage  | $V_{DC}$                        | 50         | 100  | 200  | 400  | 600  | V                  |
| Maximum Average Forward Rectified Current at $T_c = 125\text{ }^\circ\text{C}$   | $I_{F(AV)}$                     | 5          |      |      |      |      | A                  |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load   | $I_{FSM}$                       | 120        |      |      |      |      | A                  |
| Maximum Instantaneous Forward Voltage at 5 A   | $V_F$                           | 0.95       |      |      | 1.25 | 1.65 | V                  |
| Maximum DC Reverse Current $T_a = 25\text{ }^\circ\text{C}$ at Rated DC Blocking Voltage $T_a = 125\text{ }^\circ\text{C}$ | $I_R$                           | 5<br>100   |      |      |      |      | $\mu\text{A}$      |
| Typical Junction Capacitance at $V_R = 4\text{V}, f = 1\text{MHz}$   | $C_j$                           | 50         |      |      |      |      | pF                 |
| Maximum Reverse Recovery Time <sup>(1)</sup>   | $T_{rr}$                        | 35         |      |      |      |      | nS                 |
| Typical Thermal Resistance <sup>(2)</sup>  | $R_{\theta JA} / R_{\theta JC}$ | 35/13      |      |      |      |      | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range  | $T_j, T_{stg}$                  | -55 ~ +150 |      |      |      |      | $^\circ\text{C}$   |

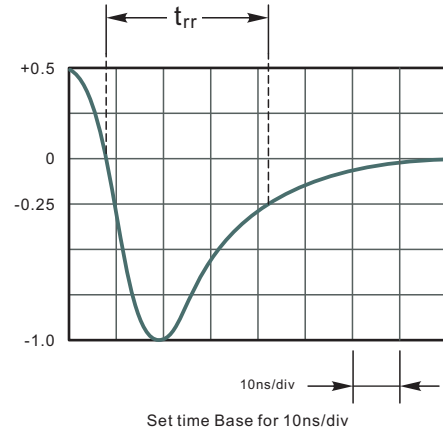
(1) Measured with  $I_F = 0.5\text{A}, I_R = 1\text{A}, I_n = 0.25\text{A}$

(2) P.C.B. mounted with 2.0" X 2.0" (5 X 5 cm) copper pad areas.

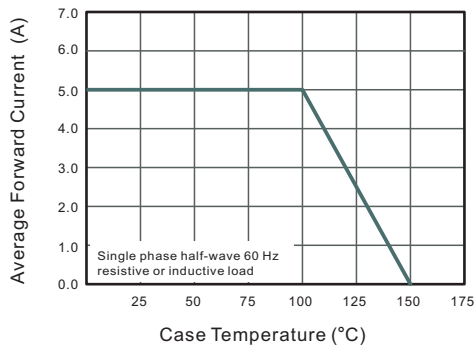
**Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram**



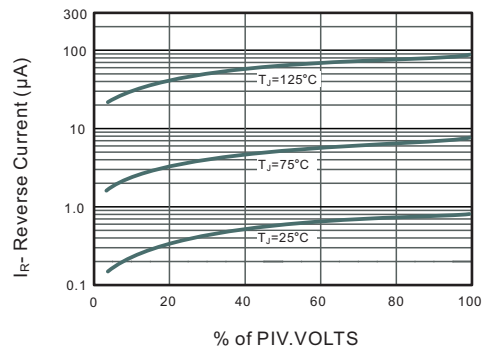
Note: 1. Rise Time = 7ns, max.  
Input Impedance = 1megohm, 22pF.  
2. Rises Time = 10ns, max.  
Source Impedance = 50 ohms.



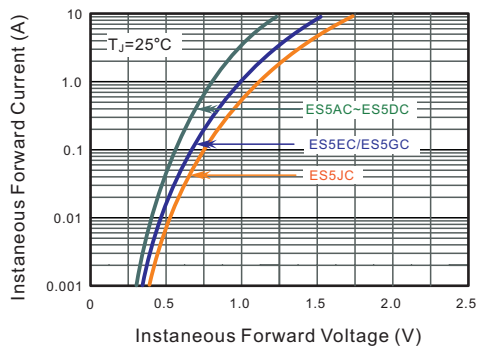
**Fig.2 Maximum Average Forward Current Rating**



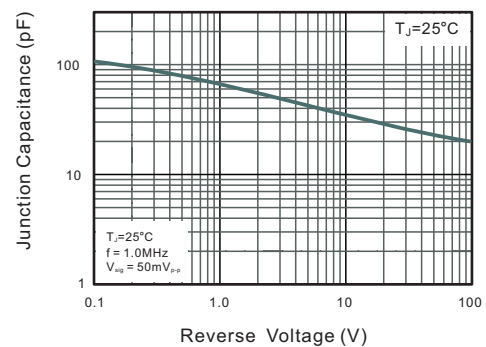
**Fig.3 Typical Reverse Characteristics**



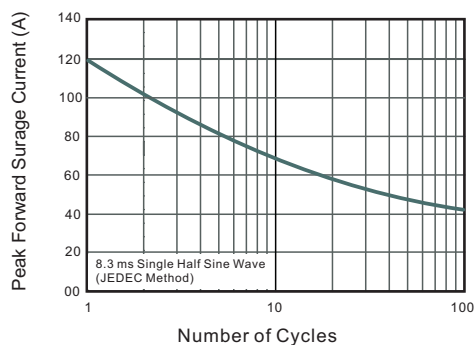
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Junction Capacitance**

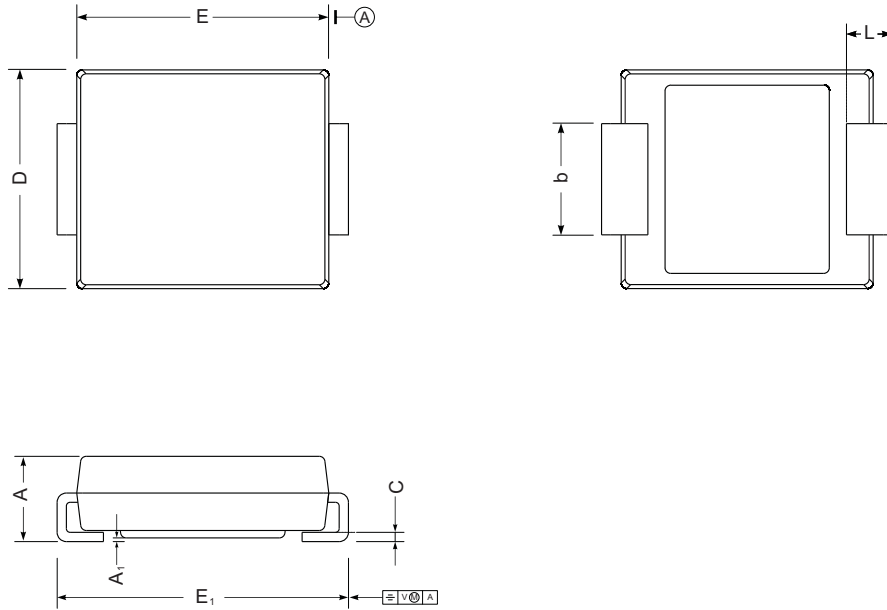


**Fig.6 Maximum Non-Repetitive Peak Forward Surge Current**



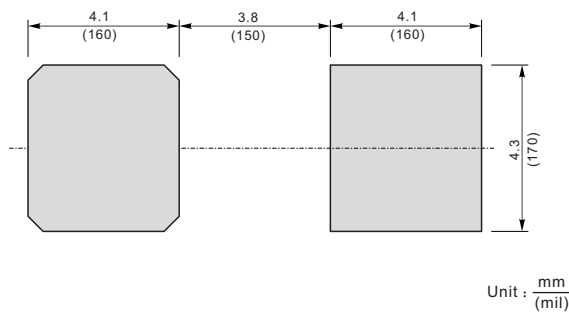
**Package Outline DO-214AB SMC**

Plastic surface mounted package; 2 leads



| UNIT |     | A    | E   | D   | E <sub>1</sub> | A <sub>1</sub> | C    | L   | b    |
|------|-----|------|-----|-----|----------------|----------------|------|-----|------|
| mm   | max | 2.62 | 7.0 | 6.2 | 8.0            | 0.21           | 0.31 | 1.6 | 3.25 |
|      | min | 2.00 | 6.5 | 5.6 | 7.6            | 0.05           | 0.15 | 0.9 | 2.75 |
| mil  | max | 103  | 276 | 244 | 315            | 8.3            | 12   | 63  | 128  |
|      | min | 79   | 256 | 220 | 299            | 2.0            | 5.9  | 35  | 108  |

**The recommended mounting pad size**



**Summary of Packing Options**

| Package      | Packing Description | Packing Quantity | Industry Standard |
|--------------|---------------------|------------------|-------------------|
| DO-214AB SMC | Tape/Reel, 13" reel | 3000             | EIA-481-1         |