



# US5ACG THRU US5MCG

## Surface Mount Ultrafast Recovery Rectifier

Reverse Voltage – 50~1000 V Forward Current – 5 A

### FEATURES

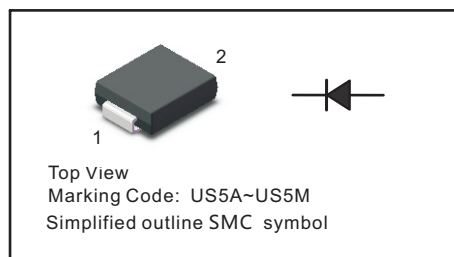
- For surface mounted applications
- Low profile package
- Glass Passivated Chip Junction
- Superfast reverse recovery time
- Lead free in comply with EU RoHS 2011/65/EU directives

### MECHANICAL DATA

- Case: SMC
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 217mg / 0.0077oz

### PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | Cathode     |
| 2   | Anode       |



### Maximum Ratings and Electrical characteristics

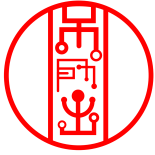
Ratings at 25 °C ambient temperature unless otherwise specified.

Single phase half-wave 60 Hz, resistive or inductive load, for capacitive load current derate by 20 %.

| Parameter                                                                                                      | Symbols                           | US5ACG     | US5BCG | US5DCG | US5GCG | US5JCG | US5KCG | US5MCG | Units |
|----------------------------------------------------------------------------------------------------------------|-----------------------------------|------------|--------|--------|--------|--------|--------|--------|-------|
| Maximum Repetitive Peak Reverse Voltage                                                                        | V <sub>RRM</sub>                  | 50         | 100    | 200    | 400    | 600    | 800    | 1000   | V     |
| Maximum RMS voltage                                                                                            | V <sub>RMS</sub>                  | 35         | 70     | 140    | 280    | 420    | 560    | 700    | V     |
| Maximum DC Blocking Voltage                                                                                    | V <sub>DC</sub>                   | 50         | 100    | 200    | 400    | 600    | 800    | 1000   | V     |
| Maximum Average Forward Rectified Current<br>at T <sub>c</sub> = 100 °C                                        | I <sub>F(AV)</sub>                | 5          |        |        |        |        |        |        | A     |
| Peak Forward Surge Current 8.3 ms Single Half<br>Sine Wave Superimposed on Rated Load                          | I <sub>FSM</sub>                  | 120        |        |        |        |        |        |        | A     |
| Maximum Instantaneous Forward Voltage at 5 A                                                                   | V <sub>F</sub>                    | 1.0        |        |        | 1.3    | 1.65   |        |        | V     |
| Maximum DC Reverse Current    T <sub>a</sub> = 25 °C<br>at Rated DC Blocking Voltage    T <sub>a</sub> =125 °C | I <sub>R</sub>                    | 5<br>100   |        |        |        |        |        |        | μA    |
| Typical Junction Capacitance<br>at V <sub>R</sub> =4V, f=1MHz                                                  | C <sub>j</sub>                    | 50         |        |        |        |        |        |        | pF    |
| Maximum Reverse Recovery Time <sup>(1)</sup>                                                                   | t <sub>rr</sub>                   | 50         |        |        |        | 75     |        |        | ns    |
| Typical Thermal Resistance <sup>(2)</sup>                                                                      | R <sub>θJA</sub>                  | 35         |        |        |        |        |        |        | °C/W  |
| Operating and Storage Temperature Range                                                                        | T <sub>j</sub> , T <sub>stg</sub> | -55 ~ +150 |        |        |        |        |        |        | °C    |

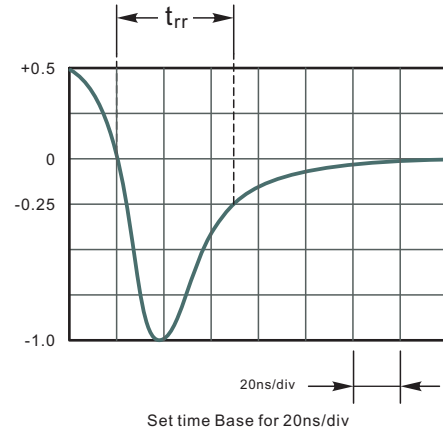
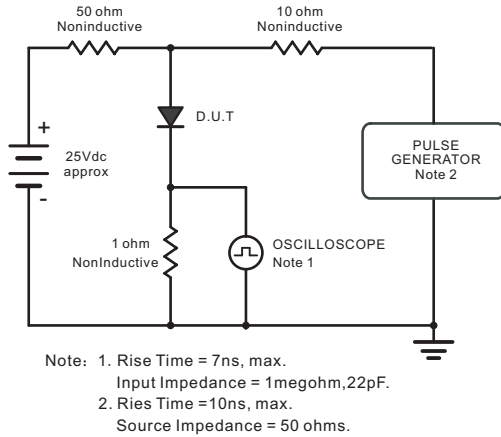
( 1 ) Measured with  $I_F = 0.5\text{ A}$ ,  $I_R = 1\text{ A}$ ,  $I_{rr} = 0.25\text{ A}$ .

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

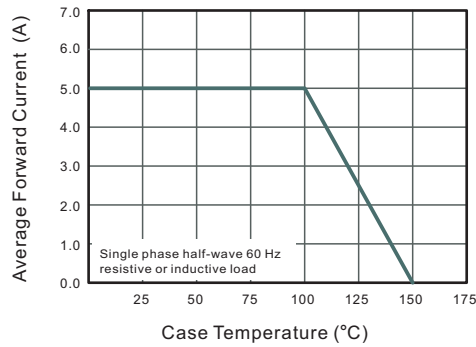


# US5ACG THRU US5MCG

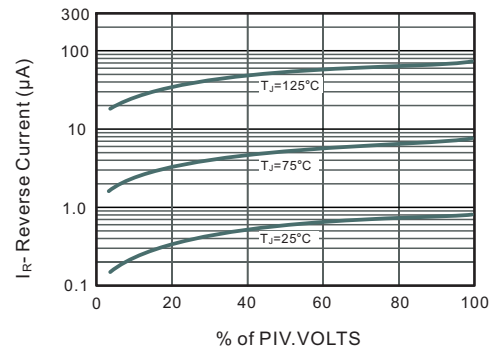
**Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram**



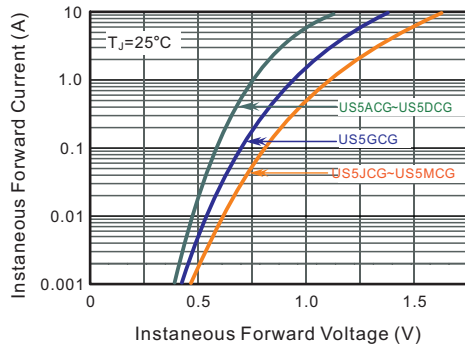
**Fig.2 Maximum Average Forward Current Rating**



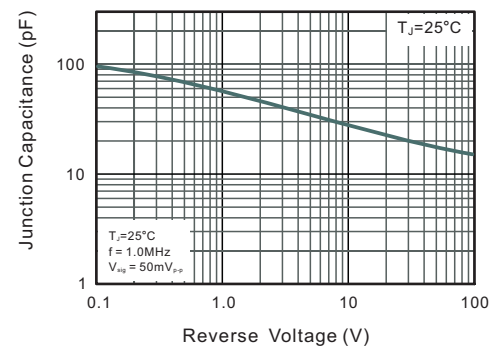
**Fig.3 Typical Reverse Characteristics**



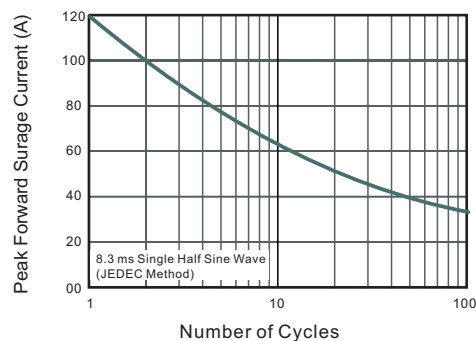
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Junction Capacitance**



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



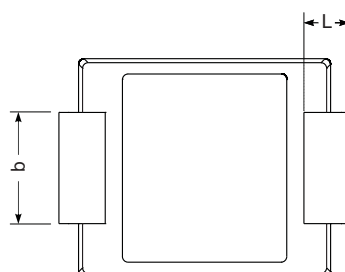
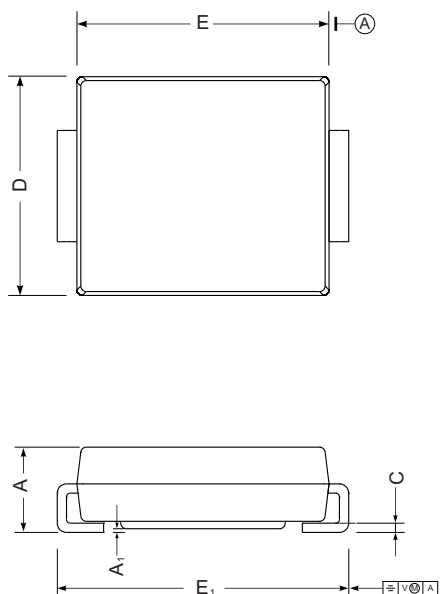


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## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

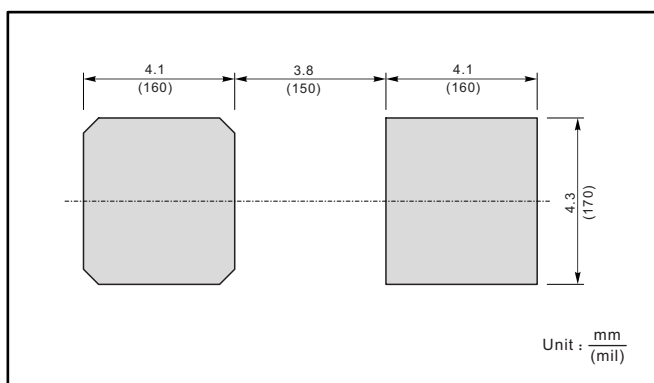
SMC



SMC mechanical data

| 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



## Marking

| Type number | Marking code |
|-------------|--------------|
| US5ACG      | US5A         |
| US5BCG      | US5B         |
| US5DCG      | US5D         |
| US5GCG      | US5G         |
| US5JCG      | US5J         |
| US5KCG      | US5K         |
| US5MCG      | US5M         |