

## FEATURES

- | Ideal For Printed Circuit Board
- | Glass Passivated Junction Chip
- | Low Reverse Leakage
- | High Forward Surge Current Capability



DO-214AC(SMA)



Schematic Symbol

## MECHANICAL DATA

- | Case : Molded plastic body
- | Polarity : Polarity symbol marking on body
- | Mounting Position : Any

## APPROVALS

|             |                                    |
|-------------|------------------------------------|
| <b>RoHS</b> | Compliance with 2011/65/EU         |
| <b>HF</b>   | Compliance with IEC61249-2-21:2003 |

## MAXIMUM RATINGS AND CHARACTERISTICS (T<sub>A</sub>=25°C)

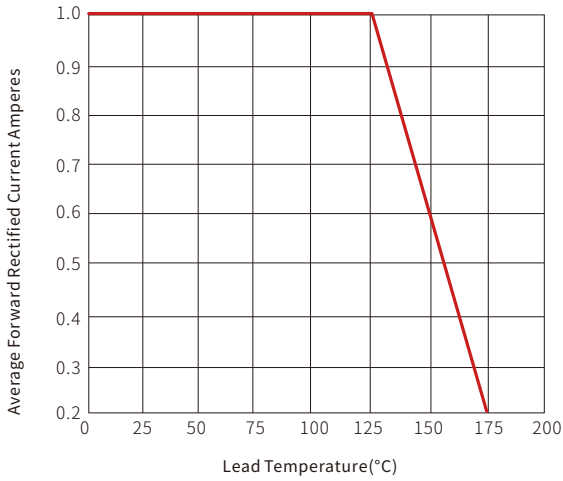
| Parameter   | Symbol                           | US1A                  | US1B | US1D | US1G | US1J | US1K | US1M | Unit |
|---|----------------------------------|-----------------------|------|------|------|------|------|------|------|
| Marking   |                                  | US1A                  | US1B | US1D | US1G | US1J | US1K | US1M |      |
| Maximum Repetitive Peak Reverse Voltage   | V <sub>RRM</sub>                 | 50                    | 100  | 200  | 400  | 600  | 800  | 1000 |      |
| 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 |      |
| Maximum Average Forward Rectified Current at T <sub>L</sub> =100°C                | I <sub>F(AV)</sub>               | 1.0                   |      |      |      |      |      |      | A    |
| Surge Peak Forward Current,8.3ms Single Half Sine-Wave Superimposed On Rated Load | I <sub>FSM</sub>                 | 30.0                  |      |      |      |      |      |      |      |
| Maximum Instantaneous Forward Voltage at 1.0A                                     | V <sub>F</sub>                   |                       | 1.0  |      | 1.4  |      | 1.7  |      | V    |
| Maximum DC Reverse Current at Rated DC Blocking Voltage                           | I <sub>R</sub>                   | T <sub>A</sub> =25°C  |      |      |      |      |      |      | μA   |
|   |                                  | T <sub>A</sub> =125°C |      |      |      |      |      |      |      |
| Maximum Reverse Recovery Time(Note 1)   | T <sub>rr</sub>                  |                       | 50   |      |      |      | 75   |      | ns   |
| Typical Junction Capacitance (Note2)  | C <sub>J</sub>                   | 20.0                  |      |      |      |      |      |      | pF   |
| Typical Thermal Resistance  | R <sub>θJA</sub>                 | 80.0                  |      |      |      |      |      |      | °C/W |
| Operating Junction And Storage Temperature Range                                  | T <sub>J</sub> ,T <sub>STG</sub> | -55 to +175           |      |      |      |      |      |      | °C   |

Note :

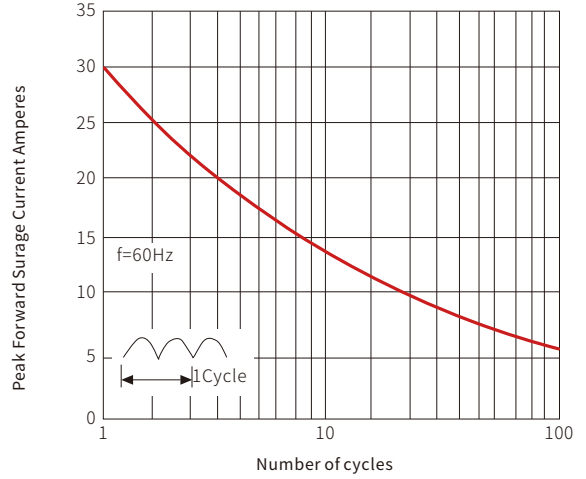
- 1.Reverse recovery time test condition: I<sub>F</sub>=0.5A I<sub>R</sub>=1.0A I<sub>rr</sub>=0.25A
- 2.Measured at 1MHz and applied reverse voltage of 4.0V D.C.

# CHARACTERISTIC CURVES

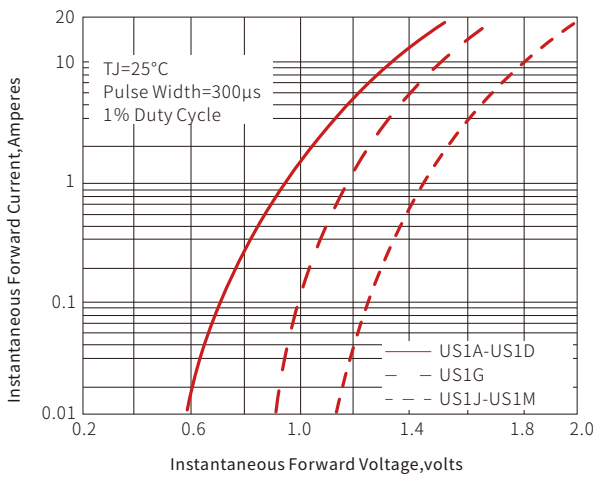
**Fig. 1- Derating Curve Output Rectified Current**



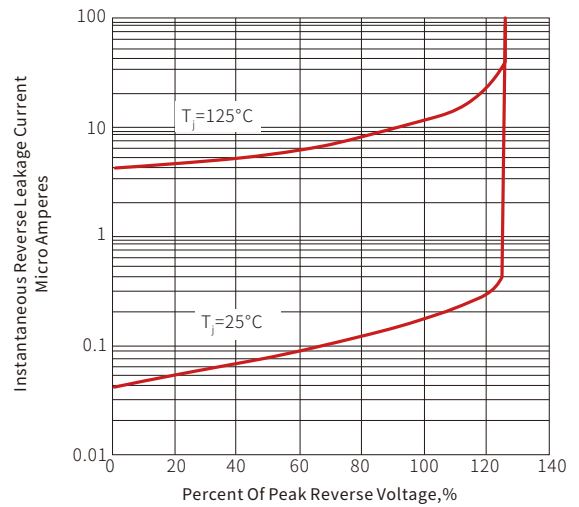
**Fig. 2- Maximum Non-repetitive Peak Forward Surge Current Perleg**



**Fig. 3- Typical Forward Voltage Characteristics**

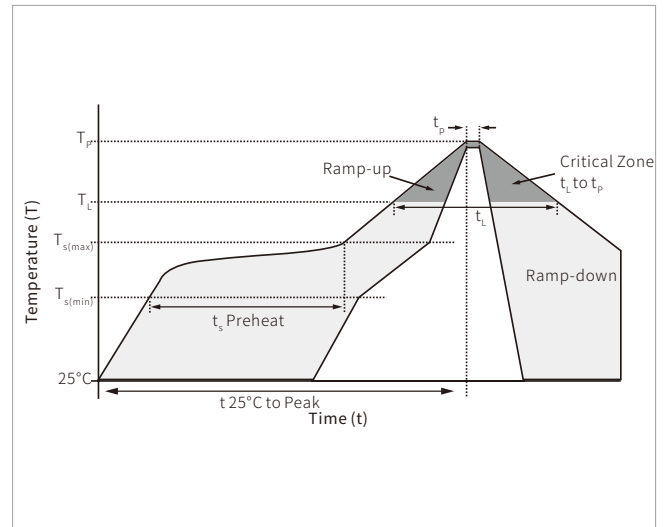


**Fig. 4- Typical Reverse Leakage Characteristics**

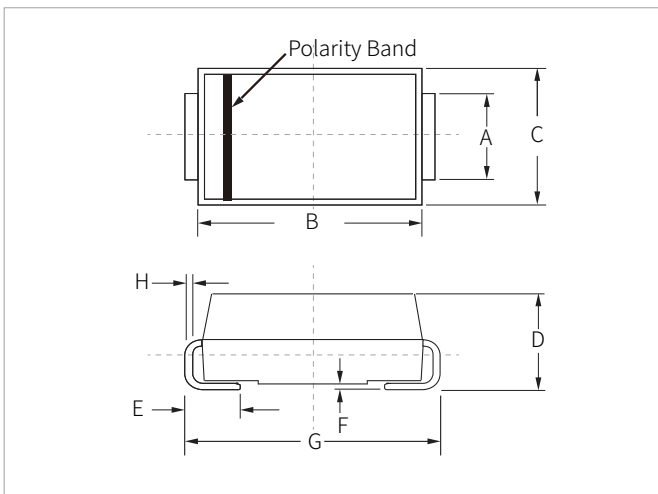


## SOLDERING PARAMETERS

| Reflow Condition                                       |                                  | Lead-free assembly |
|--|----------------------------------|--------------------|
| Pre Heat   | Temperature Max ( $T_{s(min)}$ ) | 150°C              |
|  | Temperature Max ( $T_{s(max)}$ ) | 200°C              |
|  | Time (min to max) ( $t_s$ )      | 60 – 180 secs      |
| Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak) |                                  | 3°C/second max     |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                   |                                  | 3°C/second max     |
| Reflow   | Temperature ( $T_L$ ) (Liquidus) | 217°C              |
|  | Time (min to max) ( $t_L$ )      | 60 – 150 seconds   |
| Peak Temperature ( $T_p$ )                             |                                  | 260°C              |
| Time within 5°C of actual peak Temperature ( $t_p$ )   |                                  | 20 – 40 seconds    |
| Ramp-down Rate   |                                  | 6°C/second max     |
| Time 25°C to peak Temperature ( $T_p$ )                |                                  | 8 minutes max.     |
| Do not exceed  |                                  | 260°C              |

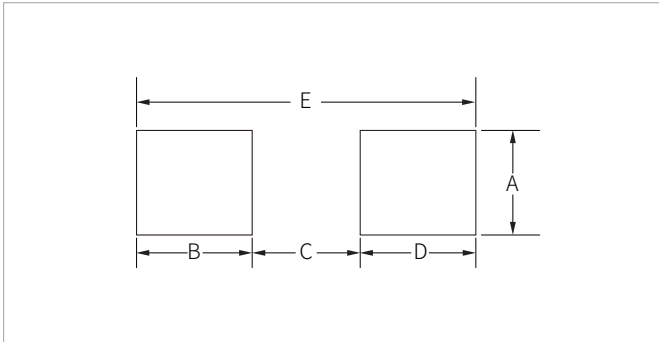


## DO-214AC(SMA) PACKAGE INFORMATION



| Ref. | Millimeters |      | Inches |       |
|------|-------------|------|--------|-------|
|      | Min.        | Max. | Min.   | Max.  |
| A    | 1.20        | 1.60 | 0.047  | 0.063 |
| B    | 4.20        | 4.60 | 0.165  | 0.181 |
| C    | 2.60        | 2.80 | 0.102  | 0.110 |
| D    | 2.10        | 2.40 | 0.083  | 0.094 |
| E    | 0.76        | 1.52 | 0.030  | 0.060 |
| F    | 0.02        | 0.20 | 0.001  | 0.008 |
| G    | 4.85        | 5.25 | 0.191  | 0.207 |
| H    | 0.15        | 0.30 | 0.006  | 0.012 |

## RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters |      | Inches   |       |
|------|-------------|------|----------|-------|
|      | Min.        | Max. | Min.     | Max.  |
| A    | 1.63        | -    | 0.064    | -     |
| B    | 1.45        | -    | 0.057    | -     |
| C    | -           | 2.80 | -        | 0.090 |
| D    | 1.45        | -    | 0.057    | -     |
| E    | 5.28REF     |      | 0.208REF |       |

## ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|-------------|-------------------|----------|-----------|
| US1A-US1M   | DO-214AC(SMA)     | 5000PCS  | 13"       |

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