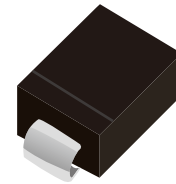


## FEATURES

- | Low Power Loss, High Efficiency
- | Ideal For Automated Placement
- | Glass Passivated Junction Chip
- | Fast Switching For High Efficiency



DO-214AA(SMB)



Schematic Symbol

## APPLICATIONS

- | For Use In High Frequency Rectification Of Power Supplies, Inverters, Converters, and Freewheeling Diodes For Consumer and Telecommunication

## 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                            | ES 2AB      | ES 2BB | ES 2CB | ES 2DB | ES 2FB | ES 2GB | ES 2HB | ES 2JB | ES 2KB | Unit             |
|--|-----------------------------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|------------------|
| Marking  |                                   | ES2A        | ES2B   | ES2C   | ES2D   | ES2F   | ES2G   | ES2H   | ES2J   | ES2K   |                  |
| Repetitive Peak Reverse Voltage  | V <sub>RRM</sub>                  | 50          | 100    | 150    | 200    | 300    | 400    | 500    | 600    | 800    | V                |
| Reverse Voltage, Total RMS Value   | V <sub>RMS</sub>                  | 35          | 70     | 105    | 140    | 210    | 280    | 350    | 420    | 560    |                  |
| Maximum DC Blocking Voltage  | V <sub>DC</sub>                   | 50          | 100    | 150    | 200    | 300    | 400    | 500    | 600    | 800    |                  |
| Average Rectified Output Current @60Hz Sine Wave, Resistance Load, TL (Fig.1)                    | I <sub>O</sub>                    | 2.0         |        |        |        |        |        |        |        |        | A                |
| Forward Surge Current (Non-Repetitive) @60Hz Half-Sine Wave, 1 Cycle, T <sub>J</sub> =25°C       | I <sub>FSM</sub>                  | 50          |        |        |        |        |        |        |        |        | A                |
| Forward Surge Current (Non-repetitive) @1ms, Square Wave, 1 Cycle, T <sub>J</sub> =25°C          |                                   | 100         |        |        |        |        |        |        |        |        |                  |
| Maximum Instantaneous Forward Voltage I <sub>FM</sub> =2.0A                                      | V <sub>F</sub>                    | 0.95        |        |        | 1.3    |        | 1.7    |        | 1.85   |        | V                |
| Reverse Current @ Rated V <sub>r</sub> Per Diode <sup>(2)</sup>                                  | T <sub>J</sub> =25°C              | 5           |        |        |        |        |        |        |        |        | μA               |
|  | T <sub>J</sub> =125°C             | 100         |        |        |        |        |        |        |        |        |                  |
| Maximum Reverse Recovery Time I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A, I <sub>FF</sub> =0.25A | T <sub>rr</sub>                   | 35          |        |        |        |        |        |        |        |        | ns               |
| Typical Junction Capacitance Measured at 1MHz And Applied Reverse Voltage Of 4.0 V.D.C           | C <sub>J</sub>                    | 31          |        |        | 17     |        | 12     |        | 12     |        | pF               |
| Current Squared Time @1ms ≤ t ≤ 8.3ms T <sub>J</sub> =25°C                                       | I <sup>2</sup> t                  | 10.375      |        |        |        |        |        |        |        |        | A <sup>2</sup> s |
| Operating Junction and Storage Temperature Range   | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 |        |        |        |        |        |        |        |        | °C               |

## THERMAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ )

| Parameter                  | Symbol                 | ES 2AB | ES 2BB | ES 2CB | ES 2DB | ES 2FB | ES 2GB | ES 2HB | ES 2JB | ES 2KB | Unit |                             |
|----------------------------|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|-----------------------------|
| Typical Thermal Resistance | $R_{\theta J-A}^{(1)}$ | 60     |        |        |        |        |        |        |        |        |      | $^{\circ}\text{C}/\text{W}$ |
|                            | $R_{\theta J-L}^{(1)}$ | 22     |        |        |        |        |        |        |        |        |      |                             |
|                            | $R_{\theta J-C}^{(1)}$ | 16     |        |        |        |        |        |        |        |        |      |                             |

Note: (1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.3" x 0.3" (8.0 mm x 8.0 mm) copper pad areas

## CHARACTERISTIC CURVES

Fig. 1- $I_o$  - TL Curve

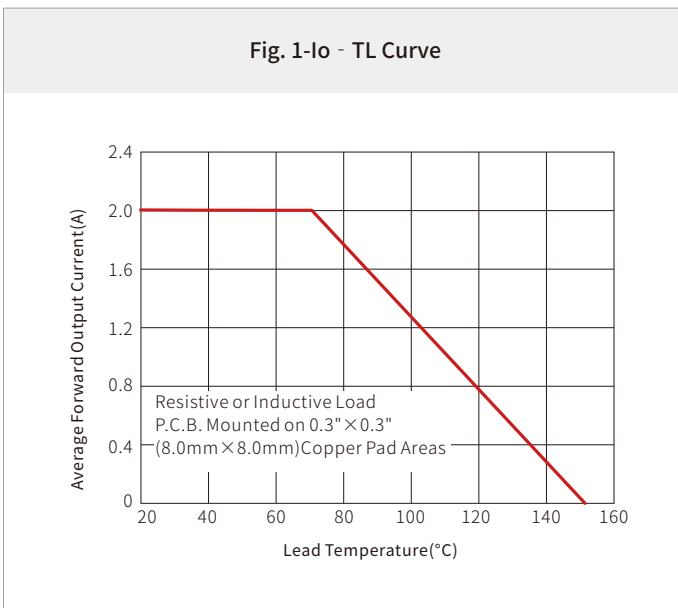
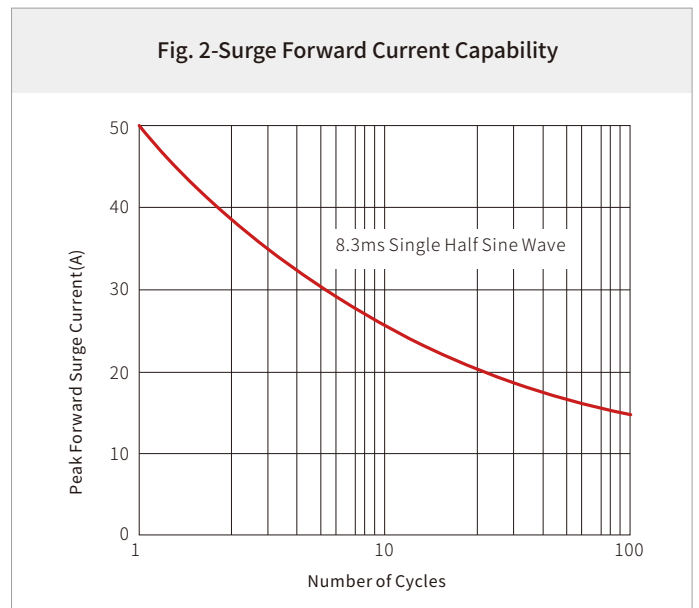
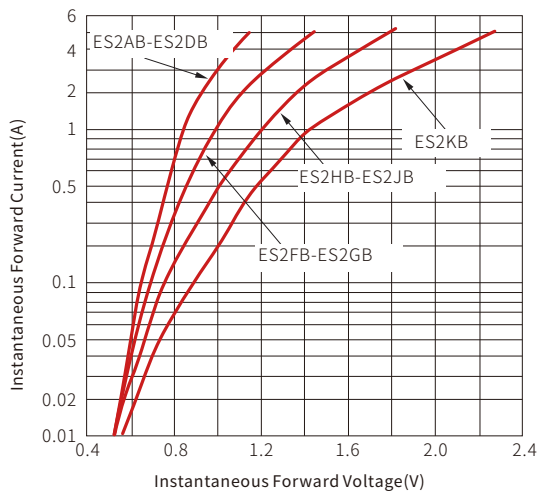
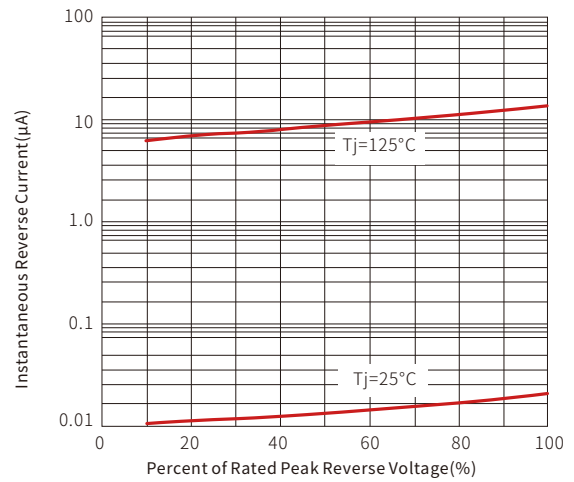


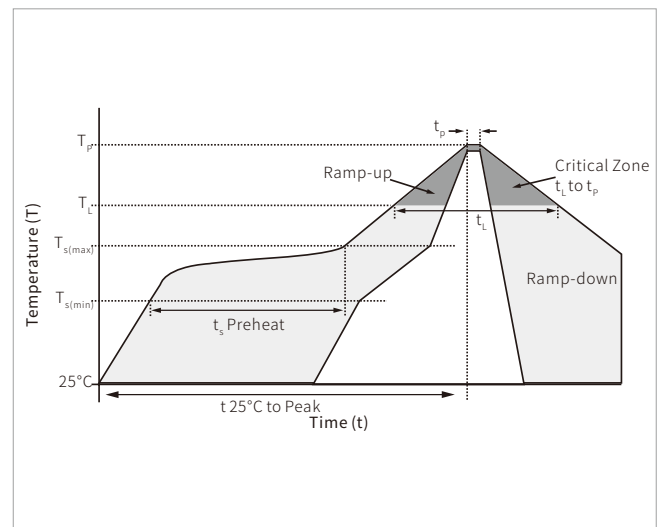
Fig. 2-Surge Forward Current Capability



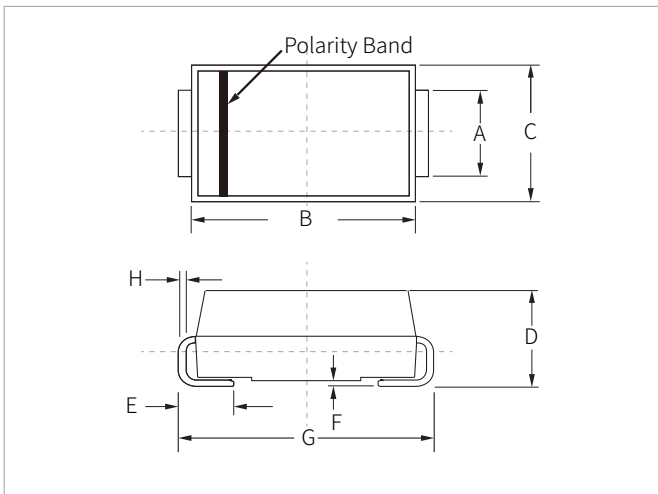
**Fig. 3-Typical Forward Voltage**

**Fig. 4-Typical Reverse Characteristics**


## SOLDERING PARAMETERS

| Reflow Condition   |  | Lead-free assembly |
|--|--|--------------------|
| Pre Heat   | Temperature Max (T <sub>s(min)</sub> )   | 150°C              |
|  | Temperature Max (T <sub>s(max)</sub> )   | 200°C              |
|  | Time (min to max) (t <sub>s</sub> )      | 60 – 180 secs      |
| Average ramp up rate (Liquidus Temp (T <sub>L</sub> ) to peak) |  | 3°C/second max     |
| T <sub>s(max)</sub> to T <sub>L</sub> - Ramp-up Rate           |  | 3°C/second max     |
| Reflow   | Temperature (T <sub>L</sub> ) (Liquidus) | 217°C              |
|  | Time (min to max) (t <sub>L</sub> )      | 60 – 150 seconds   |
| Peak Temperature (T <sub>p</sub> )                             |  | 260°C              |
| Time within 5°C of actual peak Temperature (t <sub>p</sub> )   |  | 20 – 40 seconds    |
| Ramp-down Rate   |  | 6°C/second max     |
| Time 25°C to peak Temperature (T <sub>p</sub> )                |  | 8 minutes max.     |
| Do not exceed  |  | 260°C              |

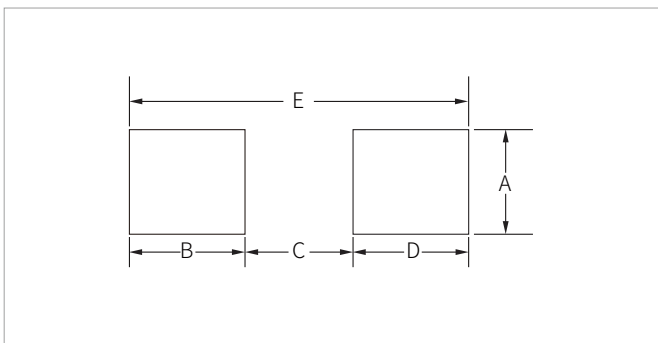


## DO-214AA(SMB) PACKAGE INFORMATION



| Ref. | Millimeters |      | Inches |       |
|------|-------------|------|--------|-------|
|      | Min.        | Max. | Min.   | Max.  |
| A    | 1.80        | 2.20 | 0.071  | 0.087 |
| B    | 4.30        | 4.70 | 0.170  | 0.185 |
| C    | 3.40        | 3.90 | 0.134  | 0.153 |
| D    | 2.15        | 2.75 | 0.085  | 0.108 |
| E    | 1.00        | 1.50 | 0.039  | 0.059 |
| F    | 0.02        | 0.20 | 0.001  | 0.008 |
| G    | 5.10        | 5.50 | 0.200  | 0.216 |
| H    | 0.15        | 0.30 | 0.006  | 0.012 |

## RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters |      | Inches   |       |
|------|-------------|------|----------|-------|
|      | Min.        | Max. | Min.     | Max.  |
| A    | 2.20        | -    | 0.087    | -     |
| B    | 1.45        | -    | 0.057    | -     |
| C    | -           | 2.55 | -        | 0.010 |
| D    | 1.45        | -    | 0.057    | -     |
| E    | 5.60REF     |      | 0.220REF |       |

## ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|-------------|-------------------|----------|-----------|
| ES2AB-ES2KB | DO-214AA(SMB)     | 3000PCS  | 13"       |

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