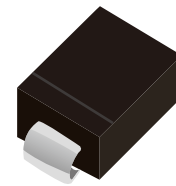
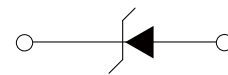


FEATURES

- | Low Power Loss, High Efficiency
- | Ideal For Automated Placement
- | Glass Passivated Junction Chip
- | Fast Switching For High Efficiency
- | Meet AEC-Q101 Requirements



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

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

MAXIMUM RATINGS AND CHARACTERISTICS (T_A=25°C)

| Parameter | Symbol | ES 2AQ | ES 2BQ | ES 2CQ | ES 2DQ | ES 2FQ | ES 2GQ | ES 2HQ | ES 2JQ | ES 2KQ | Unit |
|--|-----------------------------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|------------------|
| Marking | | ES 2AQ | ES 2BQ | ES 2CQ | ES 2DQ | ES 2FQ | ES 2GQ | ES 2HQ | ES 2JQ | ES 2KQ | |
| Repetitive Peak Reverse Voltage | V _{RRM} | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 800 | V |
| Reverse Voltage, Total RMS Value | V _{RMS} | 35 | 70 | 105 | 140 | 210 | 280 | 350 | 420 | 560 | |
| Maximum DC Blocking Voltage | V _{DC} | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 800 | |
| Average Rectified Output Current @60Hz Sine Wave, Resistance Load, TL (Fig.1) | I _O | 2.0 | | | | | | | | | A |
| Forward Surge Current (Non-Repetitive) @60Hz Half-Sine Wave, 1 Cycle, T _J =25°C | I _{FSM} | 50 | | | | | | | | | A |
| Forward Surge Current (Non-repetitive) @1ms, Square Wave, 1 Cycle, T _J =25°C | | 100 | | | | | | | | | |
| Maximum Instantaneous Forward Voltage I _{FM} =2.0A | V _F | 0.95 | | | 1.3 | | 1.7 | | 1.85 | | V |
| Reverse Current @ Rated V _r Per Diode ⁽²⁾ | T _J =25°C | 5 | | | | | | | | | μA |
| | T _J =125°C | 100 | | | | | | | | | |
| Maximum Reverse Recovery Time I _F =0.5A, I _R =1.0A, I _{FF} =0.25A | T _{rr} | 35 | | | | | | | | | ns |
| Typical Junction Capacitance Measured at 1MHz And Applied Reverse Voltage Of 4.0 V.D.C | C _J | 31 | | | 17 | | 12 | | 12 | | pF |
| Current Squared Time @1ms ≤ t ≤ 8.3ms T _J =25°C | I ² t | 10.375 | | | | | | | | | A ² s |
| Operating Junction and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | | | | | | | | | °C |

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

| Parameter | Symbol | ES 2AQ | ES 2BQ | ES 2CQ | ES 2DQ | ES 2FQ | ES 2GQ | ES 2HQ | ES 2JQ | ES 2KQ | 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

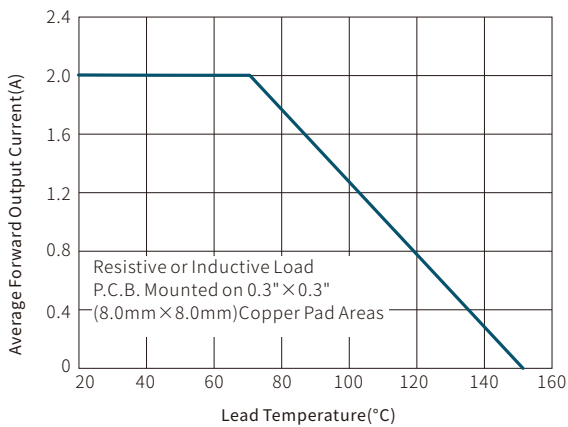


Fig. 2-Surge Forward Current Capability

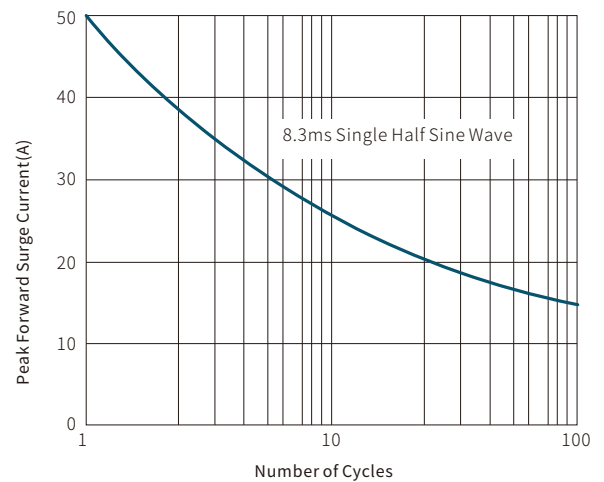
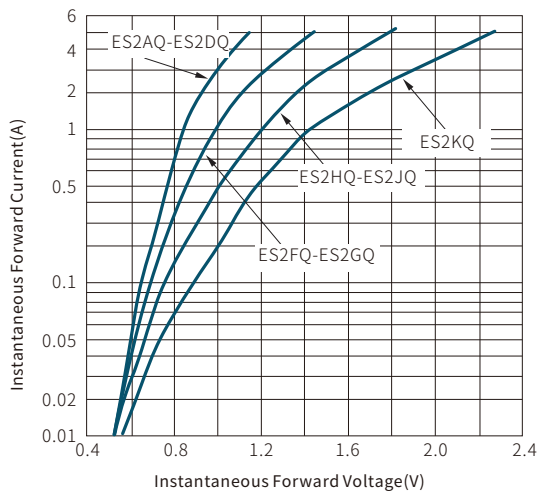
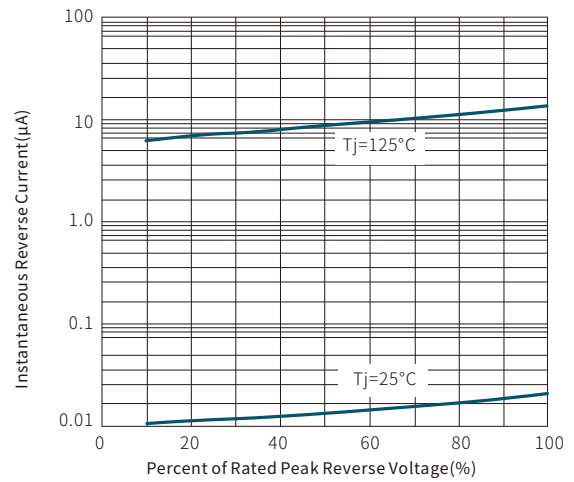
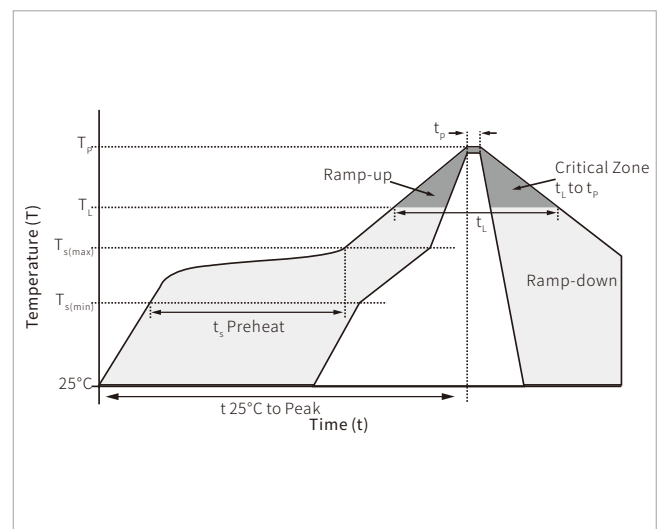


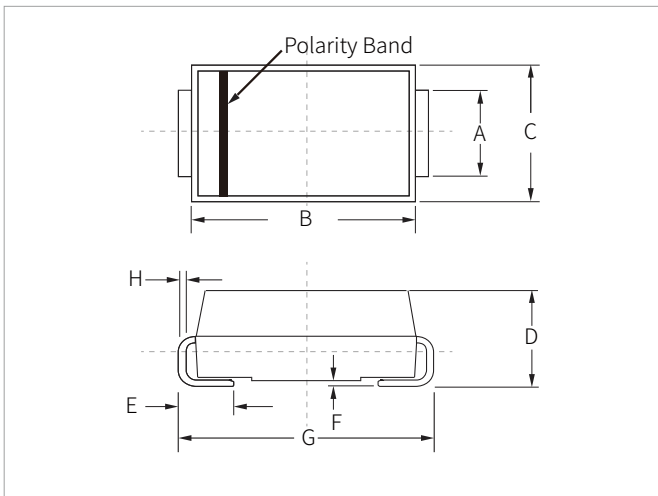
Fig. 3-Typical Forward Voltage

Fig. 4-Typical Reverse Characteristics


SOLDERING PARAMETERS

| Reflow Condition | | Lead-free assembly |
|--|----------------------------------|--------------------|
| Pre Heat | Temperature Max ($T_{s(min)}$) | 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 |

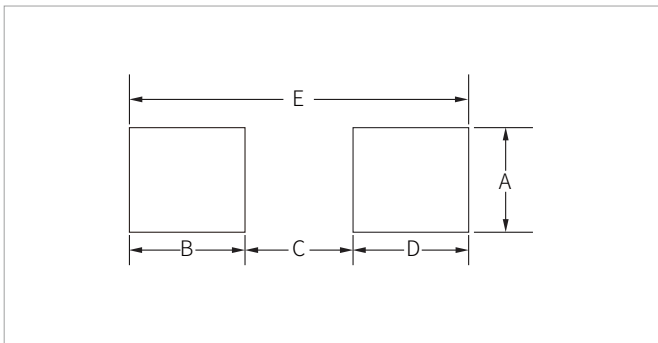


DO-214AA(SMB) PACKAGE INFORMATION



| 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 |
|-------------|-------------------|----------|-----------|
| ES2AQ-ES2KQ | DO-214AA(SMB) | 3000PCS | 13" |

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