



FR3AC THRU FR3MC

3.0 AMP Surface Mount Fast Recovery Rectifier

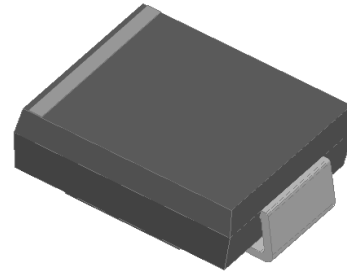
1. Features

- Glass passivated chip junction
- For surface mounted application.
- Low forward voltage drop.
- High current capability.
- Fast switching for fast recovery
- High reliability.
- Meets MSL level 1, per J-STD-020.

2. Mechanical Data

- Case:Molded Plastic,SMC(DO-214AB) .
- Epoxy:UL 94V-0 rate flame retardant.
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking:marked on body.

SMC(DO-214AB)



3. Maximum Ratings and Electrical Characteristics

Electrical Characteristics Rating at 25°C ambient temperature unless otherwise specified.

| PARAMETER | SYMBOL | FR3AC | FR3BC | FR3DC | FR3GC | FR3JC | FR3KC | FR3MC | UNIT |
|--|------------------|------------|-------|-------|-------|-------|-------|-------|------------------|
| Maximum Recurrent Peak Reverse Voltage | VRRM | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum RMS Voltage | VRMS | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Maximum DC Blocking Voltage | VDC | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Average Rectified Output Current @TL=100°C | IF(AV) | 3.0 | | | | | | | A |
| Peak Forward Surge Current 8.3ms @Tj=25°C | IFSM | 110 | | | | | | | A |
| Single half sine-wave superimposed @Tj=125°C on rated load (JEDEC Method) | | 88 | | | | | | | |
| I ² t Rating for Fusing (t < 8.3ms) | I ² t | 50.2 | | | | | | | A ² S |
| Maximum Instantaneous Forward Voltage @IF=3A | VFM | 1.3 | | | | | | | V |
| Maximum DC reverse current @Tj=25°C at rated DC blocking voltage @Tj=125°C | IR | 5.0 | | | | | | | uA |
| | | 100 | | | | | | | |
| Maximum Reverse Recovery Time (Note 1) | T _{RR} | 150 | | | | 250 | 500 | | ns |
| Typical Junction Capacitance (Note 2) | C _j | 40 | | | | 23 | | | pF |
| Typical Thermal Resistance | R _{θJA} | 80 | | | | | | | °C/W |
| | R _{θJL} | 15 | | | | | | | |
| | R _{θJC} | 10 | | | | | | | |
| Operating Temperature Range | T _j | -55 to+150 | | | | | | | °C |
| Storage Temperature Range | T _{STG} | -55 to+150 | | | | | | | °C |

Note:

1. Reverse Recovery Test Conditions:IF=0.5A,IR=1.0A,IRR=0.25A.
2. Measured at 1.0 MHz and Applied reverse Voltage of 4.0V D.C



4. Rating And Characteristic Curves

Fig. 1 Forward Current Derating Curve

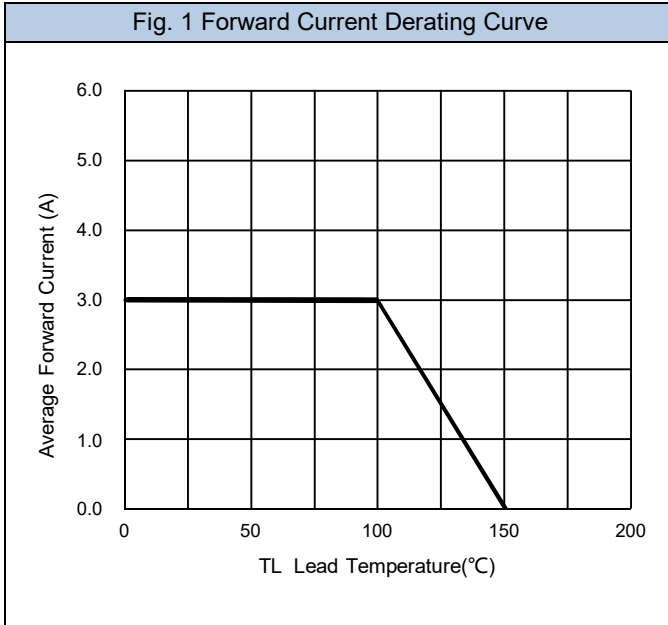


Fig. 2 Typical Forward Characteristics

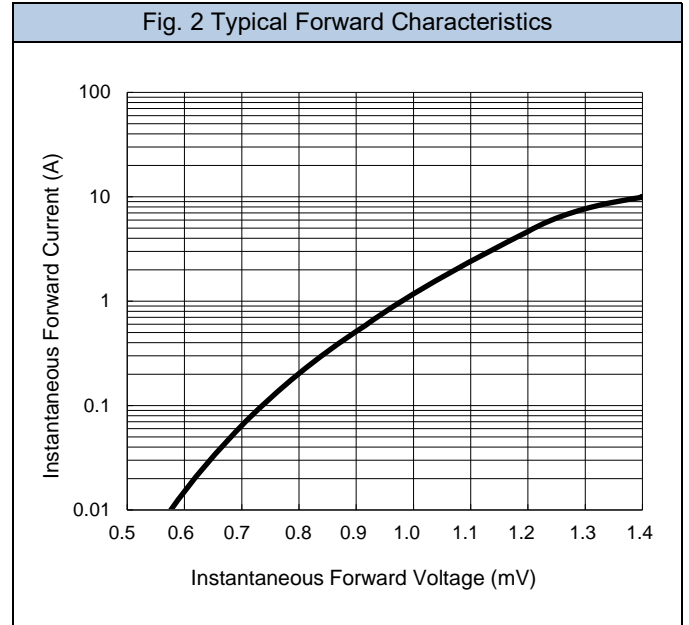


Fig. 3 Forward Surge Current Capability

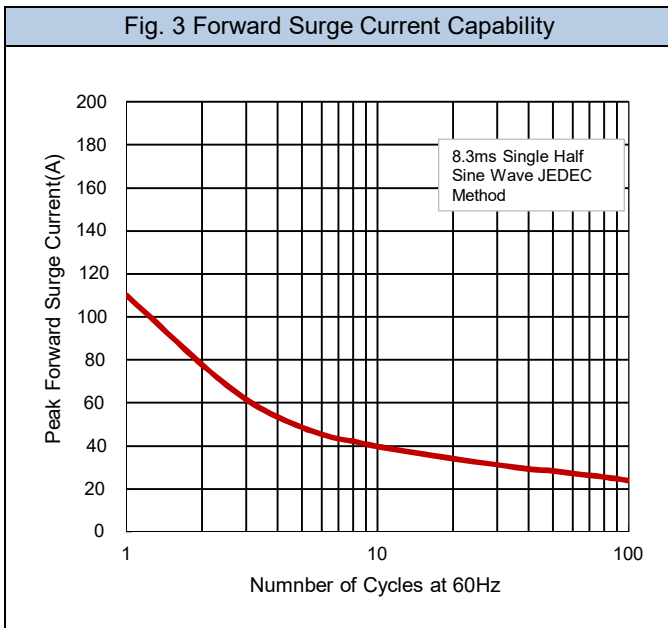
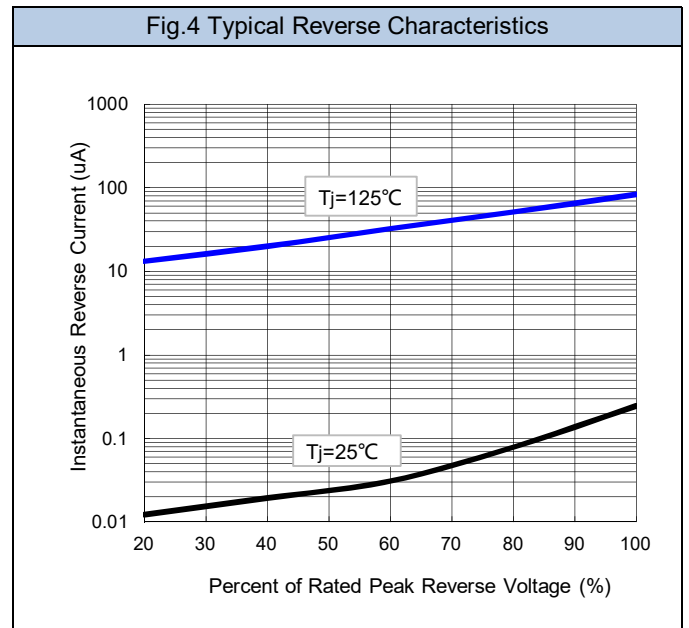


Fig. 4 Typical Reverse Characteristics

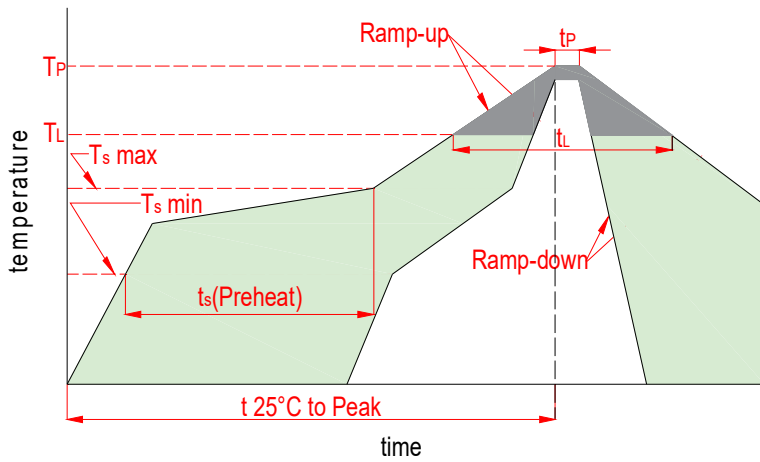




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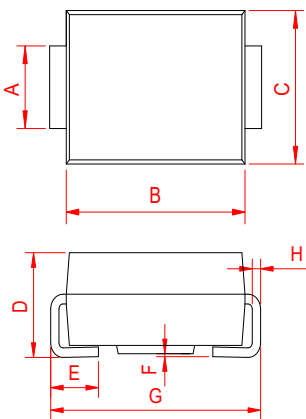
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5. Soldering Parameters



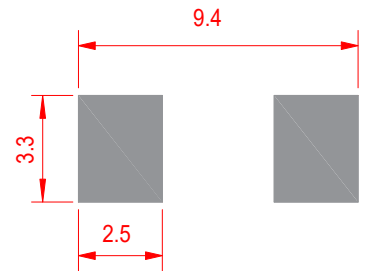
| Reflow Condition | | Lead-free |
|--|---------------------------|-------------------------|
| Pre Heat | Temp. min(T_s (min)) | 150°C |
| | Temp. max(T_s (min)) | 200°C |
| | Time(min to max)(t_s) | 60~120s |
| Aver. ramp up rate(Liquidus Temp.)(T_L)to peak | | 3°C/s max |
| T_s (max) to T_L -Ramp-up Rate | | 3°C/s max |
| Reflow | Temp. (T_L)(Liquidus) | 217°C |
| | Temp. (t_l)(Liquidus) | 60~150s |
| Peak Temp. (T_p) | | 260 ^{+0/-5} °C |
| Time within actual peak Temp. (t_p) | | 30s max |
| Ramp-down Rate | | 6°C/s max |
| Time 25°C to peak Tempe. (T_p) | | 8 minutes max |
| Do not exceed | | 260°C |

6. Dimensions

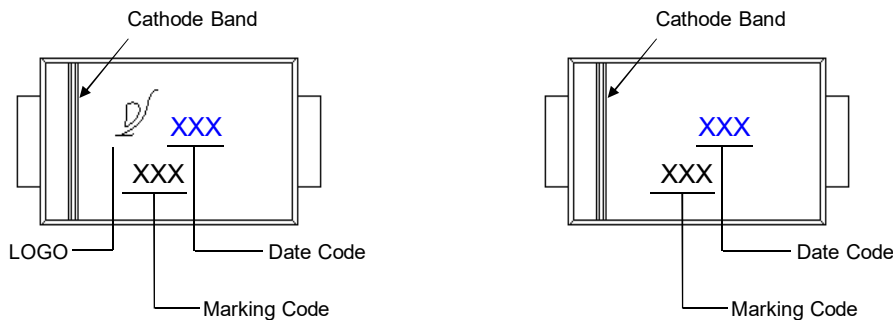


| Dimensions | Inches | | Millimeters | |
|------------|--------|-------|-------------|------|
| | Min | Max | Min | Max |
| A | 0.110 | 0.126 | 2.80 | 3.20 |
| B | 0.260 | 0.280 | 6.60 | 7.11 |
| C | 0.220 | 0.245 | 5.59 | 6.22 |
| D | 0.079 | 0.103 | 2.00 | 2.62 |
| E | 0.039 | 0.063 | 1.00 | 1.60 |
| F | 0.002 | 0.008 | 0.05 | 0.20 |
| G | 0.305 | 0.320 | 7.75 | 8.13 |
| H | 0.006 | 0.014 | 0.15 | 0.35 |

Mounting PAD Layout



7. Part Marking System



8. Package Information

| Package | Tape Width (mm) | Reel Size | | Quantity(pcs) |
|---------------|-----------------|-----------|------|---------------|
| | | mm | inch | |
| SMC(DO-214AB) | 16 | 330 | 13 | 3000 |



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