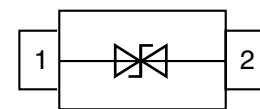


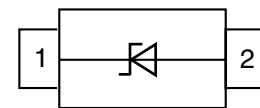
Power TVS in SMAF

Features

- Glass passivated chip
- 600W peak pulse power(10/1000us)
- High accuracy, 5% tolerance
- Uni and Bidirectional unit
- Low clamping voltage
- Low Leakage current
- Very fast response time
- Meet MSL level1, per J-STD-020, LF maximum peak of 260°C
- JESD22-A114-B ESD Voltage:HBM 15KV
- JEDEC EIA/JESD22-C101F ESD Voltage:CDM 500V
- JEDEC EIA/JESD22-A115 ESD Voltage:MM 400V
- ESD-immunity acc. IEC 61000-4-2 ±30KV contact ±30KV air
- Base P/N-HM AEC-Q101 qualified



Bidirectional



Unidirectional

Mechanical Data

- **Case:** SMAF (plastic package).
RoHS compliant
- **Molding Compound Flammability Rating:**
UL 94 V-0
- **Terminals:** High temperature soldering guaranteed:
260 °C/10 sec. at terminals

Applications

- Computers
- Telecom system
- Industrial equipments
- Consumer electronic applications
- Other VCC bus and I/O interfaces

Absolute Maximum Ratings

Ratings at 25 °C, ambient temperature unless otherwise specified

| Parameter | Symbol | Value | Unit |
|---|-----------------------------------|----------------|------|
| Peak pulse power dissipation with a 10/1000us waveform ⁽¹⁾ | P _{PP} | 600 | W |
| Maximum peak reverse pulse current a 10/1000us waveform ⁽¹⁾ | I _{PP} | See Next Table | A |
| Peak forward surge current 8.3ms single half sine-wave ⁽²⁾ | I _{FSM} | 60 | A |
| Maximum instantaneous forward voltage at 25A for unidirectional only ⁽³⁾ | V _F | 3.5/5.0 | V |
| Thermal resistance | R _{θJL} | 30 | °C/W |
| | R _{θJA} | 120 | °C/W |
| Operating junction and storage temperature range | T _J , T _{STG} | -55 to +150 | °C |

Notes:

- 1.Non-repetitive current pulse,per Fig.5 and detated above TA=25°C per Fig.1
- 2.Measured on 8.3ms single half sine-wave,or equivalent square wave,duty cycle=4 pulses per minute maximum
- 3.V_F<3.5V for devices of VBR<200V and V_F<5.0V for devices of VBR>201V

Electrical Characteristics

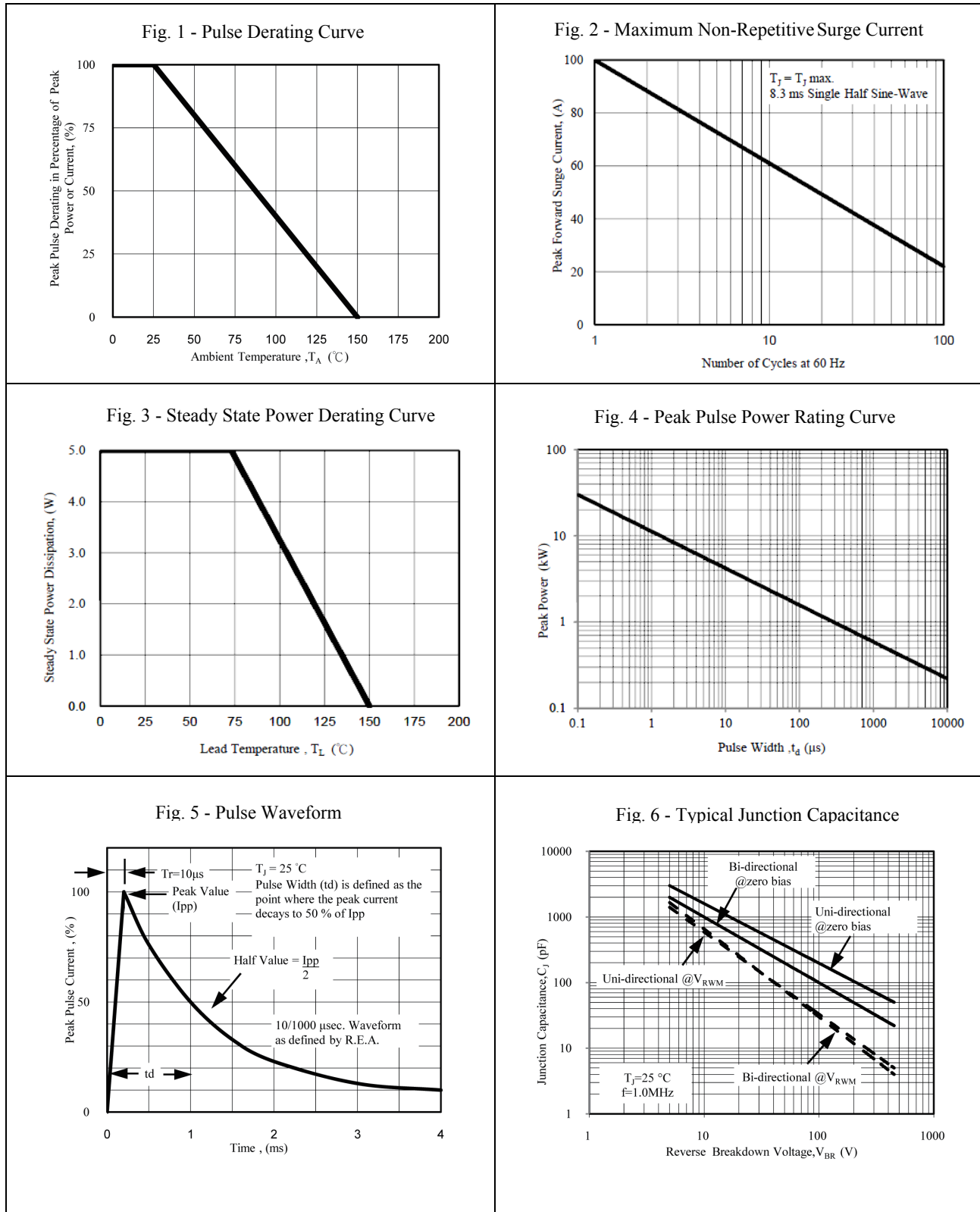
(T_A = 25 °C unless otherwise specified)

| Part Number | Direction | Maximum Working Voltage V _{RWM} (V) | Maximum Reverse Current@V _{RWM} I _R max(μA) | Breakdown Voltage@I _T | | | Peak Surge Current I _{PP} (A) | Maximum Clamping Voltage@I _{PP} V _C (V) |
|-------------|-----------|--|---|----------------------------------|------------------------|---------------------|--|---|
| | | | | V _{BR} min(V) | V _{BR} max(V) | I _T (mA) | | |
| SMAF6J5.0A | Uni-Dir | 5.0 | 400 | 6.4 | 7.07 | 10 | 65.22 | 9.2 |
| SMAF6J5.0CA | Bi-Dir | 5.0 | 800 | 6.4 | 7.07 | 10 | 65.22 | 9.2 |
| SMAF6J6.0A | Uni-Dir | 6.0 | 400 | 6.67 | 7.37 | 10 | 58.25 | 10.3 |
| SMAF6J6.0CA | Bi-Dir | 6.0 | 800 | 6.67 | 7.37 | 10 | 58.25 | 10.3 |
| SMAF6J6.5A | Uni-Dir | 6.5 | 250 | 7.22 | 7.98 | 10 | 53.57 | 11.2 |
| SMAF6J6.5CA | Bi-Dir | 6.5 | 500 | 7.22 | 7.98 | 10 | 53.57 | 11.2 |
| SMAF6J7.0A | Uni-Dir | 7.0 | 100 | 7.78 | 8.60 | 10 | 50.00 | 12.0 |
| SMAF6J7.0CA | Bi-Dir | 7.0 | 200 | 7.78 | 8.60 | 10 | 50.00 | 12.0 |
| SMAF6J7.5A | Uni-Dir | 7.5 | 50 | 8.33 | 9.21 | 1 | 46.51 | 12.9 |
| SMAF6J7.5CA | Bi-Dir | 7.5 | 100 | 8.33 | 9.21 | 1 | 46.51 | 12.9 |
| SMAF6J8.0A | Uni-Dir | 8.0 | 25 | 8.89 | 9.83 | 1 | 44.12 | 13.6 |
| SMAF6J8.0CA | Bi-Dir | 8.0 | 50 | 8.89 | 9.83 | 1 | 44.12 | 13.6 |
| SMAF6J8.5A | Uni-Dir | 8.5 | 5 | 9.44 | 10.40 | 1 | 41.67 | 14.4 |
| SMAF6J8.5CA | Bi-Dir | 8.5 | 10 | 9.44 | 10.40 | 1 | 41.67 | 14.4 |
| SMAF6J9.0A | Uni-Dir | 9.0 | 5 | 10.00 | 11.10 | 1 | 38.96 | 15.4 |
| SMAF6J9.0CA | Bi-Dir | 9.0 | 10 | 10.00 | 11.10 | 1 | 38.96 | 15.4 |
| SMAF6J10A | Uni-Dir | 10.0 | 5 | 11.10 | 12.30 | 1 | 35.29 | 17.0 |
| SMAF6J10CA | Bi-Dir | 10.0 | 10 | 11.10 | 12.30 | 1 | 35.29 | 17.0 |
| SMAF6J11A | Uni-Dir | 11.0 | 1 | 12.20 | 13.50 | 1 | 32.97 | 18.2 |
| SMAF6J11CA | Bi-Dir | 11.0 | 1 | 12.20 | 13.50 | 1 | 32.97 | 18.2 |
| SMAF6J12A | Uni-Dir | 12.0 | 1 | 13.30 | 14.70 | 1 | 30.15 | 19.9 |
| SMAF6J12CA | Bi-Dir | 12.0 | 1 | 13.30 | 14.70 | 1 | 30.15 | 19.9 |
| SMAF6J13A | Uni-Dir | 13.0 | 1 | 14.40 | 15.90 | 1 | 27.91 | 21.5 |
| SMAF6J13CA | Bi-Dir | 13.0 | 1 | 14.40 | 15.90 | 1 | 27.91 | 21.5 |
| SMAF6J14A | Uni-Dir | 14.0 | 1 | 15.60 | 17.20 | 1 | 25.86 | 23.2 |
| SMAF6J14CA | Bi-Dir | 14.0 | 1 | 15.60 | 17.20 | 1 | 25.86 | 23.2 |
| SMAF6J15A | Uni-Dir | 15.0 | 1 | 16.70 | 18.50 | 1 | 24.59 | 24.4 |
| SMAF6J15CA | Bi-Dir | 15.0 | 1 | 16.70 | 18.50 | 1 | 24.59 | 24.4 |
| SMAF6J16A | Uni-Dir | 16.0 | 1 | 17.80 | 19.70 | 1 | 23.08 | 26.0 |
| SMAF6J16CA | Bi-Dir | 16.0 | 1 | 17.80 | 19.70 | 1 | 23.08 | 26.0 |
| SMAF6J17A | Uni-Dir | 17.0 | 1 | 18.90 | 20.90 | 1 | 21.74 | 27.6 |
| SMAF6J17CA | Bi-Dir | 17.0 | 1 | 18.90 | 20.90 | 1 | 21.74 | 27.6 |
| SMAF6J18A | Uni-Dir | 18.0 | 1 | 20.00 | 22.10 | 1 | 20.55 | 29.2 |
| SMAF6J18CA | Bi-Dir | 18.0 | 1 | 20.00 | 22.10 | 1 | 20.55 | 29.2 |
| SMAF6J19A | Uni-Dir | 19.0 | 1 | 21.10 | 23.30 | 1 | 19.49 | 30.8 |
| SMAF6J19CA | Bi-Dir | 19.0 | 1 | 21.10 | 23.30 | 1 | 19.49 | 30.8 |
| SMAF6J20A | Uni-Dir | 20.0 | 1 | 22.20 | 24.50 | 1 | 18.52 | 32.4 |
| SMAF6J20CA | Bi-Dir | 20.0 | 1 | 22.20 | 24.50 | 1 | 18.52 | 32.4 |

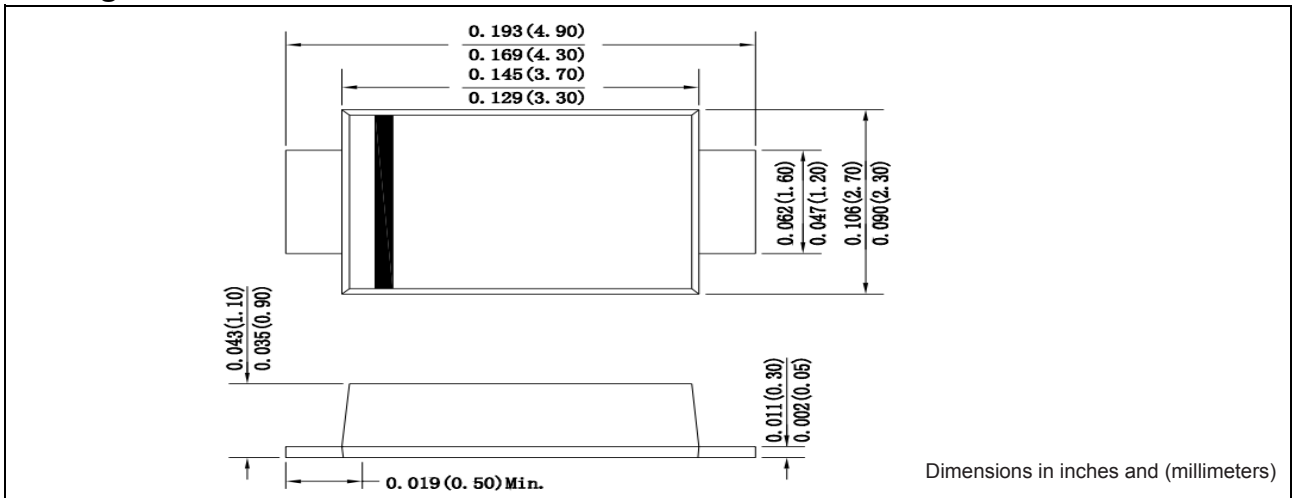
| Part Number | Direction | Maximum Working Voltage V_{RWM} (V) | Maximum Reverse Current@ V_{RWM} I_R max(uA) | Breakdown Voltage@ I_T | | | Peak Surge Current I_{PP} (A) | Maximum Clamping Voltage@ I_{PP} V_C (V) |
|-------------|-----------|---------------------------------------|--|--------------------------|-----------------|------------|---------------------------------|--|
| | | | | V_{BR} min(V) | V_{BR} max(V) | I_T (mA) | | |
| SMAF6J22A | Uni-Dir | 22.0 | 1 | 24.40 | 26.90 | 1 | 16.90 | 35.5 |
| SMAF6J22CA | Bi-Dir | 22.0 | 1 | 24.40 | 26.90 | 1 | 16.90 | 35.5 |
| SMAF6J24A | Uni-Dir | 24.0 | 1 | 26.70 | 29.50 | 1 | 15.42 | 38.9 |
| SMAF6J24CA | Bi-Dir | 24.0 | 1 | 26.70 | 29.50 | 1 | 15.42 | 38.9 |
| SMAF6J26A | Uni-Dir | 26.0 | 1 | 28.90 | 31.90 | 1 | 14.25 | 42.1 |
| SMAF6J26CA | Bi-Dir | 26.0 | 1 | 28.90 | 31.90 | 1 | 14.25 | 42.1 |
| SMAF6J28A | Uni-Dir | 28.0 | 1 | 31.10 | 34.40 | 1 | 13.22 | 45.4 |
| SMAF6J28CA | Bi-Dir | 28.0 | 1 | 31.10 | 34.40 | 1 | 13.22 | 45.4 |
| SMAF6J30A | Uni-Dir | 30.0 | 1 | 33.30 | 36.80 | 1 | 12.40 | 48.4 |
| SMAF6J30CA | Bi-Dir | 30.0 | 1 | 33.30 | 36.80 | 1 | 12.40 | 48.4 |
| SMAF6J33A | Uni-Dir | 33.0 | 1 | 36.70 | 40.60 | 1 | 11.26 | 53.3 |
| SMAF6J33CA | Bi-Dir | 33.0 | 1 | 36.70 | 40.60 | 1 | 11.26 | 53.3 |
| SMAF6J36A | Uni-Dir | 36.0 | 1 | 40.00 | 44.20 | 1 | 10.33 | 58.1 |
| SMAF6J36CA | Bi-Dir | 36.0 | 1 | 40.00 | 44.20 | 1 | 10.33 | 58.1 |
| SMAF6J40A | Uni-Dir | 40.0 | 1 | 44.40 | 49.10 | 1 | 9.30 | 64.5 |
| SMAF6J40CA | Bi-Dir | 40.0 | 1 | 44.40 | 49.10 | 1 | 9.30 | 64.5 |
| SMAF6J43A | Uni-Dir | 43.0 | 1 | 47.80 | 52.80 | 1 | 8.65 | 69.4 |
| SMAF6J43CA | Bi-Dir | 43.0 | 1 | 47.80 | 52.80 | 1 | 8.65 | 69.4 |
| SMAF6J45A | Uni-Dir | 45.0 | 1 | 50.00 | 55.30 | 1 | 8.25 | 72.7 |
| SMAF6J45CA | Bi-Dir | 45.0 | 1 | 50.00 | 55.30 | 1 | 8.25 | 72.7 |
| SMAF6J48A | Uni-Dir | 48.0 | 1 | 53.30 | 58.90 | 1 | 7.75 | 77.4 |
| SMAF6J48CA | Bi-Dir | 48.0 | 1 | 53.30 | 58.90 | 1 | 7.75 | 77.4 |
| SMAF6J51A | Uni-Dir | 51.0 | 1 | 56.70 | 62.70 | 1 | 7.28 | 82.4 |
| SMAF6J51CA | Bi-Dir | 51.0 | 1 | 56.70 | 62.70 | 1 | 7.28 | 82.4 |
| SMAF6J54A | Uni-Dir | 54.0 | 1 | 60.00 | 66.30 | 1 | 6.89 | 87.1 |
| SMAF6J54CA | Bi-Dir | 54.0 | 1 | 60.00 | 66.30 | 1 | 6.89 | 87.1 |
| SMAF6J58A | Uni-Dir | 58.0 | 1 | 64.40 | 71.20 | 1 | 6.41 | 93.6 |
| SMAF6J58CA | Bi-Dir | 58.0 | 1 | 64.40 | 71.20 | 1 | 6.41 | 93.6 |
| SMAF6J60A | Uni-Dir | 60.0 | 1 | 66.70 | 73.70 | 1 | 6.20 | 96.8 |
| SMAF6J60CA | Bi-Dir | 60.0 | 1 | 66.70 | 73.70 | 1 | 6.20 | 96.8 |
| SMAF6J64A | Uni-Dir | 64.0 | 1 | 71.10 | 78.60 | 1 | 5.83 | 103.0 |
| SMAF6J64CA | Bi-Dir | 64.0 | 1 | 71.10 | 78.60 | 1 | 5.83 | 103.0 |
| SMAF6J70A | Uni-Dir | 70.0 | 1 | 77.80 | 86.00 | 1 | 5.31 | 113.0 |
| SMAF6J70CA | Bi-Dir | 70.0 | 1 | 77.80 | 86.00 | 1 | 5.31 | 113.0 |
| SMAF6J75A | Uni-Dir | 75.0 | 1 | 83.30 | 92.10 | 1 | 4.96 | 121.0 |
| SMAF6J75CA | Bi-Dir | 75.0 | 1 | 83.30 | 92.10 | 1 | 4.96 | 121.0 |
| SMAF6J78A | Uni-Dir | 78.0 | 1 | 86.70 | 95.80 | 1 | 4.76 | 126.0 |
| SMAF6J78CA | Bi-Dir | 78.0 | 1 | 86.70 | 95.80 | 1 | 4.76 | 126.0 |

| Part Number | Direction | Maximum Working Voltage V_{RWM} (V) | Maximum Reverse Current@ V_{RWM} I_R max(μ A) | Breakdown Voltage@ I_T | | | Peak Surge Current I_{PP} (A) | Maximum Clamping Voltage@ I_{PP} V_C (V) |
|-------------|-----------|--|---|--------------------------|-----------------|------------|------------------------------------|---|
| | | | | V_{BR} min(V) | V_{BR} max(V) | I_T (mA) | | |
| SMAF6J80A | Uni-Dir | 80.0 | 1 | 88.80 | 97.60 | 1 | 4.63 | 129.6 |
| SMAF6J80CA | Bi-Dir | 80.0 | 1 | 88.80 | 97.60 | 1 | 4.63 | 129.6 |
| SMAF6J85A | Uni-Dir | 85.0 | 1 | 94.40 | 104.00 | 1 | 4.38 | 137.0 |
| SMAF6J85CA | Bi-Dir | 85.0 | 1 | 94.40 | 104.00 | 1 | 4.38 | 137.0 |
| SMAF6J90A | Uni-Dir | 90.0 | 1 | 100.00 | 111.00 | 1 | 4.11 | 146.0 |
| SMAF6J90CA | Bi-Dir | 90.0 | 1 | 100.00 | 111.00 | 1 | 4.11 | 146.0 |
| SMAF6J100A | Uni-Dir | 100.0 | 1 | 111.00 | 123.00 | 1 | 3.70 | 162.0 |
| SMAF6J100CA | Bi-Dir | 100.0 | 1 | 111.00 | 123.00 | 1 | 3.70 | 162.0 |
| SMAF6J110A | Uni-Dir | 110.0 | 1 | 122.00 | 135.00 | 1 | 3.39 | 177.0 |
| SMAF6J110CA | Bi-Dir | 110.0 | 1 | 122.00 | 135.00 | 1 | 3.39 | 177.0 |
| SMAF6J120A | Uni-Dir | 120.0 | 1 | 133.00 | 147.00 | 1 | 3.11 | 193.0 |
| SMAF6J120CA | Bi-Dir | 120.0 | 1 | 133.00 | 147.00 | 1 | 3.11 | 193.0 |
| SMAF6J130A | Uni-Dir | 130.0 | 1 | 144.00 | 159.00 | 1 | 2.87 | 209.0 |
| SMAF6J130CA | Bi-Dir | 130.0 | 1 | 144.00 | 159.00 | 1 | 2.87 | 209.0 |
| SMAF6J140A | Uni-Dir | 140.0 | 1 | 155.00 | 171.00 | 1 | 2.65 | 226.8 |
| SMAF6J140CA | Bi-Dir | 140.0 | 1 | 155.00 | 171.00 | 1 | 2.65 | 226.8 |
| SMAF6J150A | Uni-Dir | 150.0 | 1 | 167.00 | 185.00 | 1 | 2.47 | 243.0 |
| SMAF6J150CA | Bi-Dir | 150.0 | 1 | 167.00 | 185.00 | 1 | 2.47 | 243.0 |
| SMAF6J160A | Uni-Dir | 160.0 | 1 | 178.00 | 197.00 | 1 | 2.32 | 259.0 |
| SMAF6J160CA | Bi-Dir | 160.0 | 1 | 178.00 | 197.00 | 1 | 2.32 | 259.0 |
| SMAF6J170A | Uni-Dir | 170.0 | 1 | 189.00 | 209.00 | 1 | 2.18 | 275.0 |
| SMAF6J170CA | Bi-Dir | 170.0 | 1 | 189.00 | 209.00 | 1 | 2.18 | 275.0 |
| SMAF6J180A | Uni-Dir | 180.0 | 1 | 200.00 | 220.00 | 1 | 2.06 | 291.6 |
| SMAF6J180CA | Bi-Dir | 180.0 | 1 | 200.00 | 220.00 | 1 | 2.06 | 291.6 |
| SMAF6J190A | Uni-Dir | 190.0 | 1 | 211.00 | 232.00 | 1 | 1.95 | 307.8 |
| SMAF6J190CA | Bi-Dir | 190.0 | 1 | 211.00 | 232.00 | 1 | 1.95 | 307.8 |
| SMAF6J200A | Uni-Dir | 200.0 | 1 | 224.00 | 247.00 | 1 | 1.85 | 324.0 |
| SMAF6J200CA | Bi-Dir | 200.0 | 1 | 224.00 | 247.00 | 1 | 1.85 | 324.0 |

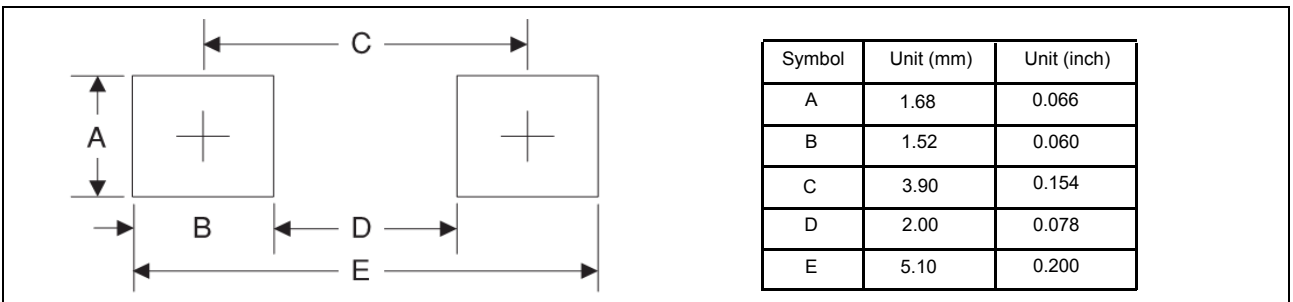
Typical Characteristics ($T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)



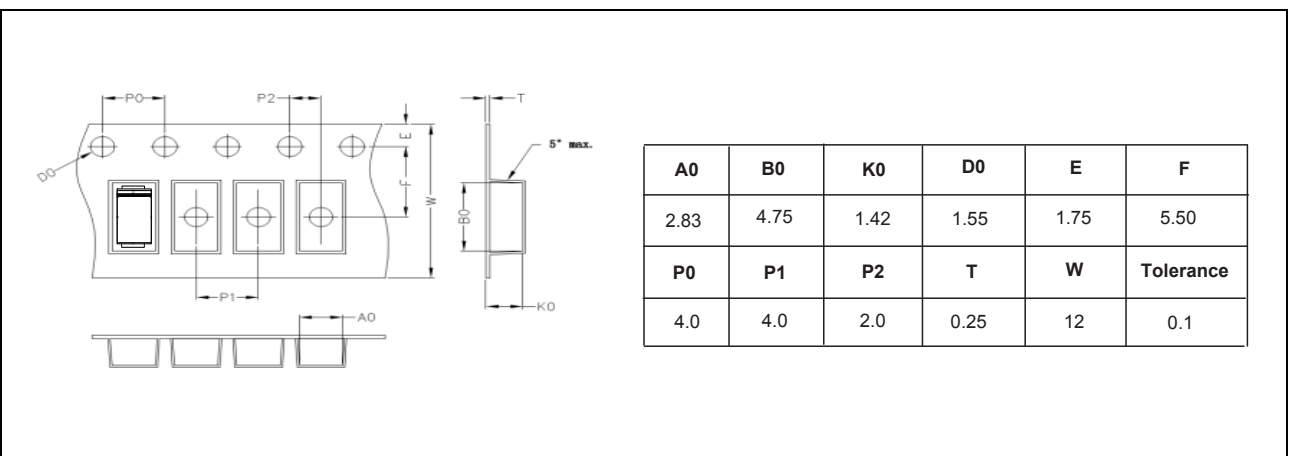
Package Dimensions



PAD Dimensions



Packing Information



Ordering information

| Order code | Package | Packaging option | Base quantity | Packaging specification |
|---------------|---------|------------------|----------------|-------------------------|
| SMAF6J Series | SMAF | Tape and reel | 3000pcs / reel | EIA STD RS-481 |

Revision history

| Date | Revision | Changes |
|-------------|----------|-----------------|
| 23-May-2020 | 1.0 | Initial release |

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