

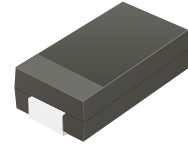
SMAJ5.0(C)A-HF Thru. SMAJ440(C)A-HF

Working Peak Reverse Voltage: 5.0 to 440 Volts

Power Dissipation: 400 Watts

RoHS Device

Halogen Free

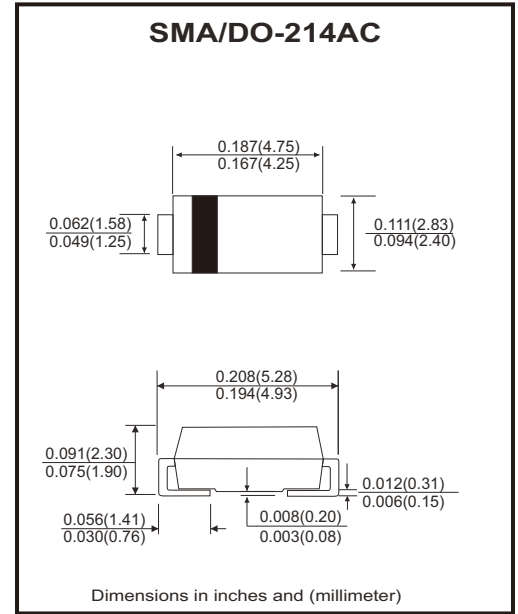


Features

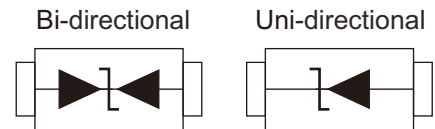
- 400W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01%
- For surface mounted applications to optimize board space
- Low incremental surge impedance
- Excellent clamping capability
- Very fast response time
- Uni and Bidirectional unit
- Plastic package has underwriters laboratory flammability 94V-0
- Meet Halogen free and RoHS compliant

Mechanical data

- Case: SMA/DO-214AC, molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes positive end (cathode) bi-directional models



Circuit Diagram



Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz resistive or inductive load. For capacitive load, derate current by 20%.

| Characteristics | Symbol | Value | Units |
|---|-----------------------------------|----------------|-------|
| Peak power dissipation on a 10/1000 μ s waveform (Note 1) | P _{PP} | 400 | W |
| Peak pulse current on a 10/1000 μ s waveform (Note 1) | I _{PP} | See Next Table | A |
| Steady state power dissipation at T _L =50°C | P _D | 1.0 | W |
| Peak forward surge current, 8.3ms single half sine-wave uni-directional only (Note 2) | I _{FSM} | 40 | A |
| Maximum instantaneous forward voltage at 25 A for uni-directional only | V _F | 3.5/5.0 | V |
| Operation junction and storage temperature range | T _J , T _{STG} | -55 to +150 | °C |

- Notes: 1. Non-repetitive current pulse, and derated above T_A=25°C
2. Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal
3. V_F<3.5V for devices of V_{BR}<200V and V_F<5.0V for devices of V_{BR}>201V

Electrical Characteristics (at TA=25°C, unless otherwise specified)

| Part No. | Breakdown voltage V _{BR} @ I _T | | | Maximum Reverse Leakage @V _{RWM} I _R (μA) | Working Peak Reverse Voltage V _{RWM} (V) | Maximum Reverse Surge Current I _{PP} (A) | Maximum Clamping Voltage @I _{PP} V _C (V) | Marking Code | |
|----------------|---|----------|---------------------|---|--|--|--|--------------|----|
| | Min. (V) | Max. (V) | I _T (mA) | | | | | UNI | BI |
| SMAJ5.0(C)A-HF | 6.40 | 7.25 | 10 | 800 | 5.0 | 43.5 | 9.2 | AE | WE |
| SMAJ6.0(C)A-HF | 6.67 | 7.37 | 10 | 800 | 6.0 | 38.8 | 10.3 | AG | WG |
| SMAJ6.5(C)A-HF | 7.22 | 7.98 | 10 | 500 | 6.5 | 35.7 | 11.2 | AK | WK |
| SMAJ7.0(C)A-HF | 7.78 | 8.60 | 10 | 200 | 7.0 | 33.3 | 12.0 | AM | WM |
| SMAJ7.5(C)A-HF | 8.33 | 9.21 | 1 | 100 | 7.5 | 31.0 | 12.9 | AP | WP |
| SMAJ8.0(C)A-HF | 8.89 | 9.83 | 1 | 50 | 8.0 | 29.4 | 13.6 | AR | WR |
| SMAJ8.5(C)A-HF | 9.44 | 10.40 | 1 | 10 | 8.5 | 27.8 | 14.4 | AT | WT |
| SMAJ9.0(C)A-HF | 10.00 | 11.10 | 1 | 5 | 9.0 | 26.0 | 15.4 | AV | WV |
| SMAJ10(C)A-HF | 11.10 | 12.30 | 1 | 5 | 10.0 | 23.5 | 17.0 | AX | WX |
| SMAJ11(C)A-HF | 12.20 | 13.50 | 1 | 5 | 11.0 | 22.0 | 18.2 | AZ | WZ |
| SMAJ12(C)A-HF | 13.30 | 14.70 | 1 | 5 | 12.0 | 20.1 | 19.9 | BE | XE |
| SMAJ13(C)A-HF | 14.40 | 15.90 | 1 | 5 | 13.0 | 18.6 | 21.5 | BG | XG |
| SMAJ14(C)A-HF | 15.60 | 17.20 | 1 | 5 | 14.0 | 17.2 | 23.2 | BK | XK |
| SMAJ15(C)A-HF | 16.70 | 18.50 | 1 | 5 | 15.0 | 16.4 | 24.4 | BM | XM |
| SMAJ16(C)A-HF | 17.80 | 19.70 | 1 | 5 | 16.0 | 15.4 | 26.0 | BP | XP |
| SMAJ17(C)A-HF | 18.90 | 20.90 | 1 | 5 | 17.0 | 14.5 | 27.6 | BR | XR |
| SMAJ18(C)A-HF | 20.00 | 22.10 | 1 | 5 | 18.0 | 13.7 | 29.2 | BT | XT |
| SMAJ20(C)A-HF | 22.20 | 24.50 | 1 | 5 | 20.0 | 12.3 | 32.4 | BV | XV |
| SMAJ22(C)A-HF | 24.40 | 26.90 | 1 | 5 | 22.0 | 11.3 | 35.5 | BX | XX |
| SMAJ24(C)A-HF | 26.70 | 29.50 | 1 | 5 | 24.0 | 10.3 | 38.9 | BZ | XZ |
| SMAJ26(C)A-HF | 28.90 | 31.90 | 1 | 5 | 26.0 | 9.5 | 42.1 | CE | YE |
| SMAJ28(C)A-HF | 31.10 | 34.40 | 1 | 5 | 28.0 | 8.8 | 45.4 | CG | YG |
| SMAJ30(C)A-HF | 33.30 | 36.80 | 1 | 5 | 30.0 | 8.3 | 48.4 | CK | YK |
| SMAJ33(C)A-HF | 36.70 | 40.60 | 1 | 5 | 33.0 | 7.5 | 53.3 | CM | YM |
| SMAJ36(C)A-HF | 40.00 | 44.20 | 1 | 5 | 36.0 | 6.9 | 58.1 | CP | YP |
| SMAJ40(C)A-HF | 44.40 | 49.10 | 1 | 5 | 40.0 | 6.2 | 64.5 | CR | YR |
| SMAJ43(C)A-HF | 47.80 | 52.80 | 1 | 5 | 43.0 | 5.8 | 69.4 | CT | YT |
| SMAJ45(C)A-HF | 50.00 | 55.30 | 1 | 5 | 45.0 | 5.5 | 72.7 | CV | YV |
| SMAJ48(C)A-HF | 53.30 | 58.90 | 1 | 5 | 48.0 | 5.2 | 77.4 | CX | YX |
| SMAJ51(C)A-HF | 56.70 | 62.70 | 1 | 5 | 51.0 | 4.9 | 82.4 | CZ | YZ |
| SMAJ54(C)A-HF | 60.00 | 66.30 | 1 | 5 | 54.0 | 4.6 | 87.1 | RE | ZE |
| SMAJ58(C)A-HF | 64.40 | 71.20 | 1 | 5 | 58.0 | 4.3 | 93.6 | RG | ZG |
| SMAJ60(C)A-HF | 66.70 | 73.70 | 1 | 5 | 60.0 | 4.1 | 96.8 | RK | ZK |
| SMAJ64(C)A-HF | 71.10 | 78.60 | 1 | 5 | 64.0 | 3.9 | 103.0 | RM | ZM |
| SMAJ70(C)A-HF | 77.80 | 86.00 | 1 | 5 | 70.0 | 3.5 | 113.0 | RP | ZP |
| SMAJ75(C)A-HF | 83.30 | 92.10 | 1 | 5 | 75.0 | 3.3 | 121.0 | RR | ZR |
| SMAJ78(C)A-HF | 86.70 | 95.80 | 1 | 5 | 78.0 | 3.2 | 126.0 | RT | ZT |
| SMAJ85(C)A-HF | 94.40 | 104.00 | 1 | 5 | 85.0 | 2.9 | 137.0 | RV | ZV |
| SMAJ90(C)A-HF | 100.00 | 111.00 | 1 | 5 | 90.0 | 2.7 | 146.0 | RX | ZX |
| SMAJ100(C)A-HF | 111.00 | 123.00 | 1 | 5 | 100.0 | 2.4 | 162.0 | RZ | ZZ |

Electrical Characteristics (at TA=25°C, unless otherwise specified)

| Part No. | Breakdown voltage V _{BR} @ I _T | | | Maximum Reverse Leakage @V _{RWM} I _R (μA) | Working Peak Reverse Voltage V _{RWM} (V) | Maximum Reverse Surge Current I _{PP} (A) | Maximum Clamping Voltage @I _{PP} V _C (V) | Marking Code | |
|----------------|---|-------------|------------------------|---|---|---|--|-----------------|----|
| | Min. (V) | Max. (V) | I _T (mA) | | | | | UNI | BI |
| SMAJ110(C)A-HF | 122.0 | 135.0 | 1 | 5 | 110.0 | 2.2 | 177.0 | SE | VE |
| SMAJ120(C)A-HF | 133.0 | 147.0 | 1 | 5 | 120.0 | 2.1 | 193.0 | SG | VG |
| SMAJ130(C)A-HF | 144.0 | 159.0 | 1 | 5 | 130.0 | 1.9 | 209.0 | SK | VK |
| SMAJ150(C)A-HF | 167.0 | 185.0 | 1 | 5 | 150.0 | 1.6 | 243.0 | SM | VM |
| SMAJ160(C)A-HF | 178.0 | 197.0 | 1 | 5 | 160.0 | 1.5 | 259.0 | SP | VP |
| SMAJ170(C)A-HF | 189.0 | 209.0 | 1 | 5 | 170.0 | 1.4 | 275.0 | SR | VR |
| SMAJ180(C)A-HF | 200.0 | 220.0 | 1 | 5 | 180.0 | 1.3 | 291.6 | ST | VT |
| SMAJ200(C)A-HF | 224.0 | 247.0 | 1 | 1 | 200.0 | 1.2 | 324.0 | SV | VV |
| SMAJ220(C)A-HF | 246.0 | 272.0 | 1 | 1 | 220.0 | 1.1 | 356.0 | SX | VX |
| SMAJ250(C)A-HF | 279.0 | 309.0 | 1 | 1 | 250.0 | 1.0 | 405.0 | SZ | VZ |
| SMAJ300(C)A-HF | 335.0 | 371.0 | 1 | 1 | 300.0 | 0.8 | 486.0 | TE | UE |
| SMAJ350(C)A-HF | 391.0 | 432.0 | 1 | 1 | 350.0 | 0.7 | 567.0 | TG | UG |
| SMAJ400(C)A-HF | 447.0 | 494.0 | 1 | 1 | 400.0 | 0.6 | 648.0 | TK | UK |
| SMAJ440(C)A-HF | 492.0 | 543.0 | 1 | 1 | 440.0 | 0.6 | 713.0 | TM | UM |

Rating and Characteristic Curves (SMAJ5.0(C)A-HF Thru. SMAJ440(C)A-HF)

Fig.1 - Pulse Derating Curve

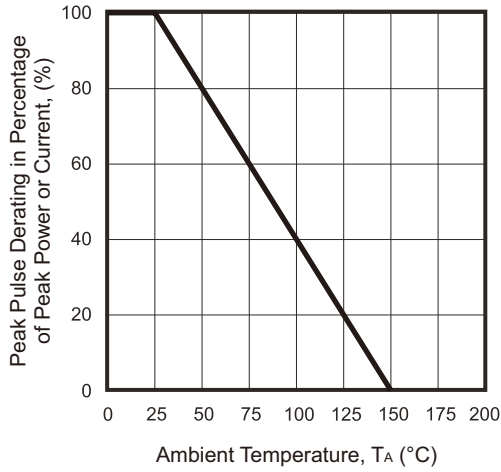


Fig.2 - Maximum Non-Repetitive Surge Current

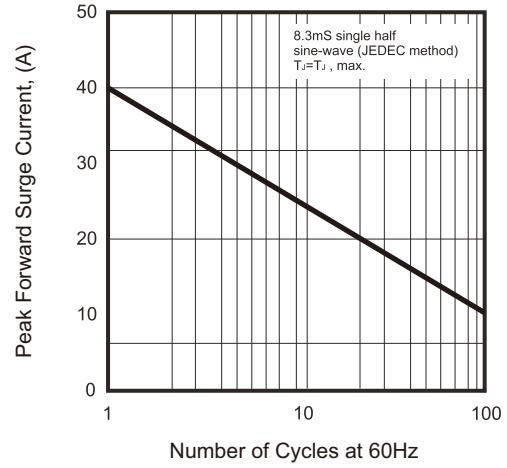


Fig.3 - Steady State Power Derating Curve

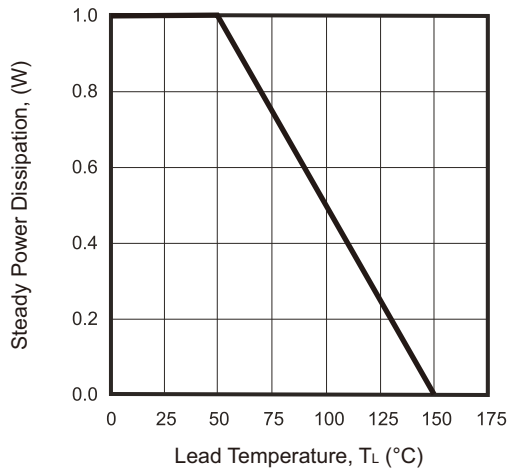


Fig.4 - Peak Pulse Power Rating Curve

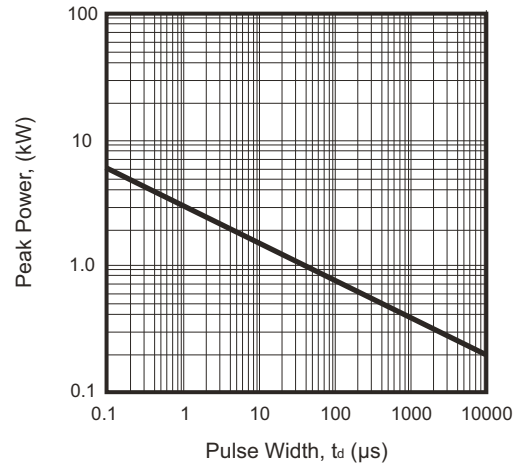
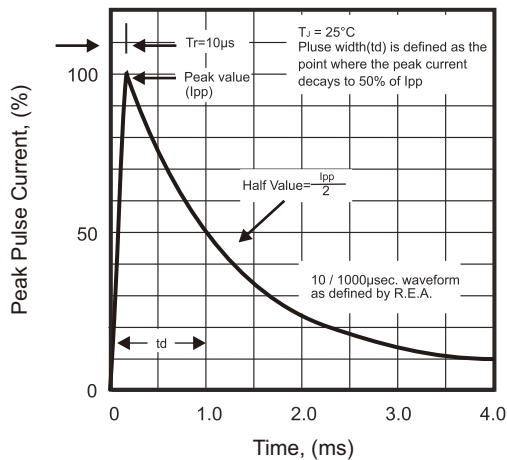
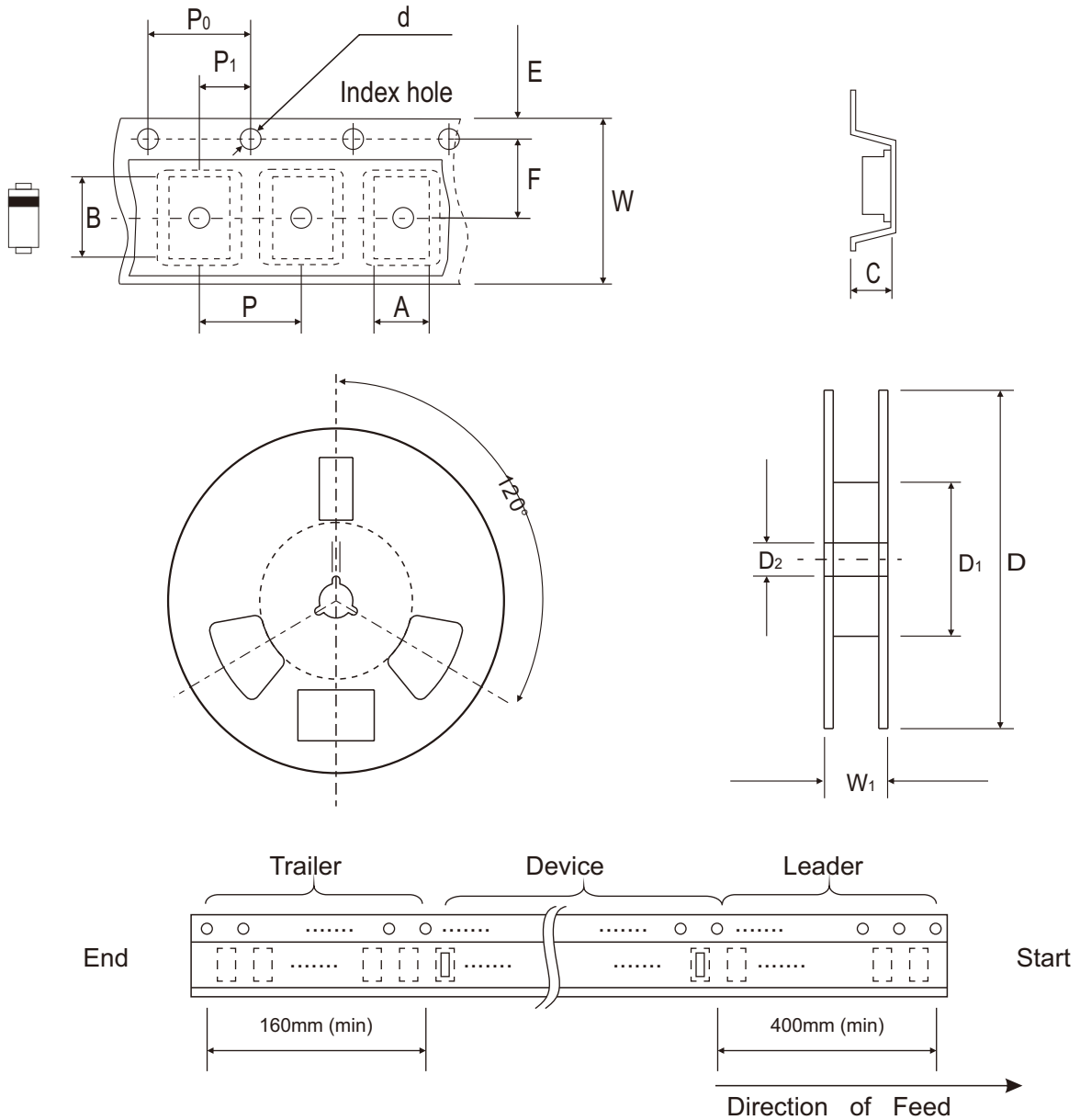


Fig.5 - Pulse Waveform



Reel Taping Specification



| SMA/DO-214AC | SYMBOL | A | B | C | d | D | D1 | D2 |
|--------------|--------|---------------|---------------|-------------|---------------|----------|------------|---------------|
| | (mm) | 2.79 ± 0.10 | 5.33 ± 0.10 | 4.50 (max) | 1.75 ± 0.10 | 330MAX | 50.0 MIN. | 13.0 ± 0.2 |
| | (inch) | 0.110 ± 0.004 | 0.210 ± 0.004 | 0.177 (max) | 0.069 ± 0.004 | 13.00MAX | 1.969 MIN. | 0.512 ± 0.008 |

| SMA/DO-214AC | SYMBOL | E | F | P | P0 | P1 | W | W1 |
|--------------|--------|---------------|---------------|---------------|---------------|---------------|---------------|------------|
| | (mm) | 1.75 ± 0.10 | 5.50 ± 0.05 | 4.00 ± 0.10 | 4.00 ± 0.10 | 2.00 ± 0.05 | 12.0 ± 0.30 | 18.4 MAX. |
| | (inch) | 0.069 ± 0.004 | 0.216 ± 0.002 | 0.157 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.472 ± 0.012 | 0.724 MAX. |

Company reserves the right to improve product design , functions and reliability without notice. REV:A