

P4SMFH Series-HAF

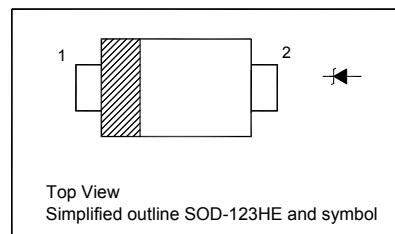
Surface Mount Transient Voltage Suppressors

Features

- Excellent clamping capability
- Low incremental surge resistance
- Very fast response time
- Halogen and Antimony Free(HAF), RoHS compliant

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | Cathode |
| 2 | Anode |



Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--|----------------|----------------------|------------------|
| Peak Pulse Power Dissipation with a 10/1000 μs Waveform ¹⁾ | P_{PPM} | Min. 400 | W |
| ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact) | V_{ESD} | ± 20 ± 20 | KV |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC Method) ²⁾ | I_{FSM} | 40 | A |
| Maximum Instantaneous Forward Voltage (Unidirectional only) at 25 A | V_F | 3.5 | V |
| Operating Junction and Storage Temperature Range | T_j, T_{stg} | - 55 to + 150 | $^\circ\text{C}$ |

¹⁾ Non-repetitive current pulse and derated above $T_a = 25^\circ\text{C}$.

²⁾ Mounted on copper lead area at 5 mm^2 (0.013 mm thick).

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Electrical Characteristics ($T_a = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

| Type | Marking Code | Stand-off Voltage V_{WM} (V) | Breakdown Voltage ¹⁾ | | Test Current I_T (mA) | Maximum Clamping Voltage | V_C (V) at I_{PPM} Maximum Peak Pulse Current I_{PPM} (A) Maximum Reverse | Leakage I_D (μA) at V_{WM} |
|------------|--------------|-----------------------------------|---------------------------------|-------------------------------|----------------------------|--------------------------|--|--|
| | | | V_{BR} (V) Min. at I_T | V_{BR} (V) Max. at I_T | | | | |
| P4SMF5.0AH | GA1 | 5 | 6.4 | 7.07 | 10 | 9.2 | 43.5 | 800 |
| P4SMF6.0AH | GB1 | 6 | 6.67 | 7.37 | 10 | 10.3 | 38.8 | 800 |
| P4SMF6.5AH | GC1 | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 35.7 | 500 |
| P4SMF7.0AH | GD1 | 7 | 7.78 | 8.6 | 10 | 12 | 33.3 | 200 |
| P4SMF7.5AH | GE1 | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 31 | 100 |
| P4SMF8.0AH | GF1 | 8 | 8.89 | 9.83 | 1 | 13.6 | 29.4 | 50 |
| P4SMF8.5AH | GG1 | 8.5 | 9.44 | 10.4 | 1 | 14.4 | 27.8 | 10 |
| P4SMF9.0AH | GH1 | 9 | 10 | 11.1 | 1 | 15.4 | 26 | 5 |
| P4SMF10AH | GJ1 | 10 | 11.1 | 12.3 | 1 | 17 | 23.5 | 1 |
| P4SMF11AH | GK1 | 11 | 12.2 | 13.5 | 1 | 18.2 | 22 | 1 |
| P4SMF12AH | GL1 | 12 | 13.3 | 14.7 | 1 | 19.9 | 20.1 | 1 |
| P4SMF13AH | GM1 | 13 | 14.4 | 15.9 | 1 | 21.5 | 18.6 | 1 |
| P4SMF14AH | GN1 | 14 | 15.6 | 17.2 | 1 | 23.2 | 17.2 | 1 |
| P4SMF15AH | GP1 | 15 | 16.7 | 18.5 | 1 | 24.4 | 16.4 | 1 |
| P4SMF16AH | GQ1 | 16 | 17.8 | 19.7 | 1 | 26 | 15.4 | 1 |
| P4SMF17AH | GR1 | 17 | 18.9 | 20.9 | 1 | 27.6 | 14.5 | 1 |
| P4SMF18AH | GS1 | 18 | 20 | 22.1 | 1 | 29.2 | 13.7 | 1 |
| P4SMF20AH | GT1 | 20 | 22.2 | 24.5 | 1 | 32.4 | 12.3 | 1 |
| P4SMF22AH | GU1 | 22 | 24.4 | 26.9 | 1 | 35.5 | 11.3 | 1 |
| P4SMF24AH | GV1 | 24 | 26.7 | 29.5 | 1 | 38.9 | 10.3 | 1 |
| P4SMF26AH | GW1 | 26 | 28.9 | 31.9 | 1 | 42.1 | 9.5 | 1 |
| P4SMF28AH | GX1 | 28 | 31.1 | 34.4 | 1 | 45.4 | 8.8 | 1 |
| P4SMF30AH | GY1 | 30 | 33.3 | 36.8 | 1 | 48.4 | 8.3 | 1 |
| P4SMF33AH | GZ1 | 33 | 36.7 | 40.6 | 1 | 53.3 | 7.5 | 1 |
| P4SMF36AH | HA1 | 36 | 40 | 44.2 | 1 | 58.1 | 6.9 | 1 |
| P4SMF40AH | HB1 | 40 | 44.4 | 49.1 | 1 | 64.5 | 6.2 | 1 |
| P4SMF43AH | HC1 | 43 | 47.8 | 52.8 | 1 | 69.4 | 5.8 | 1 |
| P4SMF45AH | HD1 | 45 | 50 | 55.3 | 1 | 72.7 | 5.5 | 1 |
| P4SMF48AH | HE1 | 48 | 53.3 | 58.9 | 1 | 77.4 | 5.2 | 1 |
| P4SMF51AH | HF1 | 51 | 56.7 | 62.7 | 1 | 82.4 | 4.9 | 1 |
| P4SMF54AH | HG1 | 54 | 60 | 66.3 | 1 | 87.1 | 4.6 | 1 |
| P4SMF58AH | HH1 | 58 | 64.4 | 71.2 | 1 | 93.6 | 4.3 | 1 |
| P4SMF60AH | HJ1 | 60 | 66.7 | 73.7 | 1 | 96.8 | 4.1 | 1 |
| P4SMF64AH | HK1 | 64 | 71.1 | 78.6 | 1 | 103 | 3.9 | 1 |
| P4SMF70AH | HL1 | 70 | 77.8 | 86 | 1 | 113 | 3.5 | 1 |
| P4SMF75AH | HM1 | 75 | 83.3 | 92.1 | 1 | 121 | 3.3 | 1 |
| P4SMF78AH | HN1 | 78 | 86.7 | 95.8 | 1 | 126 | 3.2 | 1 |
| P4SMF85AH | HP1 | 85 | 94.4 | 104 | 1 | 137 | 2.2 | 1 |
| P4SMF90AH | HQ1 | 90 | 100 | 111 | 1 | 146 | 2.1 | 1 |
| P4SMF100AH | HR1 | 100 | 111 | 123 | 1 | 162 | 1.9 | 1 |
| P4SMF110AH | HS1 | 110 | 122 | 135 | 1 | 177 | 1.7 | 1 |
| P4SMF120AH | HT1 | 120 | 133 | 147 | 1 | 193 | 1.6 | 1 |
| P4SMF130AH | HU1 | 130 | 144 | 159 | 1 | 209 | 1.4 | 1 |
| P4SMF150AH | HV1 | 150 | 167 | 185 | 1 | 243 | 1.2 | 1 |
| P4SMF160AH | HW1 | 160 | 178 | 197 | 1 | 259 | 1.2 | 1 |
| P4SMF170AH | HX1 | 170 | 189 | 209 | 1 | 275 | 1.09 | 1 |
| P4SMF180AH | HY1 | 180 | 201 | 222 | 1 | 292 | 1.4 | 1 |
| P4SMF188AH | HZ1 | 188 | 209 | 231 | 1 | 328 | 0.91 | 1 |

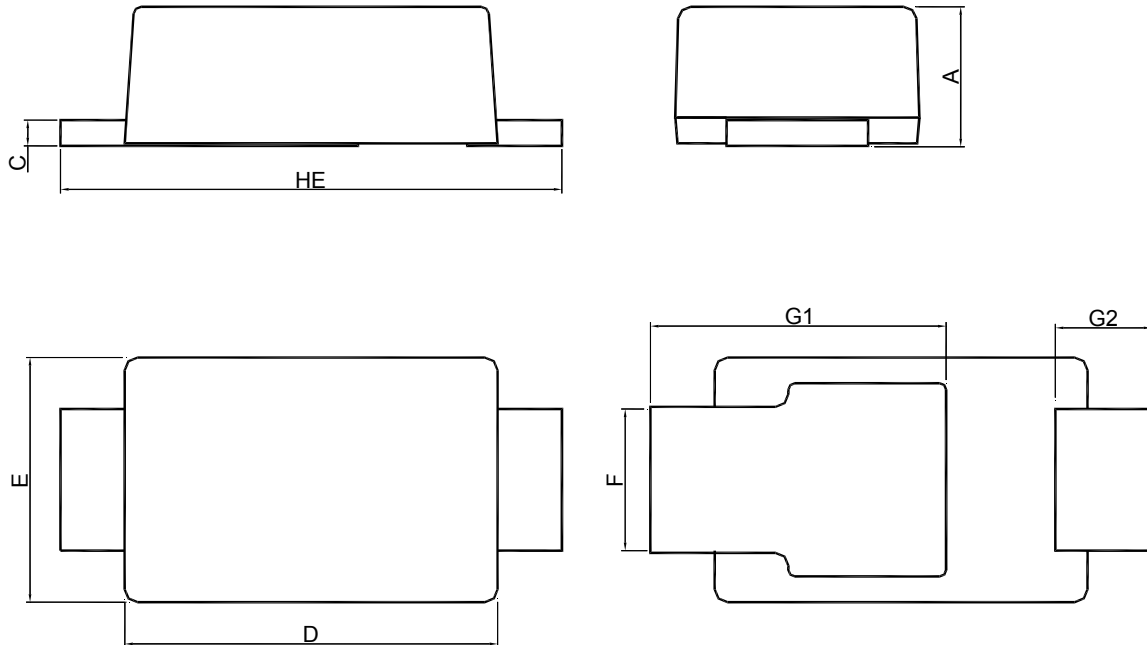
¹⁾ V_{BR} measured after I_T applied for 300 μs square wave pulse or equivalent.

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PACKAGE OUTLINE

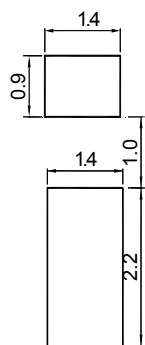
Plastic surface mounted package; 2 leads

SOD-123HE



| UNIT | A | C | D | E | F | G1 | G2 | H _E |
|------|--------------|------------|------------|------------|------------|------------|--------------|----------------|
| mm | 1.08 0.88 | 0.2 0.1 | 2.9 2.6 | 1.9 1.7 | 1.1 0.8 | 2.3 1.9 | 0.75 0.55 | 3.9 3.5 |

RECOMMENDED SOLDERING FOOTPRINT



Packing information

| Package | Tape Width (mm) | Pitch | | Reel Size | | Per Reel Packing Quantity |
|-----------|-----------------|---------|---------------|-----------|------|---------------------------|
| | | mm | inch | mm | inch | |
| SOD-123HE | 8 | 4 ± 0.1 | 0.157 ± 0.004 | 178 | 7 | 3,000 |

TOP DYNAMIC