



**THE DATASHEET OF  
SMC3K58CAHM3/9A**





**Surface Mount TRANSZORB® Transient Voltage Suppressors**



SMC (DO-214AB)



**LINKS TO ADDITIONAL RESOURCES**



| PRIMARY CHARACTERISTICS |                  |
|-------------------------|------------------|
| V <sub>BR</sub>         | 24.4 V to 95.8 V |
| V <sub>WM</sub>         | 22 V to 78 V     |
| P <sub>PPM</sub>        | 3000 W           |
| T <sub>J</sub> max.     | 150 °C           |
| Polarity                | Bidirectional    |
| Package                 | SMC (DO-214AB)   |

**FEATURES**

- Available in bidirectional polarity only
- 3000 W peak pulse power capability with a (10/1000 μs) waveform
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Not recommended for PCB bottom side wave mounting
- AEC-Q101 qualified
- UL recognition for safety 497B with file number E136766
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**TYPICAL APPLICATIONS**

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive and telecommunication.

**MECHANICAL DATA**

**Case:** SMC (DO-214AB)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

**Polarity:** no marking on bidirectional types

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                   |                |      |
|---|-----------------------------------|----------------|------|
| PARAMETER   | SYMBOL                            | VALUE          | UNIT |
| Peak pulse power dissipation with a 10/1000 μs waveform         | P <sub>PPM</sub> <sup>(1)</sup>   | 3000           | W    |
| Peak pulse current with a 10/1000 μs waveform                   | I <sub>PPM</sub> <sup>(1)</sup>   | See next table | A    |
| Operating junction and storage temperature range                | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150    | °C   |

**Note**

<sup>(1)</sup> Non-repetitive current pulse and derated above T<sub>A</sub> = 25 °C



# SMC3K22CA thru SMC3K78CA

Vishay General Semiconductor

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                     |  |      |                                  |                                       |  |   |   |
|--|---------------------|--|------|----------------------------------|---------------------------------------|--|---|---|
| DEVICE TYPE  | DEVICE MARKING CODE | BREAKDOWN VOLTAGE V <sub>BR</sub> <sup>(1)</sup> (V) AT I <sub>T</sub> |      | TEST CURRENT I <sub>T</sub> (mA) | STAND-OFF VOLTAGE V <sub>WM</sub> (V) | MAXIMUM REVERSE LEAKAGE AT V <sub>WM</sub> I <sub>D</sub> (μA) | MAX. PEAK PULSE SURGE CURRENT I <sub>PPM</sub> <sup>(2)</sup> (A) | MAXIMUM CLAMPING VOLTAGE AT I <sub>PPM</sub> V <sub>C</sub> (V) |
|  |                     | MIN.   | MAX. |                                  |                                       |  |   |   |
| SMC3K22CA  | 3BEX                | 24.4   | 26.9 | 1.0                              | 22                                    | 2.0  | 84.5  | 35.5  |
| SMC3K24CA  | 3BEZ                | 26.7   | 29.5 | 1.0                              | 24                                    | 2.0  | 77.1  | 38.9  |
| SMC3K26CA  | 3BFE                | 28.9   | 31.9 | 1.0                              | 26                                    | 2.0  | 71.3  | 42.1  |
| SMC3K28CA  | 3BFG                | 31.1   | 34.4 | 1.0                              | 28                                    | 2.0  | 66.1  | 45.4  |
| SMC3K30CA  | 3BFK                | 33.3   | 36.8 | 1.0                              | 30                                    | 2.0  | 62.0  | 48.4  |
| SMC3K33CA  | 3BFM                | 36.7   | 40.6 | 1.0                              | 33                                    | 2.0  | 56.3  | 53.3  |
| SMC3K36CA  | 3BFP                | 40.0   | 44.2 | 1.0                              | 36                                    | 2.0  | 51.6  | 58.1  |
| SMC3K40CA  | 3BFR                | 44.4   | 49.1 | 1.0                              | 40                                    | 2.0  | 46.5  | 64.5  |
| SMC3K43CA  | 3BFT                | 47.8   | 52.8 | 1.0                              | 43                                    | 2.0  | 43.2  | 69.4  |
| SMC3K45CA  | 3GFV                | 50.0   | 55.3 | 1.0                              | 45                                    | 2.0  | 41.3  | 72.7  |
| SMC3K48CA  | 3GFX                | 53.3   | 58.9 | 1.0                              | 48                                    | 2.0  | 38.8  | 77.4  |
| SMC3K51CA  | 3GFZ                | 56.7   | 62.7 | 1.0                              | 51                                    | 2.0  | 36.4  | 82.4  |
| SMC3K54CA  | 3GGE                | 60.0   | 66.3 | 1.0                              | 54                                    | 2.0  | 34.4  | 87.1  |
| SMC3K58CA  | 3GGG                | 64.4   | 71.2 | 1.0                              | 58                                    | 2.0  | 32.1  | 93.6  |
| SMC3K60CA  | 3GGK                | 66.7   | 73.7 | 1.0                              | 60                                    | 2.0  | 31.0  | 96.8  |
| SMC3K64CA  | 3GGM                | 71.1   | 78.6 | 1.0                              | 64                                    | 2.0  | 29.1  | 103   |
| SMC3K70CA  | 3GGP                | 77.8   | 86.0 | 1.0                              | 70                                    | 2.0  | 26.5  | 113   |
| SMC3K75CA  | 3GGR                | 83.3   | 92.1 | 1.0                              | 75                                    | 2.0  | 24.8  | 121   |
| SMC3K78CA  | 3GGT                | 86.7   | 95.8 | 1.0                              | 78                                    | 2.0  | 23.8  | 126   |

**Notes**

- (1) Pulse test: t<sub>p</sub> ≤ 50 ms
- (2) Surge current waveform per fig. 3 and derated per fig.2
- (3) All terms and symbols are consistent with ANSI/IEEE C62.35

| ORDERING INFORMATION (Example) |                 |                        |               |                                    |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| SMC3K22CA-M3/57                | 0.257           | 57                     | 850           | 7" diameter plastic tape and reel  |
| SMC3K22CA-M3/9A                | 0.257           | 9A                     | 3500          | 13" diameter plastic tape and reel |
| SMC3K22CAHM3/57 <sup>(1)</sup> | 0.257           | 57                     | 850           | 7" diameter plastic tape and reel  |
| SMC3K22CAHM3/9A <sup>(1)</sup> | 0.257           | 9A                     | 3500          | 13" diameter plastic tape and reel |

**Note**

- (1) AEC-Q101 qualified



**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)



Fig. 1 - Peak Pulse Power Derating Curve



Fig. 3 - Pulse Waveform



Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature



Fig. 4 - Typical Junction Capacitance

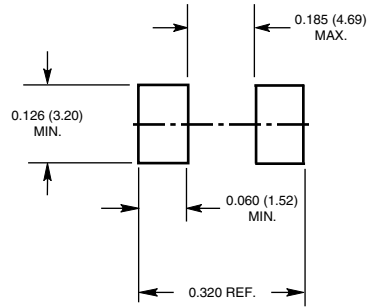


**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**SMC (DO-214AB)**



**Mounting Pad Layout**





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