



THE DATASHEET OF SMCJ1.5KE160A-TP



| | |
|---|----------------|
|  | E480232 |
|---|----------------|

Features

- For Surface Mount Application in Order to Optimize Board Space
- Fast Response Time: Typical Less Than 1.0ps From 0 Volts to V_{BR} Minimum
- Low Inductance
- Low Profile Package
- Excellent Clamping Capability
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note2) ("P" Suffix Designates Compliant. See Ordering Information)
- For Bidirectional Devices Add "C" To The Suffix of The Part Number: i.e.SMCJ1.5KE6.8CA for 5% Tolerance

Mechanical Data

- Polarity: Color Band Denotes Positive End(Cathode) Except Bi-directional Types
- Maximum Soldering Temperature: 260 °C for 10 Seconds
- Terminals: Solderable Per MIL-STD-750, Method 2026

Maximum Ratings

- Operating Junction Temperature Range: -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Typical Thermal Resistance: 15°C/W Junction to Lead
- Typical Thermal Resistance: 75°C/W Junction to Ambient

Electrical Characteristics @ 25°C Unless Otherwise Specified

| | | | |
|---|-----------|---------------|----------|
| Peak Pulse Power Surge Current on 10/1000µs Waveform | I_{PP} | See the Table | Note 3 |
| Peak Pulse Power Dissipation | P_{PP} | 1500W(Min) | Note 3,4 |
| Peak Forward Surge Current,8.3 ms single half sine-wave unidirectional only | I_{FSM} | 200A | |

Note:

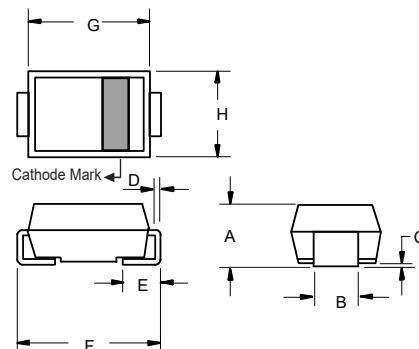
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemption Applied, see EU Directive Annex 7a.
3. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^\circ\text{C}$ per Fig.4.
4. Mounted on 8.0mm² copper pads to each terminal.

Pin Configuration:



1500 Watt TVS 6.8 to 550 Volts

SMC (DO-214AB) (LEAD FRAME)



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|-------|-------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.079 | 0.103 | 2.00 | 2.62 | |
| B | 0.108 | 0.128 | 2.75 | 3.25 | |
| C | 0.002 | 0.008 | 0.051 | 0.203 | |
| D | 0.006 | 0.012 | 0.152 | 0.305 | |
| E | 0.030 | 0.060 | 0.76 | 1.52 | |
| F | 0.305 | 0.320 | 7.75 | 8.13 | |
| G | 0.260 | 0.280 | 6.60 | 7.11 | |
| H | 0.220 | 0.245 | 5.59 | 6.22 | |

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

| MCC Part Number | Reverse Stand-Off Voltage | Breakdown Voltage $V_{BR}(V)$ | | Test Current | Max. Clamping Voltage @ I_{PP} | Peak Pulse Current | Reverse Leakage Current @ V_{WM} | Marking Code |
|-----------------|---------------------------|-------------------------------|--------|--------------|----------------------------------|--------------------|------------------------------------|--------------|
| | | Min | Max | | | | | |
| Uni-directional | $V_{WM}(V)$ | | | $I_T(mA)$ | $V_C(V)$ | $I_{PP}(A)$ | $I_D(\mu A)$ | |
| SMCJ1.5KE6.8A | 5.80 | 6.45 | 7.14 | 10 | 10.5 | 144.8 | 1000 | 6V8A |
| SMCJ1.5KE7.5A | 6.40 | 7.13 | 7.88 | 10 | 11.3 | 134.5 | 500 | 7V5A |
| SMCJ1.5KE8.2A | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 125.6 | 200 | 8V2A |
| SMCJ1.5KE9.1A | 7.78 | 8.65 | 9.55 | 1 | 13.4 | 113.4 | 50 | 9V1A |
| SMCJ1.5KE10A | 8.55 | 9.50 | 10.50 | 1 | 14.5 | 104.8 | 10 | 10A |
| SMCJ1.5KE11A | 9.40 | 10.50 | 11.60 | 1 | 15.6 | 97.4 | 5 | 11A |
| SMCJ1.5KE12A | 10.20 | 11.40 | 12.60 | 1 | 16.7 | 91.0 | 5 | 12A |
| SMCJ1.5KE13A | 11.10 | 12.40 | 13.70 | 1 | 18.2 | 83.5 | 5 | 13A |
| SMCJ1.5KE15A | 12.80 | 14.30 | 15.80 | 1 | 21.2 | 71.7 | 5 | 15A |
| SMCJ1.5KE16A | 13.60 | 15.20 | 16.80 | 1 | 22.5 | 67.6 | 5 | 16A |
| SMCJ1.5KE18A | 15.30 | 17.10 | 18.90 | 1 | 25.5 | 60.3 | 5 | 18A |
| SMCJ1.5KE20A | 17.10 | 19.00 | 21.00 | 1 | 27.7 | 54.9 | 5 | 20A |
| SMCJ1.5KE22A | 18.80 | 20.90 | 23.10 | 1 | 30.6 | 49.7 | 5 | 22A |
| SMCJ1.5KE24A | 20.50 | 22.80 | 25.20 | 1 | 33.2 | 45.8 | 5 | 24A |
| SMCJ1.5KE27A | 23.10 | 25.70 | 28.40 | 1 | 37.5 | 40.5 | 5 | 27A |
| SMCJ1.5KE30A | 25.60 | 28.50 | 31.50 | 1 | 41.4 | 36.7 | 5 | 30A |
| SMCJ1.5KE33A | 28.20 | 31.40 | 34.70 | 1 | 45.7 | 33.3 | 5 | 33A |
| SMCJ1.5KE36A | 30.80 | 34.20 | 37.80 | 1 | 49.9 | 30.5 | 5 | 36A |
| SMCJ1.5KE39A | 33.30 | 37.10 | 41.00 | 1 | 53.9 | 28.2 | 5 | 39A |
| SMCJ1.5KE43A | 36.80 | 40.90 | 45.20 | 1 | 59.3 | 25.6 | 5 | 43A |
| SMCJ1.5KE47A | 40.20 | 44.70 | 49.40 | 1 | 64.8 | 23.5 | 5 | 47A |
| SMCJ1.5KE51A | 43.60 | 48.50 | 53.60 | 1 | 70.1 | 21.7 | 5 | 51A |
| SMCJ1.5KE56A | 47.80 | 53.20 | 58.80 | 1 | 77.0 | 19.7 | 5 | 56A |
| SMCJ1.5KE62A | 53.00 | 58.90 | 65.10 | 1 | 85.0 | 17.9 | 5 | 62A |
| SMCJ1.5KE68A | 58.10 | 64.60 | 71.40 | 1 | 92.0 | 16.5 | 5 | 68A |
| SMCJ1.5KE75A | 64.10 | 71.30 | 78.80 | 1 | 103.0 | 14.8 | 5 | 75A |
| SMCJ1.5KE82A | 70.10 | 77.90 | 86.10 | 1 | 113.0 | 13.5 | 5 | 82A |
| SMCJ1.5KE91A | 77.80 | 86.50 | 95.50 | 1 | 125.0 | 12.2 | 5 | 91A |
| SMCJ1.5KE100A | 85.50 | 95.00 | 105.00 | 1 | 137.0 | 11.1 | 5 | 100A |
| SMCJ1.5KE110A | 94.00 | 105.00 | 116.00 | 1 | 152.0 | 10.0 | 5 | 110A |
| SMCJ1.5KE120A | 102.00 | 114.00 | 126.00 | 1 | 165.0 | 9.2 | 5 | 120A |
| SMCJ1.5KE130A | 111.00 | 124.00 | 137.00 | 1 | 179.0 | 8.5 | 5 | 130A |
| SMCJ1.5KE150A | 128.00 | 143.00 | 158.00 | 1 | 207.0 | 7.3 | 5 | 150A |
| SMCJ1.5KE160A | 136.00 | 152.00 | 168.00 | 1 | 219.0 | 6.9 | 5 | 160A |
| SMCJ1.5KE170A | 145.00 | 162.00 | 179.00 | 1 | 234.0 | 6.5 | 5 | 170A |
| SMCJ1.5KE180A | 154.00 | 171.00 | 189.00 | 1 | 246.0 | 6.2 | 5 | 180A |
| SMCJ1.5KE200A | 171.00 | 190.00 | 210.00 | 1 | 274.0 | 5.5 | 5 | 200A |
| SMCJ1.5KE220A | 185.00 | 209.00 | 231.00 | 1 | 328.0 | 4.6 | 5 | 220A |
| SMCJ1.5KE250A | 214.00 | 237.00 | 263.00 | 1 | 344.0 | 4.4 | 5 | 250A |
| SMCJ1.5KE300A | 256.00 | 285.00 | 315.00 | 1 | 414.0 | 3.7 | 5 | 300A |
| SMCJ1.5KE350A | 300.00 | 332.00 | 368.00 | 1 | 482.0 | 3.2 | 5 | 350A |
| SMCJ1.5KE400A | 342.00 | 380.00 | 420.00 | 1 | 548.0 | 2.8 | 5 | 400A |
| SMCJ1.5KE440A | 376.00 | 418.00 | 462.00 | 1 | 602.0 | 2.5 | 5 | 440A |
| SMCJ1.5KE480A | 408.00 | 456.00 | 504.00 | 1 | 658.0 | 2.3 | 5 | 480A |
| SMCJ1.5KE510A | 434.00 | 485.00 | 535.00 | 1 | 698.0 | 2.1 | 5 | 510A |
| SMCJ1.5KE530A | 459.00 | 503.50 | 556.50 | 1 | 725.0 | 2.1 | 5 | 530A |
| SMCJ1.5KE540A | 477.00 | 513.00 | 567.00 | 1 | 740.0 | 2.0 | 5 | 540A |
| SMCJ1.5KE550A | 495.00 | 522.50 | 577.50 | 1 | 760.0 | 2.0 | 5 | 550A |

1. For Bi-directional type having V_{WM} of 10 volts and less, the I_R limit is double.
2. The available parts are "A" type only, the parts without A (V_{BR} is $\pm 10\%$) is not available.

Electrical Characteristics @ 25°C Unless Otherwise Specified

| MCC Part Number | Reverse Stand-Off Voltage | Breakdown Voltage $V_{BR}(V)$ | | Test Current | Max. Clamping Voltage @ I_{PP} | Peak Pulse Current | Reverse Leakage Current @ V_{WM} | Marking Code |
|-----------------|---------------------------|-------------------------------|--------|--------------|----------------------------------|--------------------|------------------------------------|--------------|
| | | Min | Max | | | | | |
| Bi-directional | $V_{WM}(V)$ | | | $I_T(mA)$ | $V_C(V)$ | $I_{PP}(A)$ | $I_D(\mu A)$ | |
| SMCJ1.5KE6.8CA | 5.80 | 6.45 | 7.14 | 10 | 10.5 | 144.8 | 1000 | 6V8C |
| SMCJ1.5KE7.5CA | 6.40 | 7.13 | 7.88 | 10 | 11.3 | 134.5 | 500 | 7V5C |
| SMCJ1.5KE8.2CA | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 125.6 | 200 | 8V2C |
| SMCJ1.5KE9.1CA | 7.78 | 8.65 | 9.55 | 1 | 13.4 | 113.4 | 50 | 9V1C |
| SMCJ1.5KE10CA | 8.55 | 9.50 | 10.50 | 1 | 14.5 | 104.8 | 10 | 10C |
| SMCJ1.5KE11CA | 9.40 | 10.50 | 11.60 | 1 | 15.6 | 97.4 | 5 | 11C |
| SMCJ1.5KE12CA | 10.20 | 11.40 | 12.60 | 1 | 16.7 | 91.0 | 5 | 12C |
| SMCJ1.5KE13CA | 11.10 | 12.40 | 13.70 | 1 | 18.2 | 83.5 | 5 | 13C |
| SMCJ1.5KE15CA | 12.80 | 14.30 | 15.80 | 1 | 21.2 | 71.7 | 5 | 15C |
| SMCJ1.5KE16CA | 13.60 | 15.20 | 16.80 | 1 | 22.5 | 67.6 | 5 | 16C |
| SMCJ1.5KE18CA | 15.30 | 17.10 | 18.90 | 1 | 25.5 | 60.3 | 5 | 18C |
| SMCJ1.5KE20CA | 17.10 | 19.00 | 21.00 | 1 | 27.7 | 54.9 | 5 | 20C |
| SMCJ1.5KE22CA | 18.80 | 20.90 | 23.10 | 1 | 30.6 | 49.7 | 5 | 22C |
| SMCJ1.5KE24CA | 20.50 | 22.80 | 25.20 | 1 | 33.2 | 45.8 | 5 | 24C |
| SMCJ1.5KE27CA | 23.10 | 25.70 | 28.40 | 1 | 37.5 | 40.5 | 5 | 27C |
| SMCJ1.5KE30CA | 25.60 | 28.50 | 31.50 | 1 | 41.4 | 36.7 | 5 | 30C |
| SMCJ1.5KE33CA | 28.20 | 31.40 | 34.70 | 1 | 45.7 | 33.3 | 5 | 33C |
| SMCJ1.5KE36CA | 30.80 | 34.20 | 37.80 | 1 | 49.9 | 30.5 | 5 | 36C |
| SMCJ1.5KE39CA | 33.30 | 37.10 | 41.00 | 1 | 53.9 | 28.2 | 5 | 39C |
| SMCJ1.5KE43CA | 36.80 | 40.90 | 45.20 | 1 | 59.3 | 25.6 | 5 | 43C |
| SMCJ1.5KE47CA | 40.20 | 44.70 | 49.40 | 1 | 64.8 | 23.5 | 5 | 47C |
| SMCJ1.5KE51CA | 43.60 | 48.50 | 53.60 | 1 | 70.1 | 21.7 | 5 | 51C |
| SMCJ1.5KE56CA | 47.80 | 53.20 | 58.80 | 1 | 77.0 | 19.7 | 5 | 56C |
| SMCJ1.5KE62CA | 53.00 | 58.90 | 65.10 | 1 | 85.0 | 17.9 | 5 | 62C |
| SMCJ1.5KE68CA | 58.10 | 64.60 | 71.40 | 1 | 92.0 | 16.5 | 5 | 68C |
| SMCJ1.5KE75CA | 64.10 | 71.30 | 78.80 | 1 | 103.0 | 14.8 | 5 | 75C |
| SMCJ1.5KE82CA | 70.10 | 77.90 | 86.10 | 1 | 113.0 | 13.5 | 5 | 82C |
| SMCJ1.5KE91CA | 77.80 | 86.50 | 95.50 | 1 | 125.0 | 12.2 | 5 | 91C |
| SMCJ1.5KE100CA | 85.50 | 95.00 | 105.00 | 1 | 137.0 | 11.1 | 5 | 100C |
| SMCJ1.5KE110CA | 94.00 | 105.00 | 116.00 | 1 | 152.0 | 10.0 | 5 | 110C |
| SMCJ1.5KE120CA | 102.00 | 114.00 | 126.00 | 1 | 165.0 | 9.2 | 5 | 120C |
| SMCJ1.5KE130CA | 111.00 | 124.00 | 137.00 | 1 | 179.0 | 8.5 | 5 | 130C |
| SMCJ1.5KE150CA | 128.00 | 143.00 | 158.00 | 1 | 207.0 | 7.3 | 5 | 150C |
| SMCJ1.5KE160CA | 136.00 | 152.00 | 168.00 | 1 | 219.0 | 6.9 | 5 | 160C |
| SMCJ1.5KE170CA | 145.00 | 162.00 | 179.00 | 1 | 234.0 | 6.5 | 5 | 170C |
| SMCJ1.5KE180CA | 154.00 | 171.00 | 189.00 | 1 | 246.0 | 6.2 | 5 | 180C |
| SMCJ1.5KE200CA | 171.00 | 190.00 | 210.00 | 1 | 274.0 | 5.5 | 5 | 200C |
| SMCJ1.5KE220CA | 185.00 | 209.00 | 231.00 | 1 | 328.0 | 4.6 | 5 | 220C |
| SMCJ1.5KE250CA | 214.00 | 237.00 | 263.00 | 1 | 344.0 | 4.4 | 5 | 250C |
| SMCJ1.5KE300CA | 256.00 | 285.00 | 315.00 | 1 | 414.0 | 3.7 | 5 | 300C |
| SMCJ1.5KE350CA | 300.00 | 332.00 | 368.00 | 1 | 482.0 | 3.2 | 5 | 350C |
| SMCJ1.5KE400CA | 342.00 | 380.00 | 420.00 | 1 | 548.0 | 2.8 | 5 | 400C |
| SMCJ1.5KE440CA | 376.00 | 418.00 | 462.00 | 1 | 602.0 | 2.5 | 5 | 440C |
| SMCJ1.5KE480CA | 408.00 | 456.00 | 504.00 | 1 | 658.0 | 2.3 | 5 | 480C |
| SMCJ1.5KE510CA | 434.00 | 485.00 | 535.00 | 1 | 698.0 | 2.1 | 5 | 510C |
| SMCJ1.5KE530CA | 459.00 | 503.50 | 556.50 | 1 | 725.0 | 2.1 | 5 | 530C |
| SMCJ1.5KE540CA | 477.00 | 513.00 | 567.00 | 1 | 740.0 | 2.0 | 5 | 540C |
| SMCJ1.5KE550CA | 495.00 | 522.50 | 577.50 | 1 | 760.0 | 2.0 | 5 | 550C |

1. For Bi-directional type having V_{WM} of 10 volts and less, the I_R limit is double.
2. The available parts are "A" type only, the parts without A (V_{BR} is $\pm 10\%$) is not available.

Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

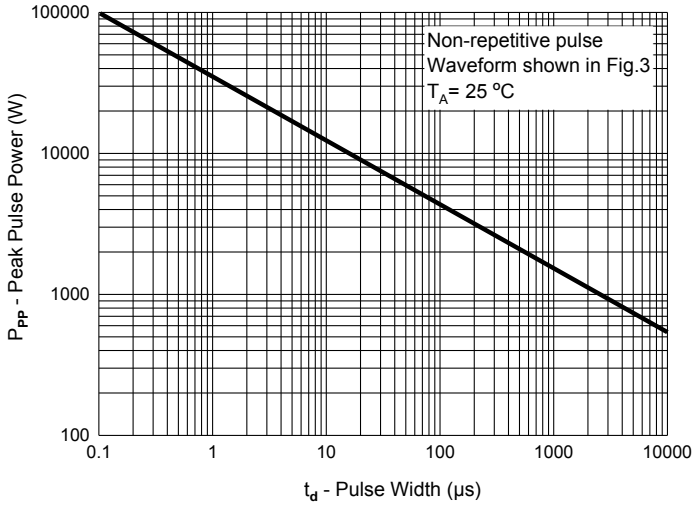


Fig. 2 - Typical Junction Capacitance

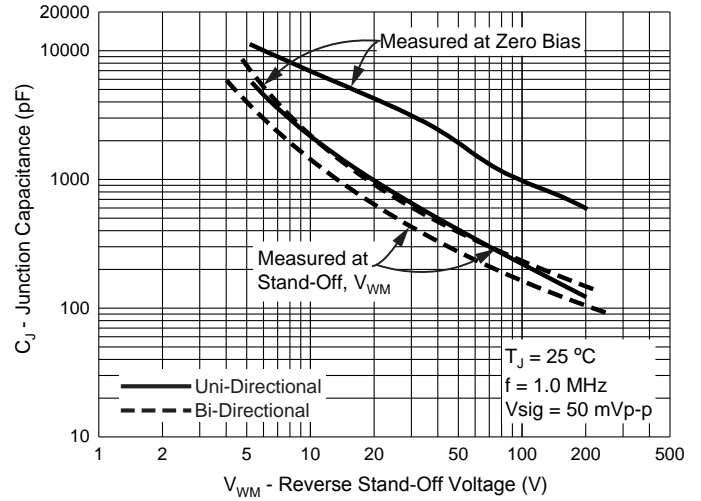


Fig. 3 - Pulse Waveform

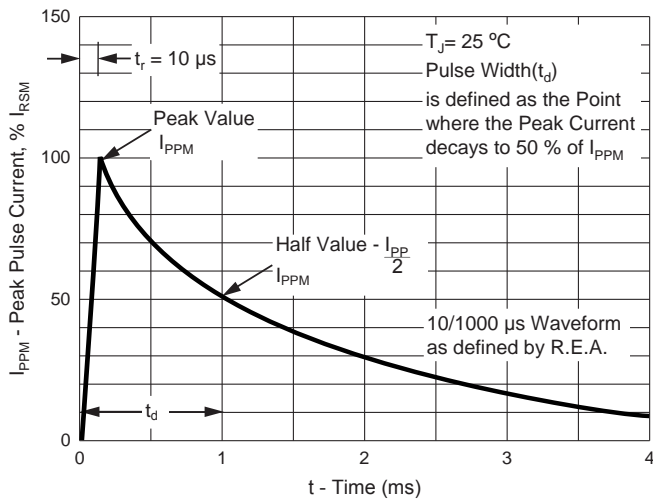


Fig. 4 - Pulse Derating Curve

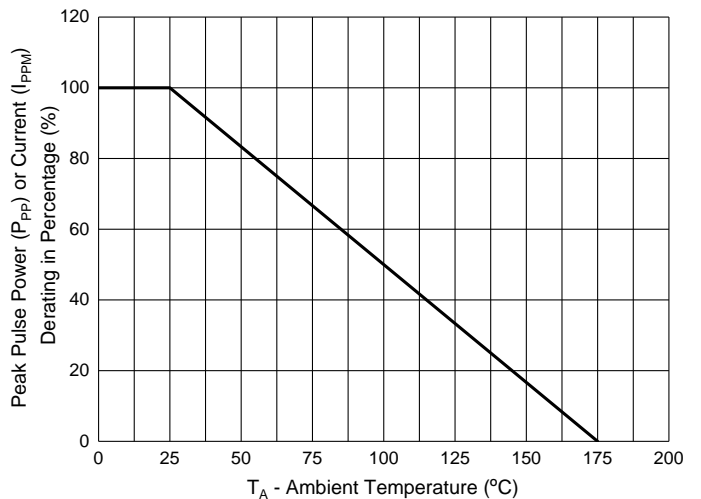
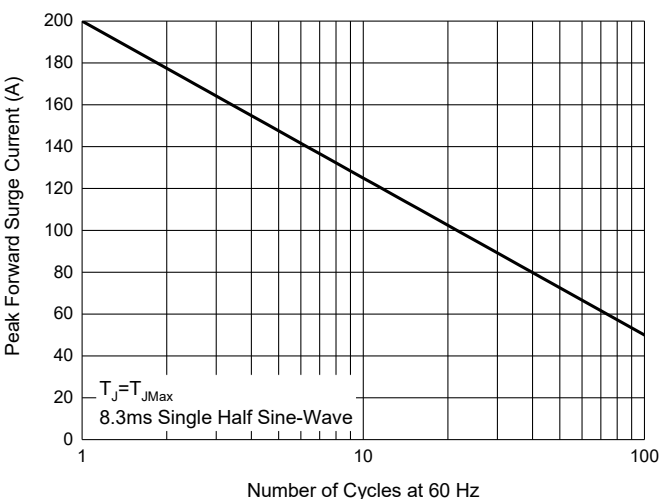


Fig. 5 - Maximum Non-Repetitive Surge Current



Ordering Information

| Device | Packing |
|----------------|----------------------|
| Part Number-TP | Tape&Reel:3Kpcs/Reel |

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