

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

Features

- For Surface Mount Applications in Order to Optimize Board Space
- Low Inductance
- Excellent Clamping Capability
- Fast Response Time: Typical Less Than 1ps From 0V to V_{BR} min
- Available in Both Unidirectional and Bidirectional Construction and Suffix "C" Designates Bidirectional Type
- 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 RoHS Compliant. See Ordering Information)

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: -65°C to +150°C
- Storage Temperature Range: -65°C to +150°C
- Thermal Resistance : 20°C/W Junction to Lead
- Thermal Resistance : 25°C/W Junction to Case

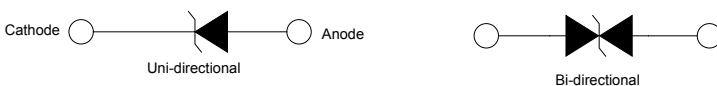
Electrical Characteristics @ 25°C Unless Otherwise Specified

| | | | |
|---|----------|---------------|--------|
| Peak Pulse Power Surge Current on 10/1000µs Waveform | I_{PP} | See the Table | Note 3 |
| Peak Pulse Power Dissipation | P_{PP} | 600W | Note 3 |
| Maximum Instantaneous Forward Voltage @ at 1A for Unidirectional Only | V_F | 1.5V | |

NOTES:

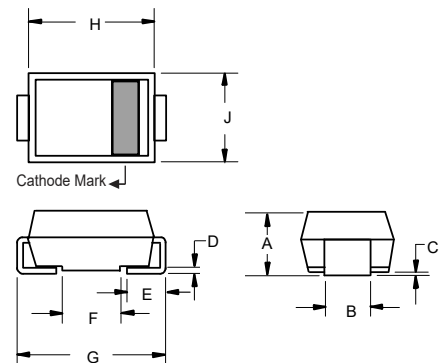
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemption Applied, see EU Directive Annex 7a.
3. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^\circ\text{C}$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

Pin Configuration:



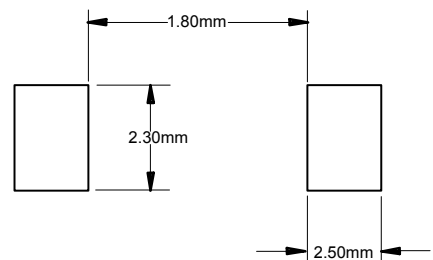
**600 Watt TVS
5.0 to 440 Volts**

**SMB (DO-214AA)
(LEAD FRAME)**



| DIM | DIMENSIONS | | | | NOTE |
|-----|------------|-------|------|------|------|
| | INCHES | | MM | | |
| | MIN | MAX | MIN | MAX | |
| A | 0.079 | 0.103 | 2.00 | 2.62 | |
| B | 0.075 | 0.087 | 1.91 | 2.21 | |
| C | 0.002 | 0.008 | 0.05 | 0.20 | |
| D | 0.006 | 0.012 | 0.15 | 0.31 | |
| E | 0.030 | 0.060 | 0.76 | 1.52 | |
| F | 0.065 | 0.091 | 1.65 | 2.32 | |
| G | 0.200 | 0.220 | 5.08 | 5.59 | |
| H | 0.160 | 0.191 | 4.06 | 4.85 | |
| J | 0.130 | 0.155 | 3.30 | 3.94 | |

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

| MCC PART NUMBER | REVERSE STAND-OFF VOLTAGE V_{WM} | BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ (VOLTS) | | | MAXIMUM CLAMPING VOLTAGE @ I_{PP} | PEAK PULSE CURRENT I_{PP} | MAXIMUM REVERSE LEAKAGE @ V_{WM} I_D | MARKING CODE |
|--------------------|---|--|--------|------------|---|-----------------------------------|--|-----------------|
| | VOLTS | MIN | MAX | I_T (mA) | VOLTS | (AMPS) | (μ A) | |
| SMBJP6KE6.8A | 5.80 | 6.45 | 7.14 | 10 | 10.5 | 58.1 | 1000 | 6V8A |
| SMBJP6KE7.5A | 6.40 | 7.13 | 7.88 | 10 | 11.3 | 54.0 | 500 | 7V5A |
| SMBJP6KE8.2A | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 50.4 | 200 | 8V2A |
| SMBJP6KE9.1A | 7.78 | 8.65 | 9.55 | 1 | 13.4 | 45.5 | 50 | 9V1A |
| SMBJP6KE10A | 8.55 | 9.50 | 10.50 | 1 | 14.5 | 42.1 | 10 | 10A |
| SMBJP6KE11A | 9.40 | 10.50 | 11.60 | 1 | 15.6 | 39.1 | 5 | 11A |
| SMBJP6KE12A | 10.20 | 11.40 | 12.60 | 1 | 16.7 | 36.5 | 5 | 12A |
| SMBJP6KE13A | 11.10 | 12.40 | 13.70 | 1 | 18.2 | 33.5 | 1 | 13A |
| SMBJP6KE15A | 12.80 | 14.30 | 15.80 | 1 | 21.2 | 28.8 | 1 | 15A |
| SMBJP6KE16A | 13.60 | 15.20 | 16.80 | 1 | 22.5 | 27.1 | 1 | 16A |
| SMBJP6KE18A | 15.30 | 17.10 | 18.90 | 1 | 25.5 | 24.2 | 1 | 18A |
| SMBJP6KE20A | 17.10 | 19.00 | 21.00 | 1 | 27.7 | 22.0 | 1 | 20A |
| SMBJP6KE22A | 18.80 | 20.90 | 23.10 | 1 | 30.6 | 19.9 | 1 | 22A |
| SMBJP6KE24A | 20.50 | 22.80 | 25.20 | 1 | 33.2 | 18.4 | 1 | 24A |
| SMBJP6KE27A | 23.10 | 25.70 | 28.40 | 1 | 37.5 | 16.3 | 1 | 27A |
| SMBJP6KE30A | 25.60 | 28.50 | 31.50 | 1 | 41.4 | 14.7 | 1 | 30A |
| SMBJP6KE33A | 28.20 | 31.40 | 34.70 | 1 | 45.7 | 13.3 | 1 | 33A |
| SMBJP6KE36A | 30.80 | 34.20 | 37.80 | 1 | 49.9 | 12.2 | 1 | 36A |
| SMBJP6KE39A | 33.30 | 37.10 | 41.00 | 1 | 53.9 | 11.3 | 1 | 39A |
| SMBJP6KE43A | 36.80 | 40.90 | 45.20 | 1 | 59.3 | 10.3 | 1 | 43A |
| SMBJP6KE47A | 40.20 | 44.70 | 49.40 | 1 | 64.8 | 9.4 | 1 | 47A |
| SMBJP6KE51A | 43.60 | 48.50 | 53.60 | 1 | 70.1 | 8.7 | 1 | 51A |
| SMBJP6KE56A | 47.80 | 53.20 | 58.80 | 1 | 77.0 | 7.9 | 1 | 56A |
| SMBJP6KE62A | 53.00 | 58.90 | 65.10 | 1 | 85.0 | 7.2 | 1 | 62A |
| SMBJP6KE68A | 58.10 | 64.60 | 71.40 | 1 | 92.0 | 6.6 | 1 | 68A |
| SMBJP6KE75A | 64.10 | 71.30 | 78.80 | 1 | 103.0 | 5.9 | 1 | 75A |
| SMBJP6KE82A | 70.10 | 77.90 | 86.10 | 1 | 113.0 | 5.4 | 1 | 82A |
| SMBJP6KE91A | 77.80 | 86.50 | 95.50 | 1 | 125.0 | 4.9 | 1 | 91A |
| SMBJP6KE100A | 85.50 | 95.00 | 105.00 | 1 | 137.0 | 4.5 | 1 | 100A |
| SMBJP6KE110A | 94.00 | 105.00 | 116.00 | 1 | 152.0 | 4.0 | 1 | 110A |
| SMBJP6KE120A | 102.00 | 114.00 | 126.00 | 1 | 165.0 | 3.7 | 1 | 120A |
| SMBJP6KE130A | 111.00 | 124.00 | 137.00 | 1 | 179.0 | 3.4 | 1 | 130A |
| SMBJP6KE150A | 128.00 | 143.00 | 158.00 | 1 | 207.0 | 2.9 | 1 | 150A |
| SMBJP6KE160A | 136.00 | 152.00 | 168.00 | 1 | 219.0 | 2.8 | 1 | 160A |
| SMBJP6KE170A | 145.00 | 162.00 | 179.00 | 1 | 234.0 | 2.6 | 1 | 170A |
| SMBJP6KE180A | 154.00 | 171.00 | 189.00 | 1 | 246.0 | 2.5 | 1 | 180A |
| SMBJP6KE200A | 171.00 | 190.00 | 210.00 | 1 | 274.0 | 2.2 | 1 | 200A |
| SMBJP6KE220A | 185.00 | 209.00 | 231.00 | 1 | 328.0 | 1.9 | 1 | 220A |
| SMBJP6KE250A | 214.00 | 237.00 | 263.00 | 1 | 344.0 | 1.9 | 1 | 250A |
| SMBJP6KE300A | 256.00 | 285.00 | 315.00 | 1 | 414.0 | 1.5 | 1 | 300A |
| SMBJP6KE350A | 300.00 | 332.00 | 368.00 | 1 | 482.0 | 1.3 | 1 | 350A |
| SMBJP6KE400A | 342.00 | 380.00 | 420.00 | 1 | 548.0 | 1.1 | 1 | 400A |
| SMBJP6KE440A | 376.00 | 418.00 | 462.00 | 1 | 602.0 | 1.0 | 1 | 440A |
| SMBJP6KE480A | 408.00 | 456.00 | 504.00 | 1 | 658.0 | 0.9 | 1 | 480A |
| SMBJP6KE510A | 434.00 | 485.00 | 535.00 | 1 | 698.0 | 0.9 | 1 | 510A |
| SMBJP6KE530A | 477.00 | 503.50 | 556.50 | 1 | 725.0 | 0.8 | 1 | 530A |
| SMBJP6KE540A | 459.00 | 513.00 | 567.00 | 1 | 740.0 | 0.8 | 1 | 540A |
| SMBJP6KE550A | 495.00 | 522.50 | 577.50 | 1 | 760.0 | 0.8 | 1 | 550A |

For bi-directional type having V_{WM} of 10 volts and less, the I_R limit is double.
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 V_{WM} | BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ (VOLTS) | | | MAXIMUM CLAMPING VOLTAGE@ I_{PP} | PEAK PULSE CURRENT I_{PP} | MAXIMUM REVERSE LEAKAGE @ V_{WM} I_D | MARKING CODE |
|--------------------|---|--|--------|------------|--|-----------------------------------|--|-----------------|
| | VOLTS | MIN | MAX | I_T (mA) | VOLTS | (AMPS) | (μ A) | |
| SMBJP6KE6.8CA | 5.80 | 6.45 | 7.14 | 10 | 10.5 | 58.1 | 1000 | 6V8C |
| SMBJP6KE7.5CA | 6.40 | 7.13 | 7.88 | 10 | 11.3 | 54.0 | 500 | 7V5C |
| SMBJP6KE8.2CA | 7.02 | 7.79 | 8.61 | 10 | 12.1 | 50.4 | 200 | 8V2C |
| SMBJP6KE9.1CA | 7.78 | 8.65 | 9.55 | 1 | 13.4 | 45.5 | 50 | 9V1C |
| SMBJP6KE10CA | 8.55 | 9.50 | 10.50 | 1 | 14.5 | 42.1 | 10 | 10C |
| SMBJP6KE11CA | 9.40 | 10.50 | 11.60 | 1 | 15.6 | 39.1 | 5 | 11C |
| SMBJP6KE12CA | 10.20 | 11.40 | 12.60 | 1 | 16.7 | 36.5 | 5 | 12C |
| SMBJP6KE13CA | 11.10 | 12.40 | 13.70 | 1 | 18.2 | 33.5 | 5 | 13C |
| SMBJP6KE15CA | 12.80 | 14.30 | 15.80 | 1 | 21.2 | 28.8 | 5 | 15C |
| SMBJP6KE16CA | 13.60 | 15.20 | 16.80 | 1 | 22.5 | 27.1 | 5 | 16C |
| SMBJP6KE18CA | 15.30 | 17.10 | 18.90 | 1 | 25.5 | 24.2 | 5 | 18C |
| SMBJP6KE20CA | 17.10 | 19.00 | 21.00 | 1 | 27.7 | 22.0 | 5 | 20C |
| SMBJP6KE22CA | 18.80 | 20.90 | 23.10 | 1 | 30.6 | 19.9 | 5 | 22C |
| SMBJP6KE24CA | 20.50 | 22.80 | 25.20 | 1 | 33.2 | 18.4 | 5 | 24C |
| SMBJP6KE27CA | 23.10 | 25.70 | 28.40 | 1 | 37.5 | 16.3 | 5 | 27C |
| SMBJP6KE30CA | 25.60 | 28.50 | 31.50 | 1 | 41.4 | 14.7 | 5 | 30C |
| SMBJP6KE33CA | 28.20 | 31.40 | 34.70 | 1 | 45.7 | 13.3 | 5 | 33C |
| SMBJP6KE36CA | 30.80 | 34.20 | 37.80 | 1 | 49.9 | 12.2 | 5 | 36C |
| SMBJP6KE39CA | 33.30 | 37.10 | 41.00 | 1 | 53.9 | 11.3 | 5 | 39C |
| SMBJP6KE43CA | 36.80 | 40.90 | 45.20 | 1 | 59.3 | 10.3 | 5 | 43C |
| SMBJP6KE47CA | 40.20 | 44.70 | 49.40 | 1 | 64.8 | 9.4 | 5 | 47C |
| SMBJP6KE51CA | 43.60 | 48.50 | 53.60 | 1 | 70.1 | 8.7 | 5 | 51C |
| SMBJP6KE56CA | 47.80 | 53.20 | 58.80 | 1 | 77.0 | 7.9 | 5 | 56C |
| SMBJP6KE62CA | 53.00 | 58.90 | 65.10 | 1 | 85.0 | 7.2 | 5 | 62C |
| SMBJP6KE68CA | 58.10 | 64.60 | 71.40 | 1 | 92.0 | 6.6 | 5 | 68C |
| SMBJP6KE75CA | 64.10 | 71.30 | 78.80 | 1 | 103.0 | 5.9 | 5 | 75C |
| SMBJP6KE82CA | 70.10 | 77.90 | 86.10 | 1 | 113.0 | 5.4 | 5 | 82C |
| SMBJP6KE91CA | 77.80 | 86.50 | 95.50 | 1 | 125.0 | 4.9 | 5 | 91C |
| SMBJP6KE100CA | 85.50 | 95.00 | 105.00 | 1 | 137.0 | 4.5 | 5 | 100C |
| SMBJP6KE110CA | 94.00 | 105.00 | 116.00 | 1 | 152.0 | 4.0 | 5 | 110C |
| SMBJP6KE120CA | 102.00 | 114.00 | 126.00 | 1 | 165.0 | 3.7 | 5 | 120C |
| SMBJP6KE130CA | 111.00 | 124.00 | 137.00 | 1 | 179.0 | 3.4 | 5 | 130C |
| SMBJP6KE150CA | 128.00 | 143.00 | 158.00 | 1 | 207.0 | 2.9 | 5 | 150C |
| SMBJP6KE160CA | 136.00 | 152.00 | 168.00 | 1 | 219.0 | 2.8 | 5 | 160C |
| SMBJP6KE170CA | 145.00 | 162.00 | 179.00 | 1 | 234.0 | 2.6 | 5 | 170C |
| SMBJP6KE180CA | 154.00 | 171.00 | 189.00 | 1 | 246.0 | 2.5 | 5 | 180C |
| SMBJP6KE200CA | 171.00 | 190.00 | 210.00 | 1 | 274.0 | 2.2 | 5 | 200C |
| SMBJP6KE220CA | 185.00 | 209.00 | 231.00 | 1 | 328.0 | 1.9 | 5 | 220C |
| SMBJP6KE250CA | 214.00 | 237.00 | 263.00 | 1 | 344.0 | 1.9 | 5 | 250C |
| SMBJP6KE300CA | 256.00 | 285.00 | 315.00 | 1 | 414.0 | 1.5 | 5 | 300C |
| SMBJP6KE350CA | 300.00 | 332.00 | 368.00 | 1 | 482.0 | 1.3 | 5 | 350C |
| SMBJP6KE400CA | 342.00 | 380.00 | 420.00 | 1 | 548.0 | 1.1 | 5 | 400C |
| SMBJP6KE440CA | 376.00 | 418.00 | 462.00 | 1 | 602.0 | 1.0 | 5 | 440C |
| SMBJP6KE480CA | 408.00 | 456.00 | 504.00 | 1 | 658.0 | 0.9 | 5 | 480C |
| SMBJP6KE510CA | 434.00 | 485.00 | 535.00 | 1 | 698.0 | 0.9 | 5 | 510C |
| SMBJP6KE530CA | 477.00 | 503.50 | 556.50 | 1 | 725.0 | 0.8 | 5 | 530C |
| SMBJP6KE540CA | 459.00 | 513.00 | 567.00 | 1 | 740.0 | 0.8 | 5 | 540C |
| SMBJP6KE550CA | 495.00 | 522.50 | 577.50 | 1 | 760.0 | 0.8 | 5 | 550C |

For bi-directional type having V_{WM} of 10 volts and less, the I_R limit is double.
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

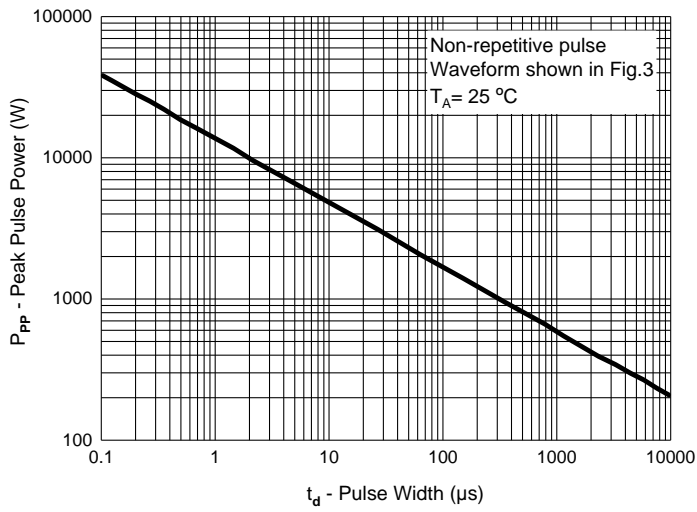


Fig. 2 - Typical Junction Capacitance

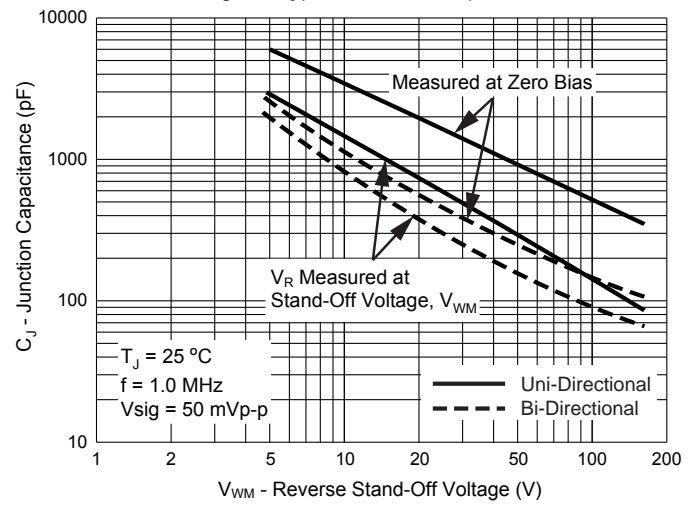


Fig. 3 - Pulse Waveform

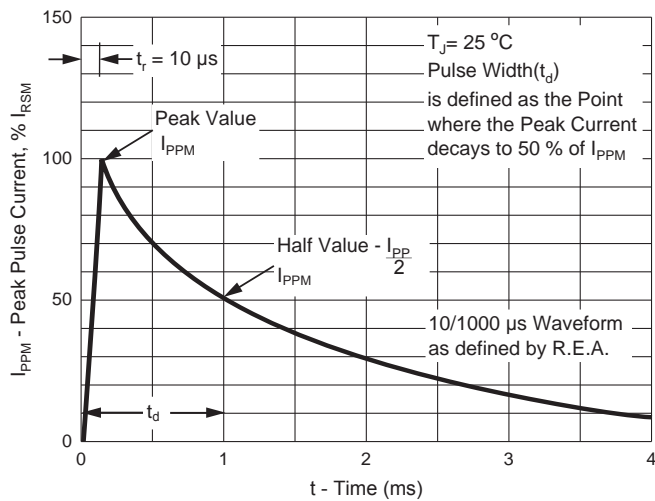
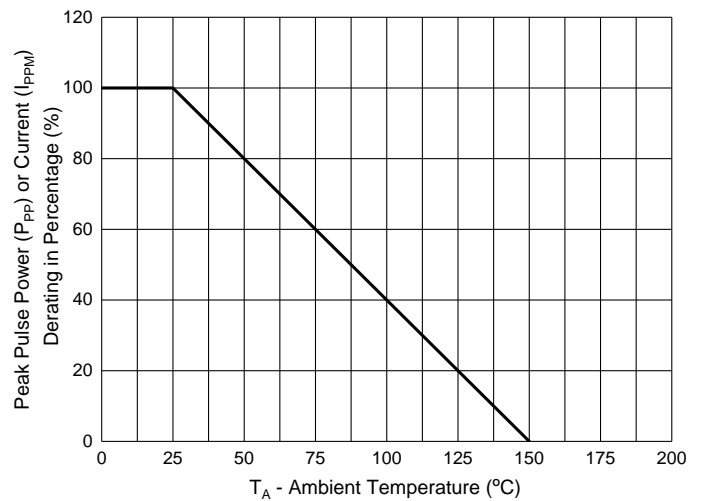


Fig. 4 - Pulse Derating Curve



Ordering Information

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

IMPORTANT NOTICE

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications, enhancements, improvements, or other changes. **Micro Commercial Components Corp.** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp.** and all the companies whose products are represented on our website, harmless against all damages. **Micro Commercial Components Corp.** products are sold subject to the general terms and conditions of commercial sale, as published at <https://www.mccsemi.com/Home/TermsAndConditions>.

LIFE SUPPORT

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

CUSTOMER AWARENESS

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.