

# SMBJP6KE6.8(C)A THRU SMBJP6KE550(C)A

## Features

- Halogen free available upon request by adding suffix "-HF"
- For surface mount applications in order to optimize board space
- Available in both unidirectional and bidirectional construction and suffix "C" designates bidirectional type
- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Fast response time: typical less than 1.0ps from 0 volts to  $V_{BR}$  minimum
- Low inductance
- Excellent clamping capability
- UL Recognized File # E331408

## Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Terminals: solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes positive end (cathode) except Bidirectional
- Maximum soldering temperature: 260°C for 10 seconds

## Maximum Ratings @ 25°C Unless Otherwise Specified

|  |                |                 |          |
|--|----------------|-----------------|----------|
| Peak Pulse Current on 10/1000us waveform | $I_{PP}$       | See Table 1     | Note: 2  |
| Peak Pulse Power Dissipation             | $P_{PP}$       | 600W            | Note: 2, |
| Peak Forward Surge Current               | $I_{FSM}$      | 100A            | Note: 3  |
| Operation And Storage Temperature Range  | $T_J, T_{STG}$ | -55°C to +175°C |          |
| Thermal Resistance                       | $R_{thJC}$     | 25°C/W          |          |
|  | $R_{thJL}$     | 20°C/W          |          |

- NOTES: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.
2. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ C$  per Fig.2.
3. 8.3ms, single half sine wave duty cycle=4 pulses per. Minute maximum.

**Transient  
 Voltage Suppressor  
 6.8 to 550 Volts  
 600 Watt**

## DO-214AA (SMBJ) (LEAD FRAME)



| DIM | DIMENSIONS |      |      |       | NOTE |
|-----|------------|------|------|-------|------|
|     | INCHES     |      | MM   |       |      |
| A   | .180       | .185 | 4.06 | 4.70  |      |
| B   | .130       | .155 | 3.30 | 3.94  |      |
| C   | .006       | .012 | 0.15 | 0.31  |      |
| D   | .030       | .060 | 0.76 | 1.52  |      |
| E   | .200       | .220 | 5.08 | 5.59  |      |
| F   | .079       | .096 | 2.00 | 2.44  |      |
| G   | .075       | .087 | 1.91 | 2.21  |      |
| H   | .002       | .008 | 0.05 | 0.203 |      |

## SUGGESTED SOLDER PAD LAYOUT



# SMBJP6KE6.8(C)A THRU SMBJP6KE550(C)A

## ELECTRICAL CHARACTERISTICS @25°C

| MCC<br>PART NUMBER | REVERSE<br>STAND-OFF<br>VOLTAGE<br>$V_{WM}$<br>(VOLTS) | BREAKDOWN VOLTAGE<br>$V_{(BR)}$ @ $I_T$<br>(VOLTS) |        |            | MAXIMUM<br>CLAMPING<br>VOLTAGE @<br>$I_{PP}$<br>(VOLTS) | PEAK PULSE<br>CURRENT<br>$I_{PP}$<br>(AMPS) | MAXIMUM<br>REVERSE<br>LEAKAGE<br>@ $V_{WM}$<br>$I_D$<br>( $\mu$ A) | MARKING<br>CODE |
|--------------------|--|--|--------|------------|---|---|--|-----------------|
|                    |  | MIN  | MAX    | $I_T$ (mA) |   |   |  |                 |
| 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  $V_{rwm}$  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.

# SMBJP6KE6.8(C)A THRU SMBJP6KE550(C)A



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## ELECTRICAL CHARACTERISTICS @25°C

| MCC<br>PART NUMBER | REVERSE<br>STAND-OFF<br>VOLTAGE<br>$V_{WM}$<br>(VOLTS) | BREAKDOWN VOLTAGE<br>$V_{(BR)}$ @ $I_T$<br>(VOLTS) |        |            | MAXIMUM<br>CLAMPING<br>VOLTAGE @<br>$I_{PP}$<br>(VOLTS) | PEAK PULSE<br>CURRENT<br>$I_{PP}$<br>(AMPS) | MAXIMUM<br>REVERSE<br>LEAKAGE<br>@ $V_{WM}$<br>$I_D$<br>( $\mu A$ ) | MARKING<br>CODE |
|--------------------|--|--|--------|------------|---|---|---|-----------------|
|                    |  | MIN  | MAX    | $I_T$ (mA) |   |   |   |                 |
| 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  $V_{rwm}$  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.

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## RATINGS AND CHARACTERISTIC CURVES

**Fig. 1 – Peak Pulse Power Rating Curve**



**Fig. 2-PULSE RATING CURVE**



**Fig. 3 – Pulse Waveform**



**Fig. 4 – Typical Junction Capacitance**



**Fig. 5 – Typical Transient Thermal Impedance**



**Fig. 6 – Maximum Non-Repetitive Peak Forward Surge Current**





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### Ordering Information :

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

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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