

|   |                |
|---|----------------|
|  | <b>E480232</b> |
|---|----------------|

**Features**

- Low Inductance
- Built in Strain Relief
- For Surface Mount Application in Order to Optimize Board Space
- High Temperature Soldering: 260°C/10 Seconds at Terminals
- Typical  $I_D$ : less than 1uA above 10V
- Low Profile Package
- Repetition Rate( duty cycle): 0.01%
- Glass Passivated Junction
- Excellent Clamping Capability
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note1) ("P" Suffix Designates Compliant. See Ordering Information)

**Mechanical Data**

- Polarity: Color Band Denotes Positive End( cathode) Except Bi-directional Types
- Standard Packaging: 16mm Tape Per ( EIA 481)
- Weight: 0.007 ounce, 0.21 gram
- 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: 23°C/W Junction to Ambient

|  |  |               |                            |
|--|--|---------------|----------------------------|
| Peak Pulse Power Surge Current on 10/1000µs Waveform | $I_{PPM}$  | See the Table | Note 2                     |
| Peak Pulse Power Dissipation on 10/1000µs Waveform   | $P_{PPM}$  | 5000W(Min)    | Note 2,3                   |
| Power Dissipation on infinite heat sink              | $P_D$  | 6.5W          | $T_L = 75^\circ\text{C}$ . |
| Fast response time                                   | typically less than 1.0ps from 0 Volts to BV Min |               |                            |

- Note:**
1. High Temperature Solder Exemption Applied, see EU Directive Annex 7a.
  2. Non-repetitive current pulse and derated above  $T_A=25^\circ\text{C}$
  3. Mounted on 8.0mm<sup>2</sup> copper pads to each terminal.

Pin Configuration:



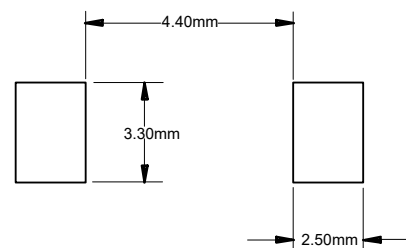
**5000 Watt TVS  
11 to 400 Volts**

**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**



| 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@ $V_{RWM}$ | Marking Code |
|-----------------|---------------------------|-------------------------------|------|--------------|----------------------------------|--------------------|------------------------------------|--------------|
|                 |                           | Min                           | Max  |              |                                  |                    |                                    |              |
| Uni-directional | $V_{RWM}(V)$              |                               |      | $I_T(mA)$    | $V_C(V)$                         | $I_{PP}(A)$        | $I_D(\mu A)$                       |              |
| 5.0SMLJ11A      | 11                        | 12.2                          | 13.5 | 10           | 18.2                             | 275                | 800                                | 5PEN         |
| 5.0SMLJ12A      | 12                        | 13.3                          | 14.7 | 10           | 19.9                             | 252                | 800                                | 5PEP         |
| 5.0SMLJ13A      | 13                        | 14.4                          | 15.9 | 10           | 21.5                             | 233                | 500                                | 5PEQ         |
| 5.0SMLJ14A      | 14                        | 15.6                          | 17.2 | 10           | 23.2                             | 216                | 200                                | 5PER         |
| 5.0SMLJ15A      | 15                        | 16.7                          | 18.5 | 1            | 24.4                             | 205                | 100                                | 5PES         |
| 5.0SMLJ16A      | 16                        | 17.8                          | 19.7 | 1            | 26                               | 193                | 50                                 | 5PET         |
| 5.0SMLJ17A      | 17                        | 18.9                          | 20.9 | 1            | 27.6                             | 181                | 20                                 | 5PEU         |
| 5.0SMLJ18A      | 18                        | 20                            | 22.1 | 1            | 29.2                             | 172                | 10                                 | 5PEV         |
| 5.0SMLJ20A      | 20                        | 22.2                          | 24.5 | 1            | 32.4                             | 155                | 5                                  | 5PEW         |
| 5.0SMLJ22A      | 22                        | 24.4                          | 26.9 | 1            | 35.5                             | 141                | 5                                  | 5PEX         |
| 5.0SMLJ24A      | 24                        | 26.7                          | 29.5 | 1            | 38.9                             | 129                | 5                                  | 5PEZ         |
| 5.0SMLJ26A      | 26                        | 28.9                          | 31.9 | 1            | 42.1                             | 119                | 5                                  | 5PFE         |
| 5.0SMLJ28A      | 28                        | 31.1                          | 34.4 | 1            | 45.4                             | 110                | 5                                  | 5PFG         |
| 5.0SMLJ30A      | 30                        | 33.3                          | 36.8 | 1            | 48.4                             | 103                | 5                                  | 5PFK         |
| 5.0SMLJ33A      | 33                        | 36.7                          | 40.6 | 1            | 53.3                             | 93.9               | 5                                  | 5PFM         |
| 5.0SMLJ36A      | 36                        | 40                            | 44.2 | 1            | 58.1                             | 86.1               | 5                                  | 5PFP         |
| 5.0SMLJ40A      | 40                        | 44.4                          | 49.1 | 1            | 64.5                             | 77.6               | 5                                  | 5PFR         |
| 5.0SMLJ43A      | 43                        | 47.8                          | 52.8 | 1            | 69.4                             | 72.1               | 5                                  | 5PFT         |
| 5.0SMLJ45A      | 45                        | 50                            | 55.3 | 1            | 72.7                             | 68.8               | 5                                  | 5PFV         |
| 5.0SMLJ48A      | 48                        | 53.3                          | 58.9 | 1            | 77.4                             | 64.7               | 5                                  | 5PFX         |
| 5.0SMLJ51A      | 51                        | 56.7                          | 62.7 | 1            | 82.4                             | 60.7               | 5                                  | 5PFZ         |
| 5.0SMLJ54A      | 54                        | 60                            | 66.3 | 1            | 87.1                             | 57.5               | 5                                  | 5RGE         |
| 5.0SMLJ58A      | 58                        | 64.4                          | 71.2 | 1            | 93.6                             | 53.5               | 5                                  | 5PGG         |
| 5.0SMLJ60A      | 60                        | 66.7                          | 73.7 | 1            | 96.8                             | 51.7               | 5                                  | 5PGK         |
| 5.0SMLJ64A      | 64                        | 71.1                          | 78.6 | 1            | 103                              | 48.6               | 5                                  | 5PGM         |
| 5.0SMLJ70A      | 70                        | 77.8                          | 86   | 1            | 113                              | 44.3               | 5                                  | 5PGP         |
| 5.0SMLJ75A      | 75                        | 83.3                          | 92.1 | 1            | 121                              | 41.4               | 5                                  | 5PGR         |
| 5.0SMLJ78A      | 78                        | 86.7                          | 95.8 | 1            | 126                              | 39.7               | 5                                  | 5PGT         |
| 5.0SMLJ85A      | 85                        | 94.4                          | 104  | 1            | 137                              | 36.5               | 5                                  | 5PGV         |
| 5.0SMLJ90A      | 90                        | 100                           | 111  | 1            | 146                              | 34.3               | 5                                  | 5PGX         |
| 5.0SMLJ100A     | 100                       | 111                           | 123  | 1            | 162                              | 30.9               | 5                                  | 5PGZ         |
| 5.0SMLJ110A     | 110                       | 122                           | 135  | 1            | 177                              | 28.3               | 5                                  | 5PHE         |
| 5.0SMLJ120A     | 120                       | 133                           | 147  | 1            | 193                              | 26                 | 5                                  | 5PHG         |
| 5.0SMLJ130A     | 130                       | 144                           | 159  | 1            | 209                              | 24                 | 5                                  | 5PHK         |
| 5.0SMLJ150A     | 150                       | 167                           | 185  | 1            | 243                              | 20.6               | 5                                  | 5PHM         |
| 5.0SMLJ160A     | 160                       | 178                           | 197  | 1            | 259                              | 19.3               | 5                                  | 5PHP         |
| 5.0SMLJ170A     | 170                       | 189                           | 209  | 1            | 275                              | 18.2               | 5                                  | 5PHR         |
| 5.0SMLJ180A     | 180                       | 200                           | 220  | 1            | 292                              | 17.1               | 5                                  | 5PHT         |
| 5.0SMLJ190A     | 190                       | 211                           | 258  | 1            | 308                              | 16.2               | 5                                  | 5PHV         |
| 5.0SMLJ200A     | 200                       | 224                           | 247  | 1            | 324                              | 15.4               | 5                                  | 5PHW         |
| 5.0SMLJ220A     | 220                       | 246                           | 272  | 1            | 356                              | 14.0               | 5                                  | 5PHX         |
| 5.0SMLJ250A     | 250                       | 279                           | 309  | 1            | 405                              | 12.3               | 5                                  | 5PHZ         |
| 5.0SMLJ300A     | 300                       | 335                           | 371  | 1            | 486                              | 10.3               | 5                                  | 5PJE         |
| 5.0SMLJ350A     | 350                       | 391                           | 432  | 1            | 567                              | 8.8                | 5                                  | 5PJG         |
| 5.0SMLJ400A     | 400                       | 447                           | 494  | 1            | 648                              | 7.7                | 5                                  | 5PJK         |

| 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@ $V_{RWM}$ | Marking Code |
|-----------------|---------------------------|-------------------------------|------|--------------|----------------------------------|--------------------|------------------------------------|--------------|
|                 |                           | Min                           | Max  |              |                                  |                    |                                    |              |
| Bi-directional  | $V_{RWM}(V)$              |                               |      | $I_T(mA)$    | $V_C(V)$                         | $I_{PP}(A)$        | $I_D(\mu A)$                       |              |
| 5.0SMLJ11CA     | 11                        | 12.2                          | 13.5 | 10           | 18.2                             | 275                | 800                                | 5BEN         |
| 5.0SMLJ12CA     | 12                        | 13.3                          | 14.7 | 10           | 19.9                             | 252                | 800                                | 5BEP         |
| 5.0SMLJ13CA     | 13                        | 14.4                          | 15.9 | 10           | 21.5                             | 233                | 500                                | 5BEQ         |
| 5.0SMLJ14CA     | 14                        | 15.6                          | 17.2 | 10           | 23.2                             | 216                | 200                                | 5BER         |
| 5.0SMLJ15CA     | 15                        | 16.7                          | 18.5 | 1            | 24.4                             | 205                | 100                                | 5BES         |
| 5.0SMLJ16CA     | 16                        | 17.8                          | 19.7 | 1            | 26                               | 193                | 50                                 | 5BET         |
| 5.0SMLJ17CA     | 17                        | 18.9                          | 20.9 | 1            | 27.6                             | 181                | 20                                 | 5BEU         |
| 5.0SMLJ18CA     | 18                        | 20                            | 22.1 | 1            | 29.2                             | 172                | 10                                 | 5BEV         |
| 5.0SMLJ20CA     | 20                        | 22.2                          | 24.5 | 1            | 32.4                             | 155                | 5                                  | 5BEW         |
| 5.0SMLJ22CA     | 22                        | 24.4                          | 26.9 | 1            | 35.5                             | 141                | 5                                  | 5BEX         |
| 5.0SMLJ24CA     | 24                        | 26.7                          | 29.5 | 1            | 38.9                             | 129                | 5                                  | 5BEZ         |
| 5.0SMLJ26CA     | 26                        | 28.9                          | 31.9 | 1            | 42.1                             | 119                | 5                                  | 5BFE         |
| 5.0SMLJ28CA     | 28                        | 31.1                          | 34.4 | 1            | 45.4                             | 110                | 5                                  | 5BFG         |
| 5.0SMLJ30CA     | 30                        | 33.3                          | 36.8 | 1            | 48.4                             | 103                | 5                                  | 5BFK         |
| 5.0SMLJ33CA     | 33                        | 36.7                          | 40.6 | 1            | 53.3                             | 93.9               | 5                                  | 5BFM         |
| 5.0SMLJ36CA     | 36                        | 40                            | 44.2 | 1            | 58.1                             | 86.1               | 5                                  | 5BFP         |
| 5.0SMLJ40CA     | 40                        | 44.4                          | 49.1 | 1            | 64.5                             | 77.6               | 5                                  | 5BFR         |
| 5.0SMLJ43CA     | 43                        | 47.8                          | 52.8 | 1            | 69.4                             | 72.1               | 5                                  | 5BFT         |
| 5.0SMLJ45CA     | 45                        | 50                            | 55.3 | 1            | 72.7                             | 68.8               | 5                                  | 5BFV         |
| 5.0SMLJ48CA     | 48                        | 53.3                          | 58.9 | 1            | 77.4                             | 64.7               | 5                                  | 5BFX         |
| 5.0SMLJ51CA     | 51                        | 56.7                          | 62.7 | 1            | 82.4                             | 60.7               | 5                                  | 5BFZ         |
| 5.0SMLJ54CA     | 54                        | 60                            | 66.3 | 1            | 87.1                             | 57.5               | 5                                  | 5BGE         |
| 5.0SMLJ58CA     | 58                        | 64.4                          | 71.2 | 1            | 93.6                             | 53.5               | 5                                  | 5BGG         |
| 5.0SMLJ60CA     | 60                        | 66.7                          | 73.7 | 1            | 96.8                             | 51.7               | 5                                  | 5BGK         |
| 5.0SMLJ64CA     | 64                        | 71.1                          | 78.6 | 1            | 103                              | 48.6               | 5                                  | 5BGM         |
| 5.0SMLJ70CA     | 70                        | 77.8                          | 86   | 1            | 113                              | 44.3               | 5                                  | 5BGP         |
| 5.0SMLJ75CA     | 75                        | 83.3                          | 92.1 | 1            | 121                              | 41.4               | 5                                  | 5BGR         |
| 5.0SMLJ78CA     | 78                        | 86.7                          | 95.8 | 1            | 126                              | 39.7               | 5                                  | 5BGT         |
| 5.0SMLJ85CA     | 85                        | 94.4                          | 104  | 1            | 137                              | 36.5               | 5                                  | 5BGV         |
| 5.0SMLJ90CA     | 90                        | 100                           | 111  | 1            | 146                              | 34.3               | 5                                  | 5BGX         |
| 5.0SMLJ100CA    | 100                       | 111                           | 123  | 1            | 162                              | 30.9               | 5                                  | 5BGZ         |
| 5.0SMLJ110CA    | 110                       | 122                           | 135  | 1            | 177                              | 28.3               | 5                                  | 5BHE         |
| 5.0SMLJ120CA    | 120                       | 133                           | 147  | 1            | 193                              | 26                 | 5                                  | 5BHG         |
| 5.0SMLJ130CA    | 130                       | 144                           | 159  | 1            | 209                              | 24                 | 5                                  | 5BHK         |
| 5.0SMLJ150CA    | 150                       | 167                           | 185  | 1            | 243                              | 20.6               | 5                                  | 5BHM         |
| 5.0SMLJ160CA    | 160                       | 178                           | 197  | 1            | 259                              | 19.3               | 5                                  | 5BHP         |
| 5.0SMLJ170CA    | 170                       | 189                           | 209  | 1            | 275                              | 18.2               | 5                                  | 5BHR         |

**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 |

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-TP-HF

### \*\*\*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.

### \*\*\*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.

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А