

# Transient Voltage Suppressors 1500W DO-214AB AEC-Q101

TPSMCJ series

MERITEK

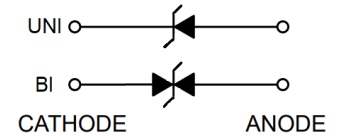
## FEATURE

- 1500W Peak Pulse Power (10/1000 $\mu$ s Waveform), Repetitive Rate:0.01%
- 10V to 78V Standoff Voltage
- Fast Response Time
- Excellent Clamping Capability
- Glass Passivated Junction
- UL Flammability Classification Rating: 94V-0
- AEC-Q101 Qualified



## MECHANICAL DATA

- Case: DO-214AB, Molded Plastic
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Color Band Denotes Cathode End Except Bipolar



## MAXIMUM RATINGS

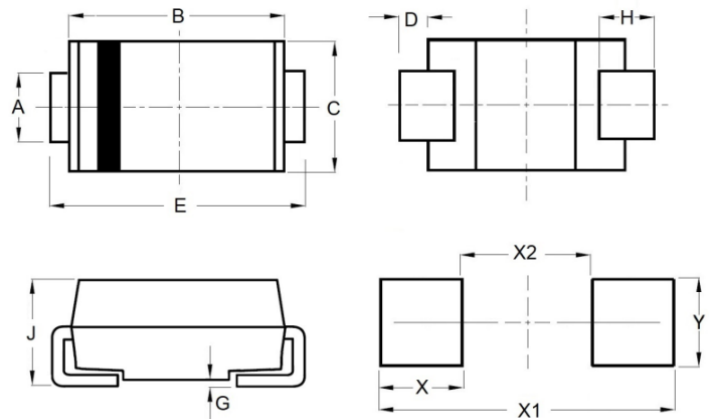
| Parameter                                                                             | Symbol         | Value       | Unit             |
|---------------------------------------------------------------------------------------|----------------|-------------|------------------|
| Peak Pulse Power Dissipation On 10/1000 $\mu$ s Waveform                              | $P_{PPM}$      | 1500        | W                |
| Peak Pulse Current On 10/1000 $\mu$ s Waveform                                        | $I_{PPM}$      | See Table   | A                |
| Power Dissipation on infinite Heatsink at $T_L = 75^\circ\text{C}$                    | $P_D$          | 6.5         | W                |
| Peak Forward Surge Current,<br>8.3ms Single Half Sine-Wave Superimposed On Rated Load | $I_{FSM}$      | 200         | A                |
| Maximum Instantaneous Forward Voltage at 100A for Unidirectional only                 | $V_F$          | 3.5/5.0     | V                |
| Operating Junction And Storage Temperature Range                                      | $T_J, T_{STG}$ | -55 to +150 | $^\circ\text{C}$ |

Note:

1.  $T_A = 25^\circ\text{C}$  ambient temperature unless otherwise specified.
2. Non-repetitive current pulse, and derated above  $T_A = 25^\circ\text{C}$ .
3. Measured 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minute maximum.
4.  $V_F < 3.5\text{V}$  for device of  $V_{BR} < 200\text{V}$  and  $V_F < 5.0\text{V}$  for devices of  $V_{BR} > 201\text{V}$

## DIMENSIONS

| DO-214AB | Min (mm) | Max (mm) |
|----------|----------|----------|
| A        | 2.90     | 3.20     |
| B        | 6.60     | 7.15     |
| C        | 5.55     | 6.04     |
| D        | 0.15     | 0.30     |
| E        | 7.75     | 7.95     |
| G        | --       | 0.20     |
| H        | 0.75     | 1.51     |
| J        | 1.98     | 2.53     |
| X        | 3.03     |          |
| X1       | 9.90     |          |
| X2       | 3.84     |          |
| Y        | 3.82     |          |



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## ELECTRICAL CHARACTERISTICS

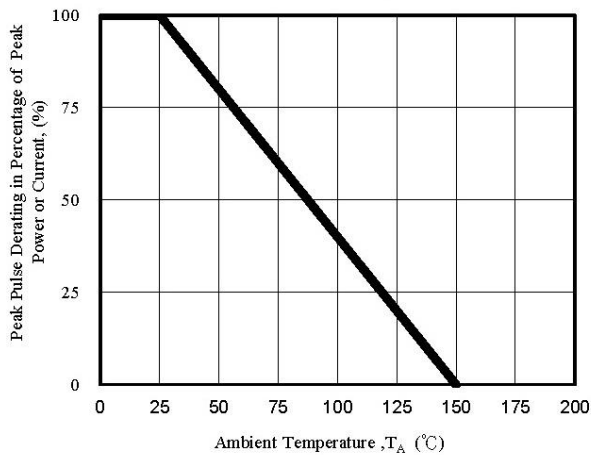
| Part Number |            | Working Reverse Voltage | Reverse Breakdown Voltage |                  | Test Current | Max Reverse Leakage Current | Max Clamping Voltage | Reverse Surge Current |
|-------------|------------|-------------------------|---------------------------|------------------|--------------|-----------------------------|----------------------|-----------------------|
| Uni-Polar   | Bi-Polar   | $V_{RWM}$ (V)           | $V_{BR}$ (V) Min          | $V_{BR}$ (V) Max | $I_T$ (mA)   | $I_R$ (uA) @ $V_{RWM}$      | $V_C$ (V) @ $I_{PP}$ | $I_{PP}$ (A) Max      |
| TPSMCJ10A   | TPSMCJ10CA | 10                      | 11.1                      | 12.3             | 1            | 5                           | 17.0                 | 88.24                 |
| TPSMCJ11A   | TPSMCJ11CA | 11                      | 12.2                      | 13.5             | 1            | 1                           | 18.2                 | 82.42                 |
| TPSMCJ12A   | TPSMCJ12CA | 12                      | 13.3                      | 14.7             | 1            | 1                           | 19.9                 | 75.38                 |
| TPSMCJ13A   | TPSMCJ13CA | 13                      | 14.4                      | 15.9             | 1            | 1                           | 21.5                 | 69.77                 |
| TPSMCJ14A   | TPSMCJ14CA | 14                      | 15.6                      | 17.2             | 1            | 1                           | 23.2                 | 64.66                 |
| TPSMCJ15A   | TPSMCJ15CA | 15                      | 16.7                      | 18.5             | 1            | 1                           | 24.4                 | 61.48                 |
| TPSMCJ16A   | TPSMCJ16CA | 16                      | 17.8                      | 19.7             | 1            | 1                           | 26.0                 | 57.69                 |
| TPSMCJ17A   | TPSMCJ17CA | 17                      | 18.9                      | 20.9             | 1            | 1                           | 27.6                 | 54.35                 |
| TPSMCJ18A   | TPSMCJ18CA | 18                      | 20.0                      | 22.1             | 1            | 1                           | 29.2                 | 51.37                 |
| TPSMCJ19A   | TPSMCJ19CA | 19                      | 21.1                      | 23.3             | 1            | 1                           | 30.8                 | 48.73                 |
| TPSMCJ20A   | TPSMCJ20CA | 20                      | 22.2                      | 24.5             | 1            | 1                           | 32.4                 | 46.30                 |
| TPSMCJ22A   | TPSMCJ22CA | 22                      | 24.4                      | 26.9             | 1            | 1                           | 35.5                 | 42.25                 |
| TPSMCJ24A   | TPSMCJ24CA | 24                      | 26.7                      | 29.5             | 1            | 1                           | 38.9                 | 38.56                 |
| TPSMCJ26A   | TPSMCJ26CA | 26                      | 28.9                      | 31.9             | 1            | 1                           | 42.1                 | 35.63                 |
| TPSMCJ28A   | TPSMCJ28CA | 28                      | 31.1                      | 34.4             | 1            | 1                           | 45.4                 | 33.04                 |
| TPSMCJ30A   | TPSMCJ30CA | 30                      | 33.3                      | 36.8             | 1            | 1                           | 48.4                 | 30.99                 |
| TPSMCJ33A   | TPSMCJ33CA | 33                      | 36.7                      | 40.6             | 1            | 1                           | 53.3                 | 28.14                 |
| TPSMCJ36A   | TPSMCJ36CA | 36                      | 40.0                      | 44.2             | 1            | 1                           | 58.1                 | 25.82                 |
| TPSMCJ40A   | TPSMCJ40CA | 40                      | 44.4                      | 49.1             | 1            | 1                           | 64.5                 | 23.26                 |
| TPSMCJ43A   | TPSMCJ43CA | 43                      | 47.8                      | 52.8             | 1            | 1                           | 69.4                 | 21.61                 |
| TPSMCJ45A   | TPSMCJ45CA | 45                      | 50.0                      | 55.3             | 1            | 1                           | 72.7                 | 20.63                 |
| TPSMCJ48A   | TPSMCJ48CA | 48                      | 53.3                      | 58.9             | 1            | 1                           | 77.4                 | 19.38                 |
| TPSMCJ51A   | TPSMCJ51CA | 51                      | 56.7                      | 62.7             | 1            | 1                           | 82.4                 | 18.20                 |
| TPSMCJ54A   | TPSMCJ54CA | 54                      | 60.0                      | 66.3             | 1            | 1                           | 87.1                 | 17.22                 |
| TPSMCJ58A   | TPSMCJ58CA | 58                      | 64.4                      | 71.2             | 1            | 1                           | 93.6                 | 16.03                 |
| TPSMCJ60A   | TPSMCJ60CA | 60                      | 66.7                      | 73.7             | 1            | 1                           | 96.8                 | 15.50                 |
| TPSMCJ64A   | TPSMCJ64CA | 64                      | 71.1                      | 78.6             | 1            | 1                           | 103                  | 14.56                 |
| TPSMCJ70A   | TPSMCJ70CA | 70                      | 77.8                      | 86.0             | 1            | 1                           | 113                  | 13.27                 |
| TPSMCJ75A   | TPSMCJ75CA | 75                      | 83.3                      | 92.1             | 1            | 1                           | 121                  | 12.40                 |
| TPSMCJ78A   | TPSMCJ78CA | 78                      | 86.7                      | 95.8             | 1            | 1                           | 126                  | 11.90                 |

Note:

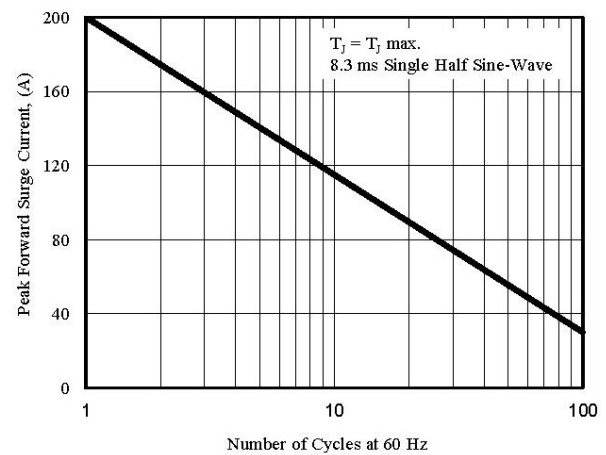
1.  $T_A = 25^\circ\text{C}$  ambient temperature unless otherwise specified.
2. The available parts are "A" type only, the parts without A ( $V_{BR}$  is  $\pm 10\%$ ) is not availed
3. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
4. For Bi-Directional device having VR of 10 volts and under, the IR limit is double

## CHARACTERISTIC CURVES

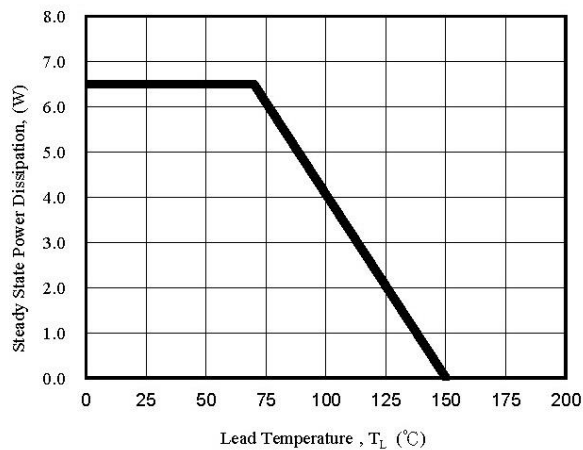
Pulse Derating Curve



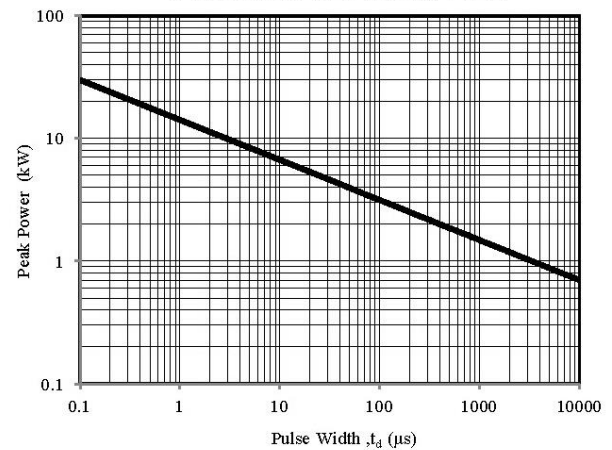
Maximum Non-Repetitive Surge Current



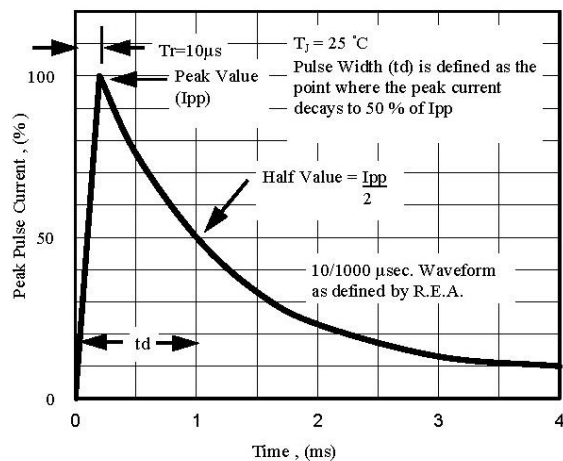
Steady State Power Derating Curve



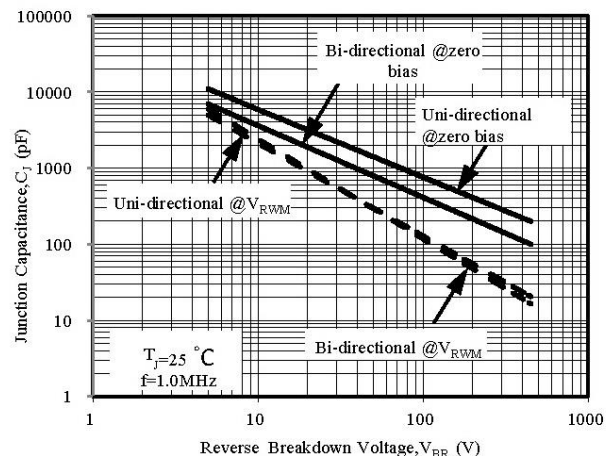
Peak Pulse Power Rating Curve



Pulse Waveform



Typical Junction Capacitance



\*Specifications subject to change without notice.