

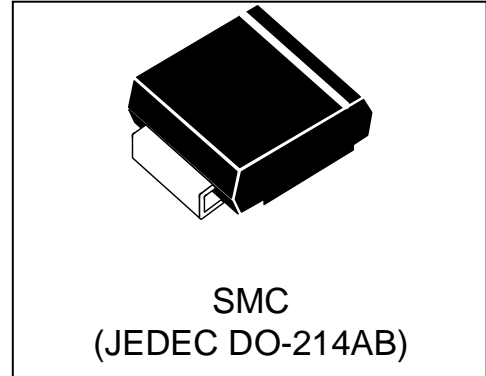


WSxxP30SMC(-B)-AT

Automotive Load Dump Protection TVS

Features

- 3000 watts Peak Pulse Power (10/1000 μ s)
- Unidirectional and Bidirectional Protection
- Fast Response Time : Typically < 1ns
- Excellent Clamping Capability
- Built-in Strain relief
- Low inductance
- Low profile package
- AEC-Q101 compliant
- IEC 61000-4-2 (ESD) \pm 30kV(air), \pm 30kV(contact)
- MSL: Level 1



Mechanical Characteristics

- JEDEC DO-214AB package
- Molding compound flammability rating: UL 94V-0
- Marking : Marking Code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant

Applications

- Auto power system
- Car audio and video
- Automotive instrument
- Car GPS
- Can-bus

Absolute Maximum Rating

| Rating | Symbol | Value | Units |
|--|------------------|--------------------------------|-------|
| Peak Pulse Power (tp =10/1000 μ s) (see Note1&2) | P _{PPM} | 3000 | Watts |
| Peak pulse current (10/1000 μ s) (see Note2) | I _{PPM} | See Electrical Characteristics | A |
| Power Dissipation on infinite heat sink T _L = 50 °C (Fig 4) | P _D | 6.5 | W |
| Operating Junction Temperature range | T _J | -65 to + 150 | °C |
| Storage Temperature range | T _{STG} | -65 to + 150 | °C |

Note1: Peak Pulse Power Rating as Pulse Width ,per Fig1.

Note2: Peak Pulse Power or Current Derated above T_A=25°C Per Fig. 2 and Non-Repetitive Current Pulse, Per Fig.3.

Electrical Characteristics

| Part Number | | Marking | | Reverse Stand off Voltage V_{RWM} (Volts) | Breakdown Voltage $V_{BR@I_T}$ (Volts) | | Test Current I_T (mA) | Maximum Clamping Voltage $V_c@I_{FP}$ (Volts) | Maximum Peak Pulse Current I_{PP} (Amps) | Maximum Reverse Leakage $I_R@V_{RWM}$ (μ A) |
|----------------|------------------|-----------|----------|---|--|-------|-------------------------|---|--|--|
| UNI-POLAR | BI-POLAR | UNI-POLAR | BI-POLAR | | MIN | MAX | | | | |
| WS5.0P30SMC-AT | WS5.0P30SMC-B-AT | DPUY | DPVZ | 5.0 | 6.40 | 7.00 | 10 | 9.2 | 326.1 | 800 |
| WS6.0P30SMC-AT | WS6.0P30SMC-B-AT | DQUY | DQVZ | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 291.3 | 800 |
| WS6.5P30SMC-AT | WS6.5P30SMC-B-AT | DQUP | DQVP | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 267.9 | 500 |
| WS7.0P30SMC-AT | WS7.0P30SMC-B-AT | DRUY | DRVZ | 7.0 | 7.78 | 8.60 | 10 | 12.0 | 250.0 | 200 |
| WS7.5P30SMC-AT | WS7.5P30SMC-B-AT | DRUP | DRVP | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 232.6 | 100 |
| WS8.0P30SMC-AT | WS8.0P30SMC-B-AT | DSUY | DSVZ | 8.0 | 8.89 | 9.83 | 1 | 13.6 | 220.6 | 50 |
| WS8.5P30SMC-AT | WS8.5P30SMC-B-AT | DSUP | DSVP | 8.5 | 9.44 | 10.40 | 1 | 14.4 | 208.3 | 20 |
| WS9.0P30SMC-AT | WS9.0P30SMC-B-AT | DTUY | DTVZ | 9.0 | 10.00 | 11.10 | 1 | 15.4 | 194.8 | 10 |
| WS10P30SMC-AT | WS10P30SMC-B-AT | DYLY | DZLZ | 10.0 | 11.10 | 12.30 | 1 | 17.0 | 176.5 | 5 |
| WS11P30SMC-AT | WS11P30SMC-B-AT | DYLL | DZLL | 11.0 | 12.20 | 13.50 | 1 | 18.2 | 164.8 | 2 |
| WS12P30SMC-AT | WS12P30SMC-B-AT | DYLM | DZLM | 12.0 | 13.30 | 14.70 | 1 | 19.9 | 150.8 | 2 |
| WS13P30SMC-AT | WS13P30SMC-B-AT | DYLN | DZLN | 13.0 | 14.40 | 15.90 | 1 | 21.5 | 139.5 | 2 |
| WS14P30SMC-AT | WS14P30SMC-B-AT | DYLO | DZLO | 14.0 | 15.60 | 17.20 | 1 | 23.2 | 129.3 | 2 |
| WS15P30SMC-AT | WS15P30SMC-B-AT | DYLP | DZLP | 15 | 16.70 | 18.50 | 1 | 24.4 | 123.0 | 2 |
| WS16P30SMC-AT | WS16P30SMC-B-AT | DYLQ | DZLQ | 16 | 17.80 | 19.70 | 1 | 26.0 | 115.4 | 2 |
| WS18P30SMC-AT | WS18P30SMC-B-AT | DYLS | DZLS | 18 | 20.00 | 22.10 | 1 | 29.2 | 102.7 | 2 |
| WS20P30SMC-AT | WS20P30SMC-B-AT | DYMY | DZMZ | 20 | 22.20 | 24.50 | 1 | 32.4 | 92.6 | 2 |
| WS22P30SMC-AT | WS22P30SMC-B-AT | DYMM | DZMM | 22 | 24.40 | 26.90 | 1 | 35.5 | 84.5 | 2 |
| WS24P30SMC-AT | WS24P30SMC-B-AT | DYMO | DZMO | 24 | 26.70 | 29.50 | 1 | 38.9 | 77.1 | 2 |
| WS26P30SMC-AT | WS26P30SMC-B-AT | DYMQ | DZMQ | 26 | 28.90 | 31.90 | 1 | 42.1 | 71.3 | 2 |
| WS28P30SMC-AT | WS28P30SMC-B-AT | DYMS | DZMS | 28 | 31.10 | 34.40 | 1 | 45.4 | 66.1 | 2 |
| WS30P30SMC-AT | WS30P30SMC-B-AT | DYNY | DZNZ | 30 | 33.30 | 36.80 | 1 | 48.4 | 62.0 | 2 |
| WS33P30SMC-AT | WS33P30SMC-B-AT | DYNN | DZNN | 33 | 36.70 | 40.60 | 1 | 53.3 | 56.3 | 2 |
| WS36P30SMC-AT | WS36P30SMC-B-AT | DYNQ | DZNQ | 36 | 40.00 | 44.20 | 1 | 58.1 | 51.6 | 2 |
| WS40P30SMC-AT | WS40P30SMC-B-AT | DYOY | DZOZ | 40 | 44.40 | 49.10 | 1 | 64.5 | 46.5 | 2 |
| WS43P30SMC-AT | WS43P30SMC-B-AT | DYON | DZON | 43 | 47.80 | 52.80 | 1 | 69.4 | 43.2 | 2 |
| WS45P30SMC-AT | WS45P30SMC-B-AT | DYOP | DZOP | 45 | 50.00 | 55.30 | 1 | 72.7 | 41.3 | 2 |
| WS48P30SMC-AT | WS48P30SMC-B-AT | DYOS | DZOS | 48 | 53.30 | 58.90 | 1 | 77.4 | 38.8 | 2 |
| WS51P30SMC-AT | WS51P30SMC-B-AT | DYPL | DZPL | 51 | 56.70 | 62.70 | 1 | 82.4 | 36.4 | 2 |

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| | | | | | | | | | | |
|----------------|------------------|------|------|-------|--------|--------|---|-------|------|---|
| WS54P30SMC-AT | WS54P30SMC-B-AT | DYPO | DZPO | 54 | 60.00 | 66.30 | 1 | 87.1 | 34.4 | 2 |
| WS58P30SMC-AT | WS58P30SMC-B-AT | DYPS | DZPS | 58 | 64.40 | 71.20 | 1 | 93.6 | 32.1 | 2 |
| WS60P30SMC-AT | WS60P30SMC-B-AT | DYQY | DZQZ | 60 | 66.70 | 73.70 | 1 | 96.8 | 31.0 | 2 |
| WS64P30SMC-AT | WS64P30SMC-B-AT | DYQO | DZQO | 64 | 71.10 | 78.60 | 1 | 103 | 29.1 | 2 |
| WS70P30SMC-AT | WS70P30SMC-B-AT | DYRY | DZRZ | 70 | 77.80 | 86.00 | 1 | 113 | 26.5 | 2 |
| WS75P30SMC-AT | WS75P30SMC-B-AT | DYRP | DZRP | 75 | 83.30 | 92.10 | 1 | 121 | 24.8 | 2 |
| WS78P30SMC-AT | WS78P30SMC-B-AT | DYRS | DZRS | 78 | 86.70 | 95.80 | 1 | 126 | 23.8 | 2 |
| WS85P30SMC-AT | WS85P30SMC-B-AT | DYSP | DZSP | 85 | 94.40 | 104 | 1 | 137 | 21.9 | 2 |
| WS90P30SMC-AT | WS90P30SMC-B-AT | DYTY | DZTZ | 90 | 100 | 111 | 1 | 146 | 20.5 | 2 |
| WS100P30SMC-AT | WS100P30SMC-B-AT | DLYY | DLZZ | 100.0 | 111.00 | 123.00 | 1 | 162.0 | 18.5 | 2 |
| WS110P30SMC-AT | WS110P30SMC-B-AT | DLLY | DLLZ | 110.0 | 122.00 | 135.00 | 1 | 177.0 | 16.9 | 2 |
| WS120P30SMC-AT | WS120P30SMC-B-AT | DLMY | DLMZ | 120.0 | 133.00 | 147.00 | 1 | 193.0 | 15.5 | 2 |
| WS130P30SMC-AT | WS130P30SMC-B-AT | DLNY | DLNZ | 130.0 | 144.00 | 159.00 | 1 | 209.0 | 14.4 | 2 |
| WS150P30SMC-AT | WS150P30SMC-B-AT | DLPY | DLPZ | 150.0 | 167.00 | 185.00 | 1 | 243.0 | 12.3 | 2 |
| WS160P30SMC-AT | WS160P30SMC-B-AT | DLQY | DLQZ | 160.0 | 178.00 | 197.00 | 1 | 259.0 | 11.6 | 2 |
| WS170P30SMC-AT | WS170P30SMC-B-AT | DLRY | DLRZ | 170.0 | 189.00 | 209.00 | 1 | 275.0 | 10.9 | 2 |

Typical Characteristics

Figure 1. Peak Pulse Power Rating Curve

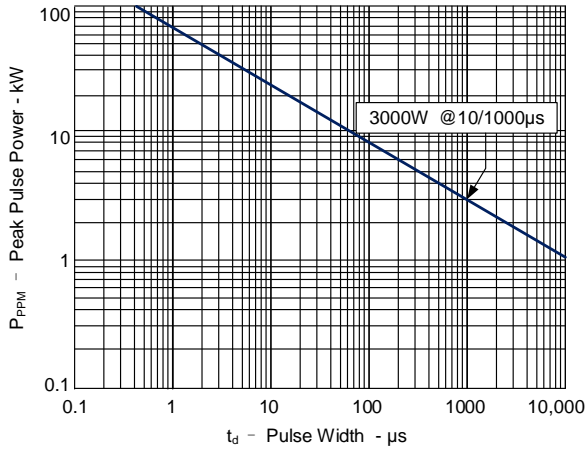


Figure 2. Pulse Derating Curve

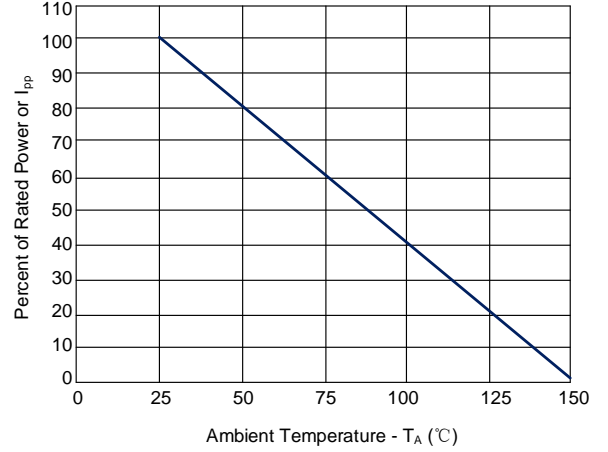


Figure 3. Pulse Waveform

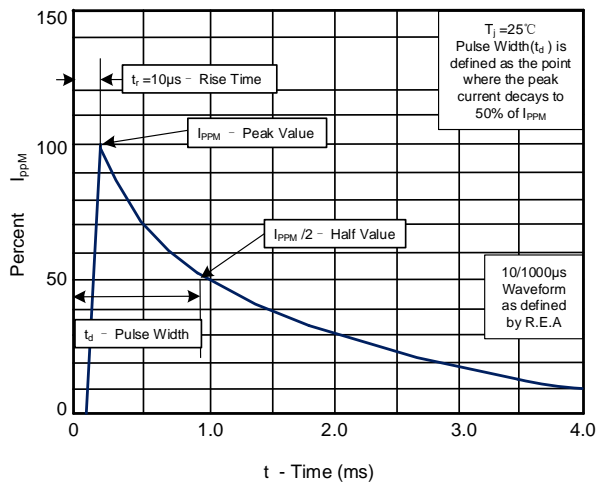
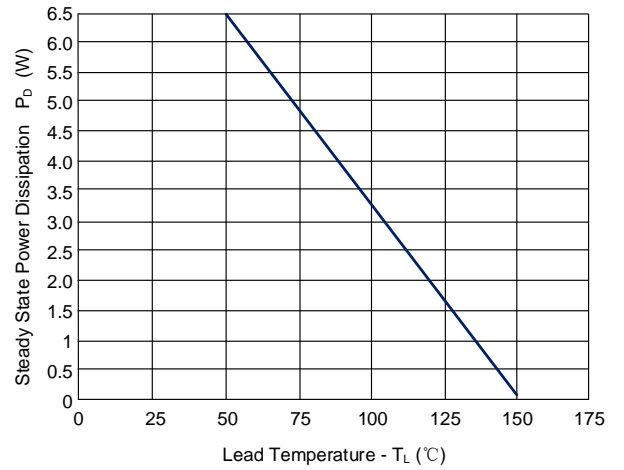


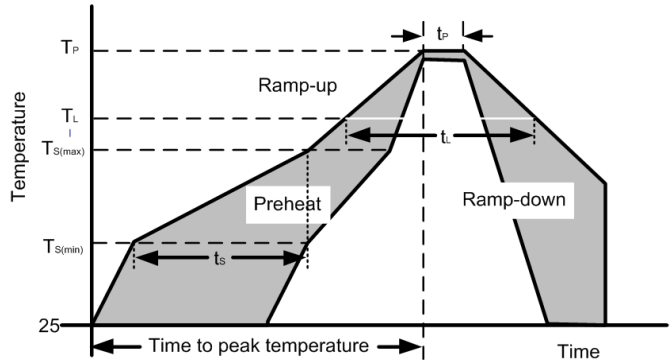
Figure 4. Steady State Power Dissipation Derating Curve



Note: The above typical parameters or typical characteristics are only indicative and do not make specific guarantees. If detailed values are required, additional communication and provision are required.

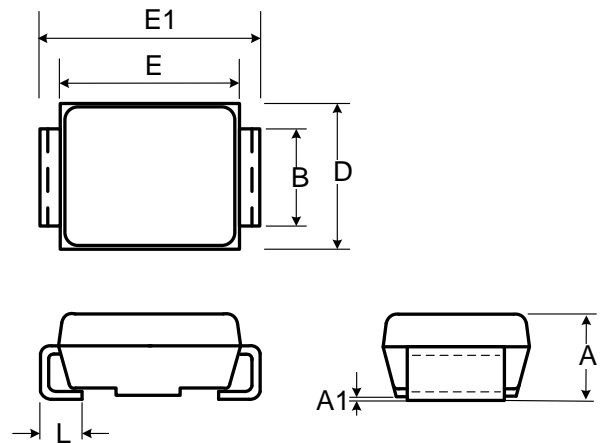
Soldering Parameters

| Reflow Condition | | |
|--|----------------------------------|-------------------------|
| Pre Heat | Temperature Min ($T_{s(min)}$) | 150°C |
| | Temperature Max ($T_{s(max)}$) | 200°C |
| | Time (min to max) (t_s) | 60-190 s |
| Average ramp up rate (Liquidus Temp) (T_L) to peak | | 3°C/s max |
| Ts(max) to TL - Ramp-up Rate | | 3°C/s max |
| Reflow | Temperature (T_L) (Liquidus) | 217°C |
| | Temperature (t_L) | 60-150 s |
| Peak Temperature (T_P) | | 260 ^{+0/-5} °C |
| Time within actual peak Temperature (t_p) | | 20-40 s |
| Ramp-down Rate | | 6°C/s max |
| Time 25°C to peak Temperature (T_P) | | 8 minutes max |
| Do not exceed | | 260°C |

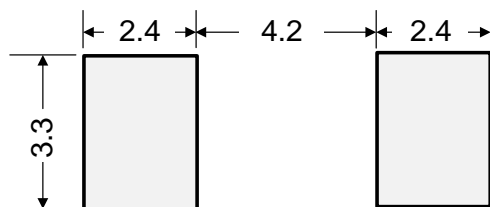


Outline Drawing – SMC (DO-214AB)

| Ref. (mm) | Millimeters | |
|-----------|-------------|------|
| | Min. | Max. |
| A | 2.06 | 2.70 |
| A1 | - | 0.30 |
| B | 2.90 | 3.20 |
| E | 6.60 | 7.40 |
| E1 | 7.75 | 8.13 |
| D | 5.59 | 6.22 |
| L | 0.76 | 1.52 |



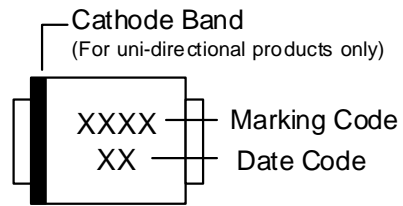
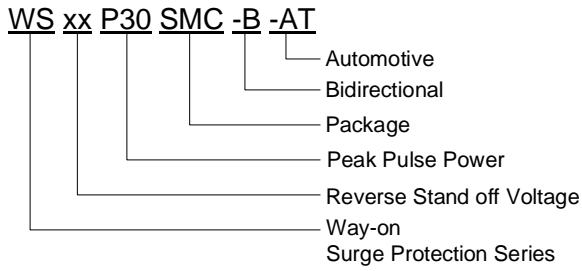
Recommended Solder Pad Layout



Dimensions in mm

Part Numbering System

Part Marking System



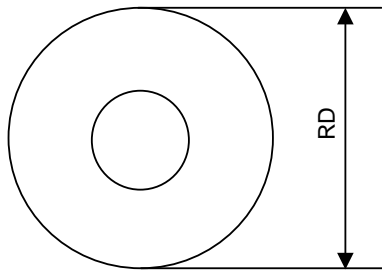
Package Information

| Package Type | Description | Quantity (pcs) |
|---------------|----------------------------|----------------|
| SMC(DO-214AB) | Tape & Reel -16mm/13" tape | 3000 |

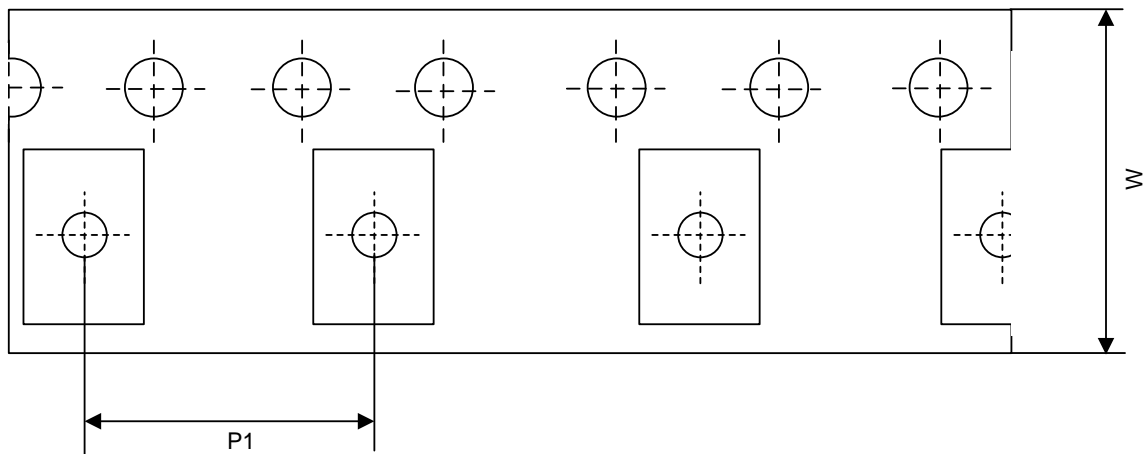
Tape and Reel Information

| | | |
|----|---|---------|
| RD | Reel Dimensions | 13 inch |
| W | Overall width of the carrier tape | 16 mm |
| P1 | Pitch between successive cavity centers | 8 mm |

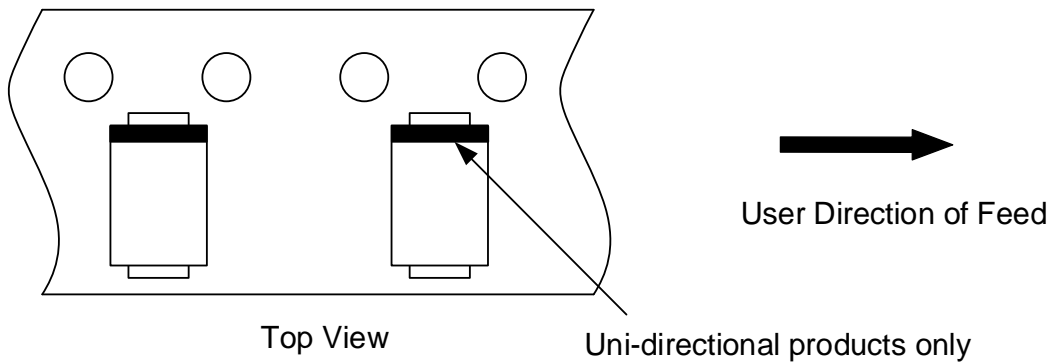
Reel Dimensions



Tape Dimensions



Quadrant Assignments for PIN1 Orientation in tape



Contact Information

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