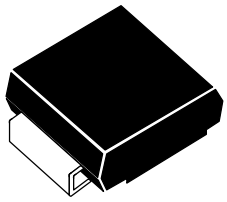
# 5.0SMDJ20CAS

**Power Transient Voltage Suppressor**

## Features

- Bidirectional Protection
- Fast Response Time: Typically < 1ns
- Excellent Clamping Capability
- Built-in Strain relief
- Low inductance
- Low profile package
- High temperature solder:260℃/10 seconds at terminal



SMC
(JEDEC DO-214AB)

## Mechanical Characteristics

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

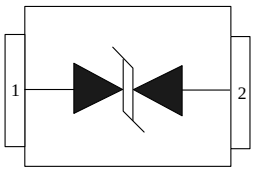
## Applications

- I/O Interfaces
- Power lines
- Automotive and Telecommunication
- Computers &Consumer Electronics
- Industrial Electronics

| **Absolute Maximum Rating** | | | |
|---|---|---|---|
| **Rating** | **Symbol** | **Value** | **Units** |
| Non-repetitive peak impulse Voltage (1.2/50μs-8/20μs, 2Ω)(See Note1) (Fig1) | $V_{PPSM}$ | 5000 | V |
| Power dissipation on infinite heat sink $T_L$ = 50 °C(Fig3) | $P_D$ | 6.5 | W |
| Operating junction temperature range | $T_J$ | -65 to + 150 | ℃ |
| storage temperature range | $T_{STG}$ | -65 to + 150 | ℃ |

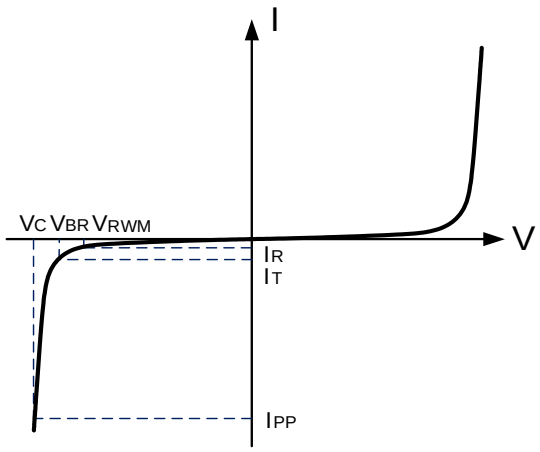
**Note1:** The waveform is defined in IEC 61000-4-5, Per Fig.1.

## Pin Configuration



## Electrical Characteristics

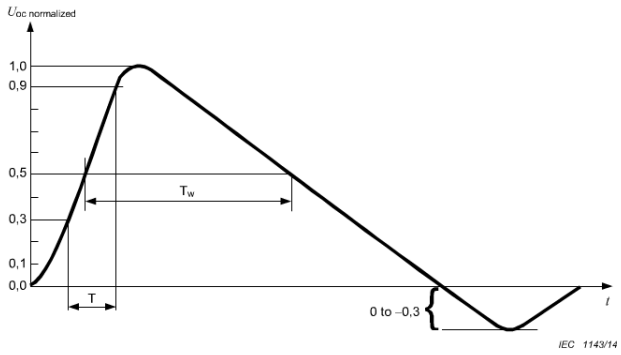
| Symbol | Parameter |
|---|---|
| $I_{PP}$ | Maximum Reverse Peak Pulse Current |
| $V_C$ | Clamping Voltage @ $I_{PP}$ |
| $V_{RWM}$ | Working Peak Reverse Voltage |
| $I_R$ | Maximum Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$ | Breakdown Voltage @ $I_T$ |
| $I_T$ | Test Current |



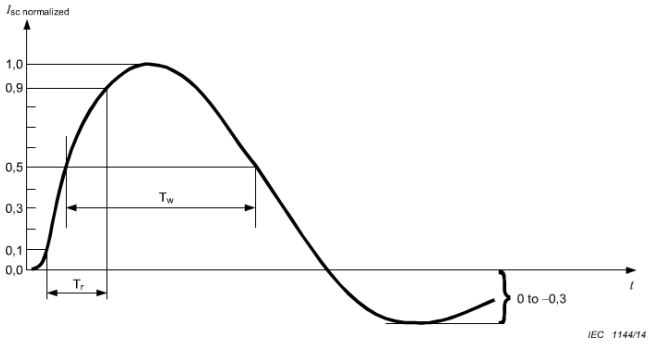

| Parameter | Symbol | Conditions | Minimum | Maximum | Units |
|---|---|---|---|---|---|
| Reverse Stand-Off Voltage | $V_{RWM}$ | | | 20 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | $I_T$=1mA | 22.2 | 24.5 | V |
| Reverse Leakage Current | $I_R$ | $V_{RWM}$=20V, T=25°C | | 5 | μA |
| Clamping Voltage | $V_C$ | $V_{PPSM}$=1000V, $t_p$=1.2/50μs-8/20μs(2Ω) | | 28 | V |
| Clamping Voltage | $V_C$ | $V_{PPSM}$=5000V, $t_p$=1.2/50μs-8/20μs(2Ω) | | 35 | V |

## Typical Characteristics

Figure 1: 1.2/50μs voltage waveform, 8/20μs current waveform




Front time: $T_f = 1,67 \times T = 1,2\ \mu s \pm 30\ \%$
Duration: $T_d = T_w = 50\ \mu s \pm 20\ \%$




Front time: $T_f = 1,25 \times T_r = 8\ \mu s \pm 20\ \%$
Duration: $T_d = 1,18 \times T_w = 20\ \mu s \pm 20\ \%$

**Figure 2: Pulse Derating Curve**

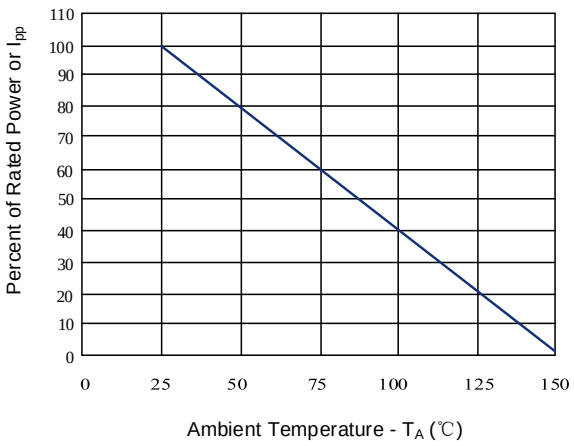
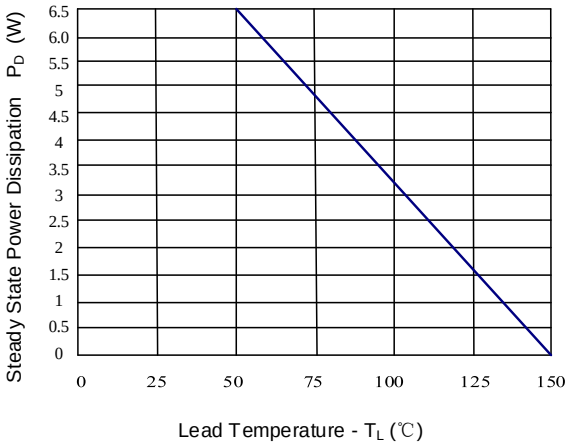
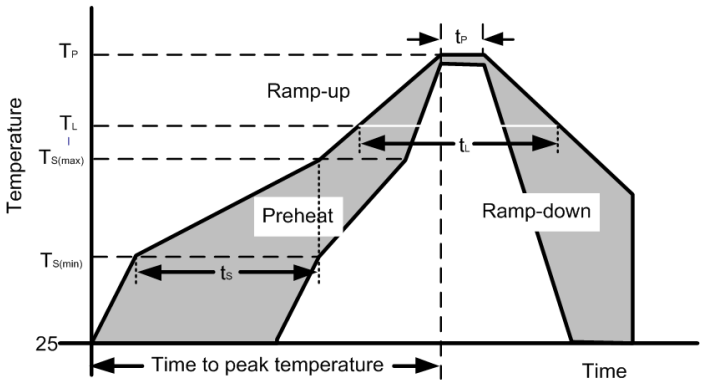



**Figure 3: Steady State Power Dissipation Derating Curve**



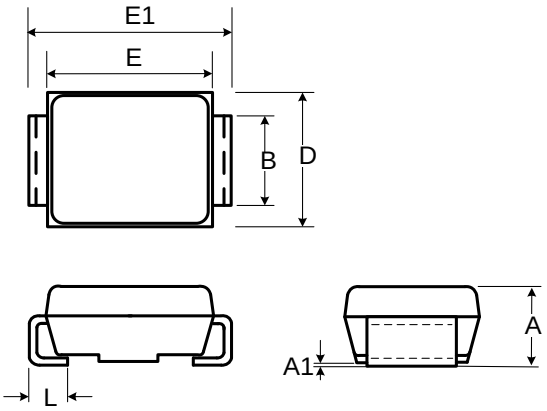

## Recommended Soldering Parameters

| Reflow Condition | | |
|---|---|---|
| Pre Heat | Temp. Min ($T_{s(min)}$) | 150°C |
| | Temp. 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 |
| $T_{s(max)}$ to $T_L$ - 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 | | 5°C/s max |
| Time 25°C to peak Temperature ($T_P$) | | 8 minutes Max. |
| Do not exceed | | 260°C |

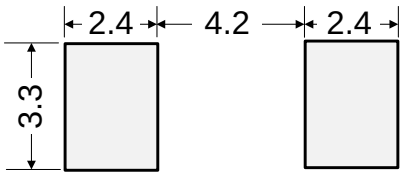



## Outline Drawing – SMC (DO-214AB)

| 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 |

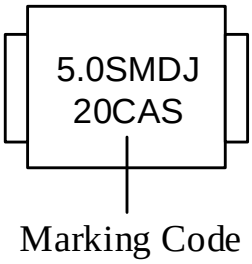


## Recommended Solder Pad Layout




Dimensions in mm

## Marking Code




Marking Code

## Package Information

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

### Contact Information

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