

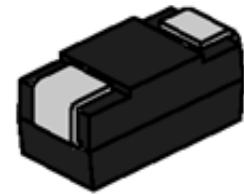


CP3100SE TSS

Rev.1.1

DESCRIPTION:

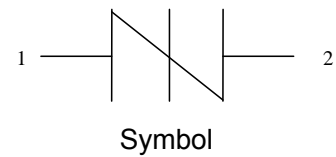
CP3100SE is a type of semiconductor components. It is designed to protect baseband equipment from damaging overvoltage transients.



SMB

FEATURES:

- Low profile package.
- Low on-state voltage.
- Excellent capability of absorbing transient surge.
- Quick response to surge voltage (ns Level).
- Eliminates overvoltage caused by fast rising transients.
- Moisture sensitivity level: Level 1.
- IEC61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact).
- Non degenerative.

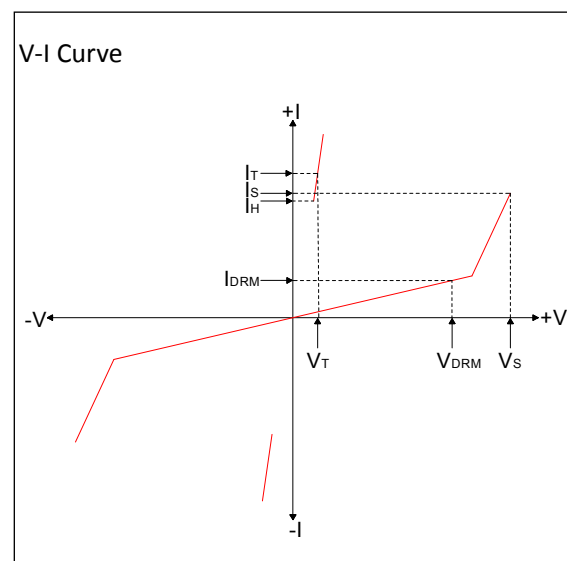


ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|-----------|-------------|------------------|
| Storage temperature range | T_{STG} | -60 to +150 | $^\circ\text{C}$ |
| Operating junction temperature range | T_J | -40 to +125 | $^\circ\text{C}$ |
| Repetitive peak pulse voltage @10/700 μs $R_i=18\Omega$ | V_{PP} | 6000 | V |

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

| Symbol | Parameter |
|-----------|------------------------|
| V_{DRM} | Peak off-state voltage |
| I_{DRM} | Off-state current |
| V_S | Switching voltage |
| I_S | Switching current |
| V_T | On-state voltage |
| I_T | On-state current |
| I_H | Holding current |
| C_o | Off-state capacitance |



MARKING



CP31E : Device Marking Code
1409: In ninth week, 2014

ELECTRICAL CHARACTERISTICS (T_A=25°C, continued)

| Part Number | I _{DRM} @V _{DRM} | | V _S ^① @I _S | | V _T @I _T | | I _H | Co ^② | Marking |
|-------------|------------------------------------|-----|---|-----|--------------------------------|-----|----------------|-----------------|---------|
| | μA | V | V | mA | V | A | mA | pF | |
| | max | | max | max | max | max | min | max | |
| CP3100SE | 1 | 275 | 350 | 800 | 4 | 2.2 | 50 | 80 | CP31E |

① V_S is measured at 100kV/s

② Off-state capacitance is measured in V_{DC}=2V, V_{RMS}=1V, f=1MHz

SURGE RATINGS

| Surge Type | 10/1000μs | 10/700μs(R _i =18Ω) |
|------------|-----------|-------------------------------|
| CP3100SE | 200A | 6kV |

ORDERING INFORMATION

| | | | | |
|--------------------------|----------------|----------------|------------------|---------------|
| CP | 310 | 0 | S | E |
| Low capacitance sidactor | Median voltage | 0:Bi-direction | Package type:SMB | Surge ratings |

SOLDERING PARAMETERS

| | | |
|--|-----------------------------------|---------------------------------|
| Reflow Condition | | Pb-Free assembly (see FIG.2) |
| Pre Heat | -Temperature Min ($T_{s(min)}$) | +150°C |
| | -Temperature Max($T_{s(max)}$) | +200°C |
| | -Time (Min to Max) (t_s) | 60-180 secs. |
| Average ramp up rate (Liquidus Temp (T_L) to peak) | | 3°C/sec. Max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3°C/sec. Max |
| Reflow | -Temperature(T_L) (Liquidus) | +217°C |
| | -Temperature(t_L) | 60-150 secs. |
| Peak Temp (T_p) | | +260(+0/-5)°C |
| Time within 5°C of actual Peak Temp (t_p) | | 30 secs. Max |
| Ramp-down Rate | | 6°C/sec. Max |
| Time 25°C to Peak Temp (T_P) | | 8 min. Max |
| Do not exceed | | +260°C |

FIG.1: $t_r \times t_d$ pulse waveform

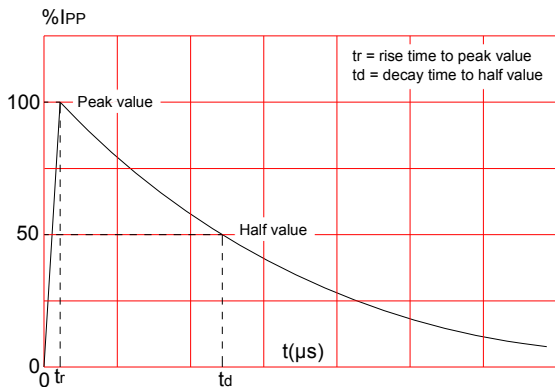


FIG.3: Normalized V_s change vs. junction temperature

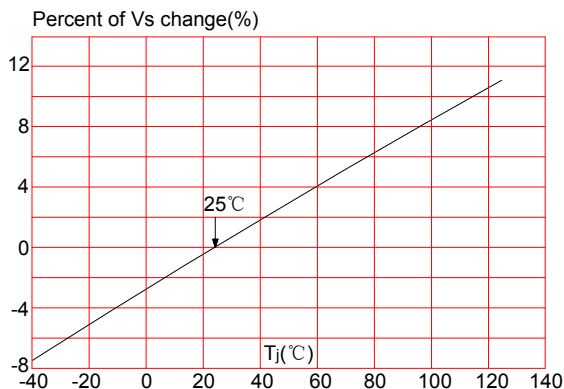


FIG.2: Reflow condition

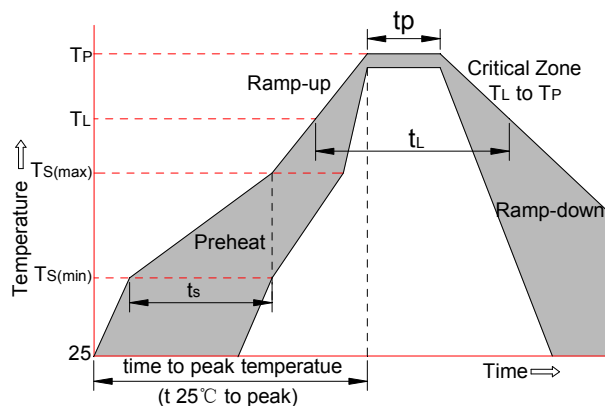
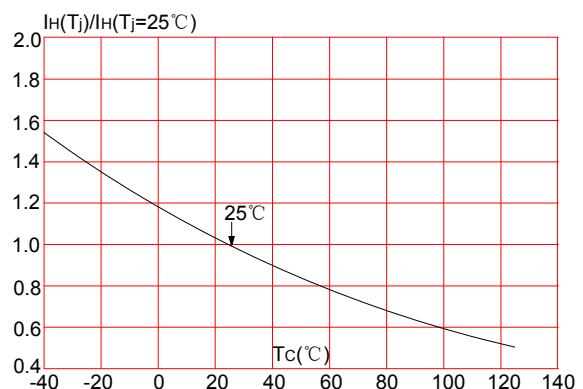
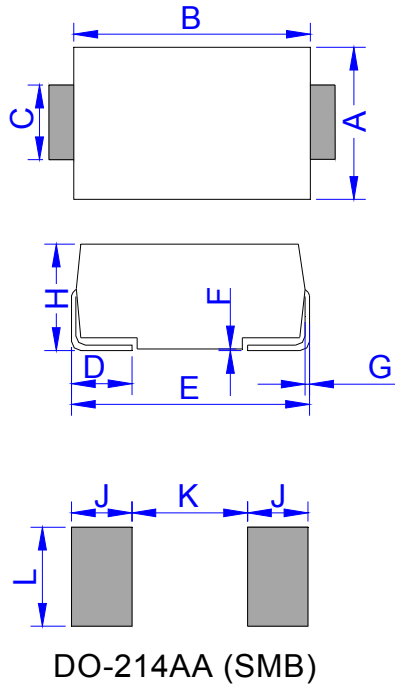


FIG.4: Normalized DC holding current vs. case temperature

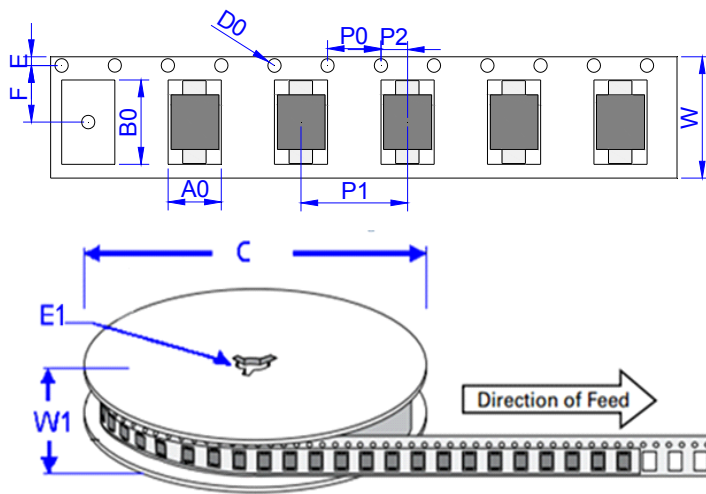


PACKAGE MECHANICAL DATA



| Ref. | Dimensions | | | |
|------|-------------|-------|--------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 3.30 | 3.94 | 0.130 | 0.155 |
| B | 4.30 | 4.80 | 0.169 | 0.189 |
| C | 1.90 | 2.20 | 0.075 | 0.087 |
| D | 0.95 | 1.52 | 0.037 | 0.060 |
| E | 5.20 | 5.60 | 0.205 | 0.220 |
| F | 0.051 | 0.203 | 0.002 | 0.008 |
| G | 0.15 | 0.31 | 0.006 | 0.012 |
| H | 2.10 | 2.40 | 0.083 | 0.094 |
| J | 2.20 | | 0.087 | |
| K | | 2.60 | | 0.102 |
| L | 2.30 | | 0.091 | |


TAPE AND REEL SPECIFICATION-SMB



| Ref. | Dimensions | |
|------|-------------|----------------|
| | Millimeters | Inches |
| A0 | 3.76 ± 0.3 | 0.148 ± 0.012 |
| B0 | 5.69 ± 0.3 | 0.224 ± 0.012 |
| C | 330.0 | 13.0 |
| D0 | 1.55 ± 0.1 | 0.061 ± 0.004 |
| E | 1.75 ± 0.2 | 0.069 ± 0.008 |
| E1 | 13.3 ± 0.3 | 0.524 ± 0.012 |
| F | 5.5 ± 0.2 | 0.217 ± 0.008 |
| P0 | 4.00 ± 0.2 | 0.157 ± 0.008 |
| P1 | 8.00 ± 0.2 | 0.3145 ± 0.008 |
| P2 | 2.00 ± 0.2 | 0.079 ± 0.008 |
| W | 12.0 ± 0.2 | 0.472 ± 0.008 |
| W1 | 15.7 ± 2.0 | 0.618 ± 0.079 |

| PART No. | UNIT WEIGHT (g/PCS) typ. | REEL (PCS) | PER CARTON (PCS) | DESCRIPTION |
|----------|--------------------------|------------|------------------|-------------------|
| CP3100SE | 0.098 | 3,000 | 48,000 | 13 inch reel pack |

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