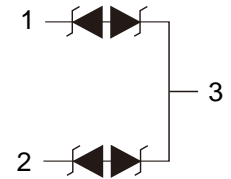
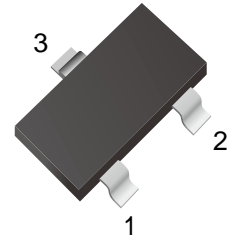




Features

- IEC 61000-4-2 Level 4 ESD Protection
 - $\pm 30\text{kV}$ Contact Discharge
 - $\pm 30\text{kV}$ Air Discharge
- 375W Peak pulse Power (8/20 μs)
- Low clamping voltage
- Working voltage: 5V
- Low leakage current
- Protecting two Bi-directional lines
- Capacitance: 65pF Typ.
- Lead free in comply with EU RoHS 2011/65/EU directives



Mechanical Data

- Case: SOT-23
- Approx. Weight: 8.1mg

Applications

- MP3 Players
- Battery Protection
- Vbat pin for Mobile Device
- Mobile Phones
- Power Line Protection
- Hand Held portable Applications

Ordering Information

| Part Number | Marking | Shipping | Reel |
|--------------------|---------|--------------------|-----------|
| LTE23T05C02HD-TR3 | 2B | 3000PCS Tape&Reel | 7 inches |
| LTE23T05C02HD-TR12 | 2B | 12000PCS Tape&Reel | 13 inches |

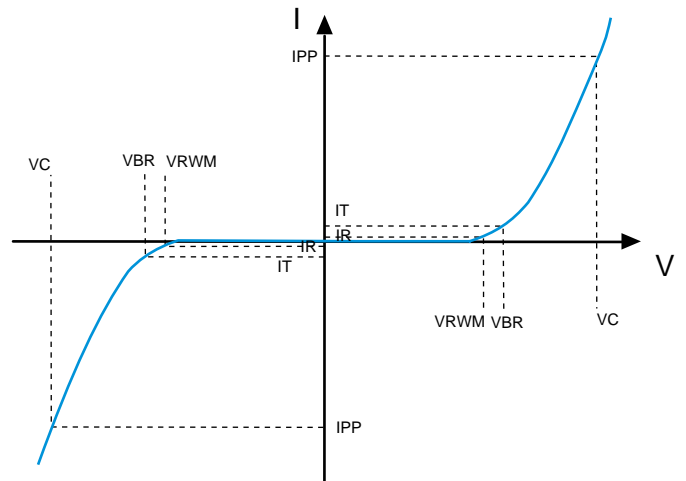
Absolute Maximum Rating

Over operating free-air temperature range (unless otherwise noted)

| Parameters | Symbol | Min | Max | Unit |
|--------------------------------------|-----------|-----|----------|--------------------|
| Peak pulse power (tp=8/20us) | P_{pk} | - | 375 | W |
| Peak pulse current (tp=8/20us) | I_{pp} | - | 25 | A |
| ESD (IEC61000-4-2 air discharge) | V_{ESD} | - | ± 30 | kV |
| ESD (IEC61000-4-2 contact discharge) | V_{ESD} | - | ± 30 | kV |
| Junction temperature | T_J | - | 125 | $^{\circ}\text{C}$ |
| Operating temperature | T_{OP} | -40 | 85 | $^{\circ}\text{C}$ |
| Storage temperature | T_{STG} | -55 | 150 | $^{\circ}\text{C}$ |
| Lead temperature | T_L | - | 260 | $^{\circ}\text{C}$ |



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



Electrical Characteristics

At $T_A = 25^\circ\text{C}$ unless otherwise noted

| Parameter | Symbol | Conditions | Min | Typ | Max | Units |
|---------------------------|-----------|---|-----|-----|-----|---------------|
| Reverse Stand-off Voltage | V_{RWM} | | | | 5 | V |
| Reverse Breakdown Voltage | V_{BR} | $I_T=1\text{mA}$ | 5.5 | | 7.5 | V |
| Reverse Leakage Current | I_R | $V_{RWM}=5\text{V}$ | | | 0.1 | μA |
| Clamping Voltage | V_C | $I_{PP}=1\text{A}; t_p=8/20\mu\text{s}$ | | 8 | 10 | V |
| | | $I_{PP}=25\text{A}; t_p=8/20\mu\text{s}$ | | 10 | 15 | V |
| Junction Capacitance | C_J | $V_R=0\text{V}; f=1\text{MHz}, \text{I/O to GND}$ | | 65 | 75 | pF |



Characteristic Curves

Fig.1 8/20 μ s waveform per IEC61000-4-5

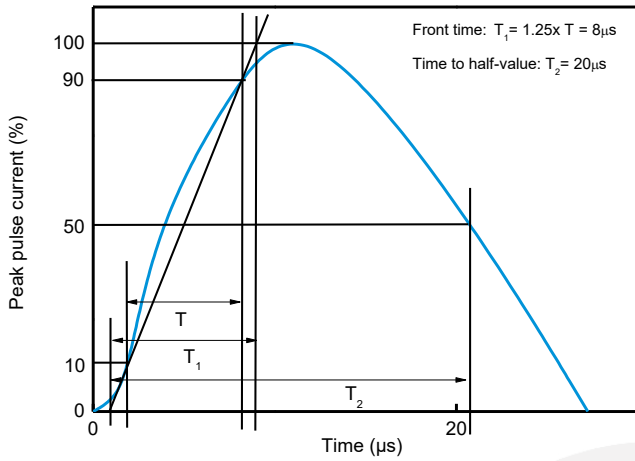


Fig.2 Contact discharge current waveform per IEC61000-4-2

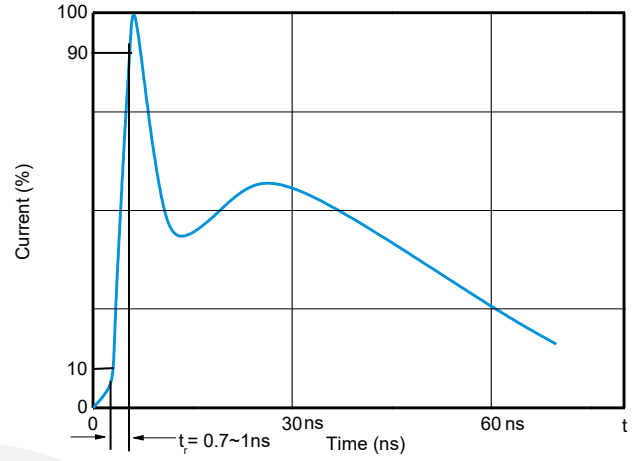


Fig.3 Clamping voltage vs Peak pulse current

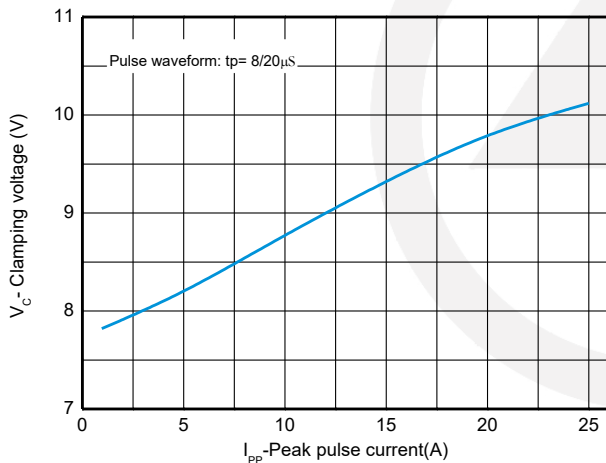


Fig.4 Capacitance vs Reverse voltage

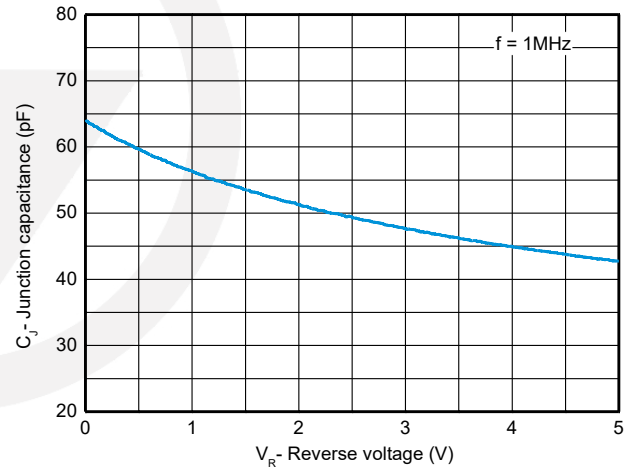


Fig.5 Non-repetitive peak pulse power vs Pulse time

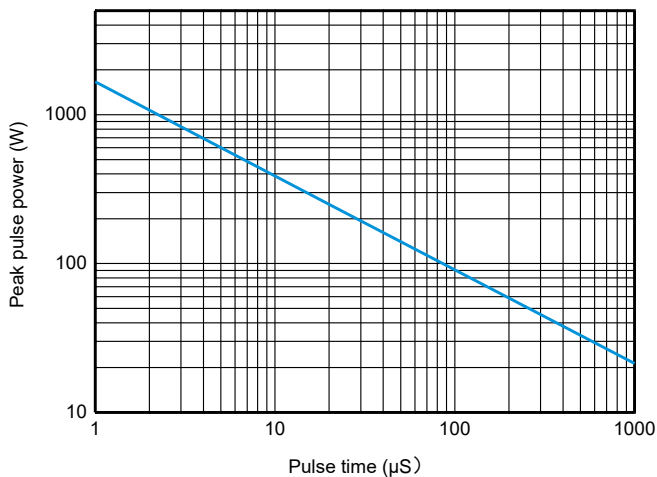
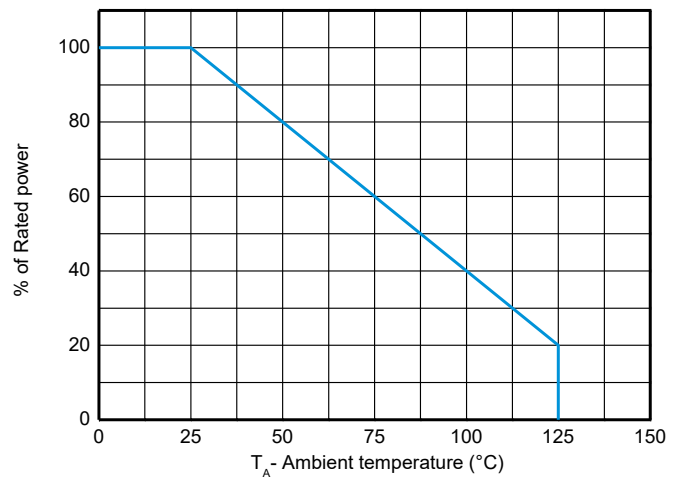


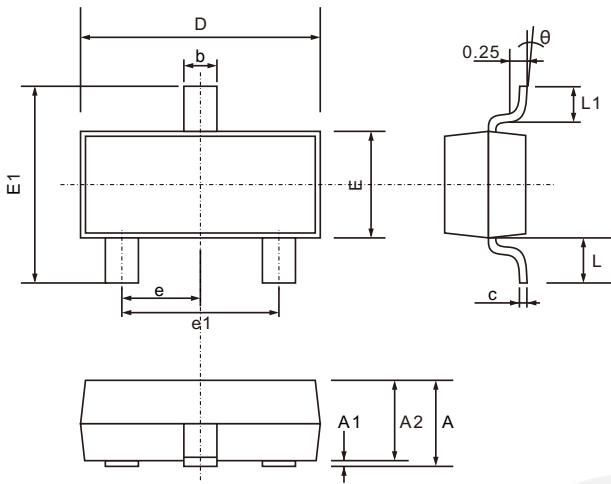
Fig.6 Power derating vs Ambient temperature





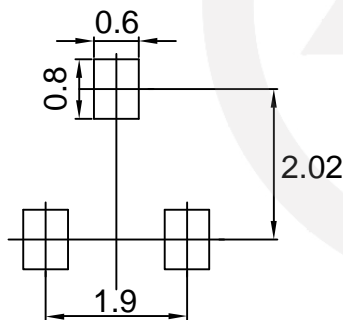
SOT-23 Package Outline

Unit: mm



| SYMBOL | DIMENSIONS | |
|----------|------------|-------|
| | MIN. | MAX. |
| A | 0.900 | 1.200 |
| A1 | 0.000 | 0.100 |
| A2 | 0.900 | 1.050 |
| b | 0.300 | 0.500 |
| c | 0.080 | 0.200 |
| D | 2.700 | 3.100 |
| E | 1.200 | 1.400 |
| E1 | 2.200 | 2.600 |
| e | 0.950 TYP. | |
| e1 | 1.750 | 2.050 |
| L | 0.550 TYP. | |
| L1 | 0.300 | 0.500 |
| θ | 0° | 8° |

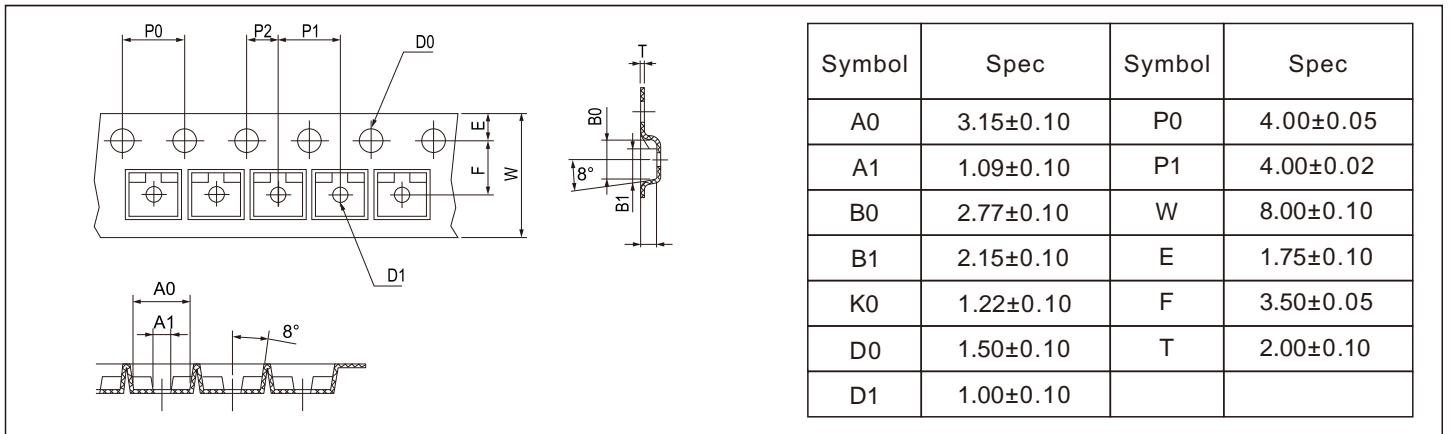
SOT-23 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$
 3. The pad layout is for reference purpose only.

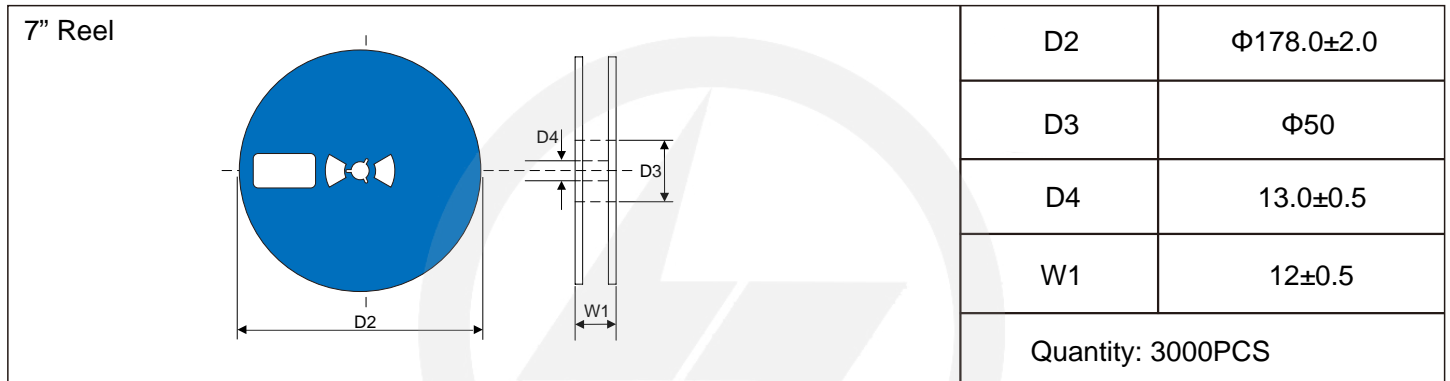
Carrier Tape Dimensions

Unit : mm



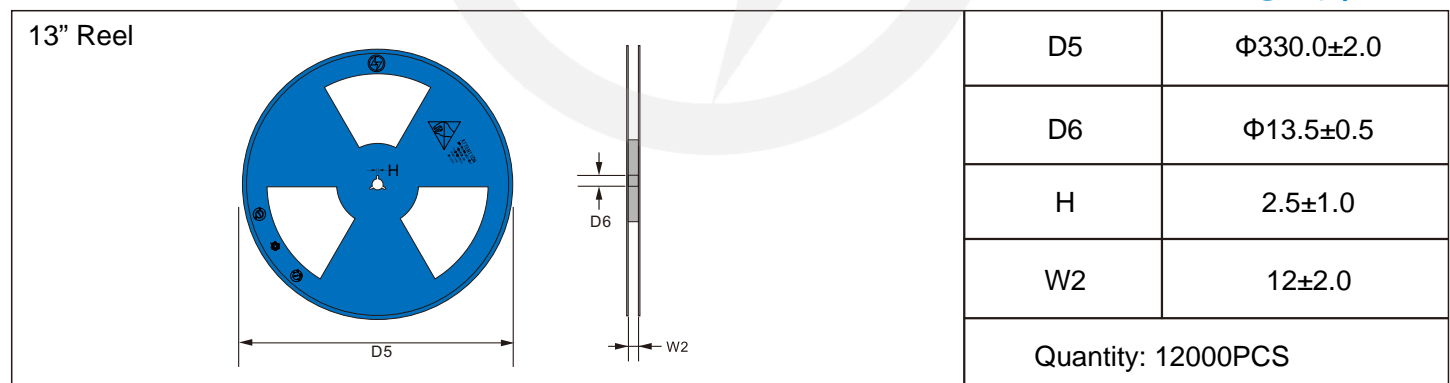
Reel Dimensions

Unit : mm

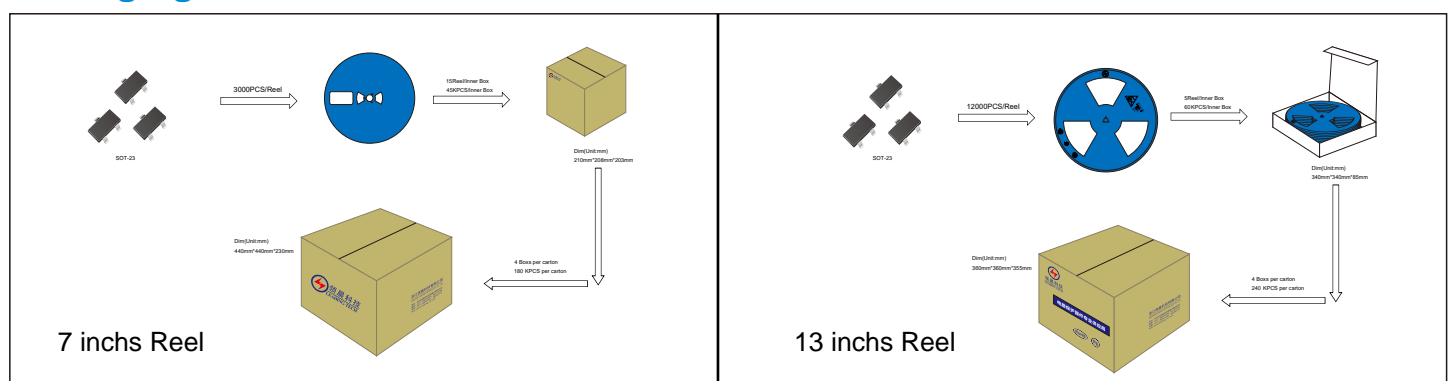


Reel Dimensions

Unit : mm



Packaging





Recommended Soldering Conditions



Recommended Conditions

| Profile Feature | Pb-Free Assembly |
|--|------------------|
| Average ramp-up rate (T _L to T _P) | 3°C/second max. |
| Preheat | |
| -Temperature Min (T _{S min}) | 150°C |
| -Temperature Max (T _{S max}) | 200°C |
| -Time (min to max) (t _s) | 60-180 seconds |
| T _{S max} to T _L | |
| -Ramp-up Rate | 3°C/second max. |
| Time maintained above: | |
| -Temperature (T _L) | 217°C |
| -Time (t _L) | 60-150 seconds |
| Peak Temperature (T _P) | 260°C |
| Time within 5°C of actual Peak Temperature (t _p) | 20-40 seconds |
| Ramp-down Rate | 6°C/second max. |
| Time 25°C to Peak Temperature | 8 minutes max. |

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Version Update Information

| Series NO. | Enactment/Revision Date | Effective Date | Version | Revision Content | Revision Reason | Revision Person | Note |
|------------|-------------------------|----------------|---------|----------------------------------|-----------------|-----------------|------|
| 01 | 2025.01.25 | 2025.01.25 | 3.0 | New file | / | Ding | |
| 02 | 2026.03.06 | 2026.03.06 | 3.1 | Package outline E1(max)=2.6mm | / | Ding | |