

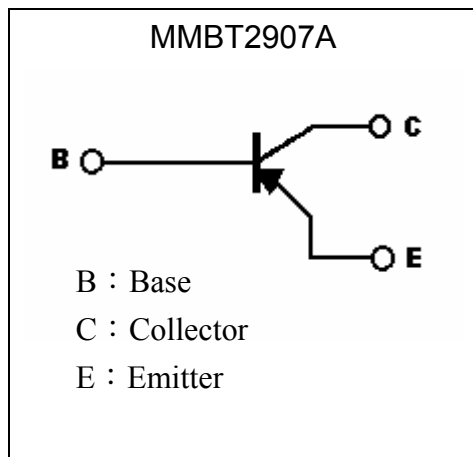
General Purpose PNP Epitaxial Planar Transistor

MMBT2907A

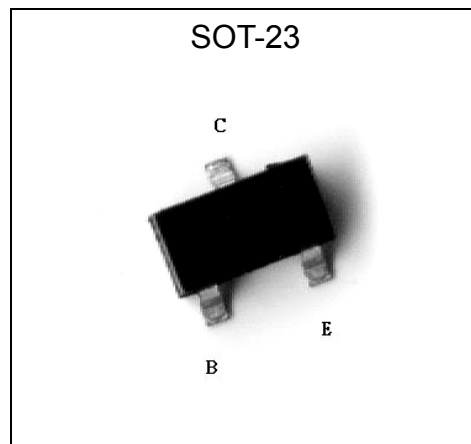
Description

- The MMBT2907A is designed for using in driver stage of AF amplifier and general purpose amplification.
- Large I_C , $I_{C(Max)} = -0.6A$
- Low $V_{CE(sat)}$, ideal for low-voltage operation.
- Complementary to MMBT2222A.
- Pb-free package

Symbol



Outline



Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|---|-----------------|----------|------|
| Collector-Base Voltage | V_{CBO} | -60 | V |
| Collector-Emitter Voltage | V_{CEO} | -60 | V |
| Emitter-Base Voltage | V_{EBO} | -5 | V |
| Collector Current | I_C | -0.6 | A |
| Power Dissipation | P_d | 225 | mW |
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 556 | °C/W |
| Operating Junction Temperature Range | T_j | -55~+150 | °C |
| Storage Temperature Range | T_{stg} | -55~+150 | °C |

**Characteristics (Ta=25°C)**

| Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|-------------|------|------|-------|------|-----------------------------|
| BVCBO | -60 | - | - | V | IC=-10μA |
| BVCEO | -60 | - | - | V | IC=-10mA |
| BVEBO | -5 | - | - | V | IE=-10μA |
| ICBO | - | - | -10 | nA | VCB=-50V |
| ICEX | - | - | -50 | nA | VCE=-30V, VEB=-0.5V |
| *VCE(sat) 1 | - | - | -0.4 | V | IC=-150mA, IB=-15mA |
| *VCE(sat) 2 | - | - | -0.75 | V | IC=-500mA, IB=-50mA |
| *VBE(sat) 1 | - | - | -0.95 | V | IC=-150mA, IB=-15mA |
| *VBE(sat) 2 | - | - | -1.3 | V | IC=-500mA, IB=-50mA |
| hFE 1 | 75 | - | - | - | VCE=-10V, IC=-0.1mA |
| hFE 2 | 100 | - | - | - | VCE=-10V, IC=-1mA |
| hFE 3 | 100 | - | - | - | VCE=-10V, IC=-10mA |
| *hFE 4 | 100 | - | 300 | - | VCE=-10V, IC=-150mA |
| *hFE 5 | 50 | - | - | - | VCE=-10V, IC=-500mA |
| fT | 200 | - | - | MHz | VCE=-5V, IC=-50mA, f=100MHz |
| Cob | - | - | 8 | pF | VCB=-10V, f=1MHz |

*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

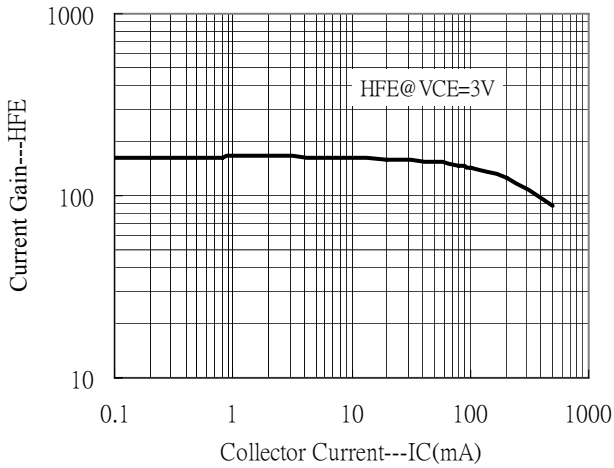
Ordering Information

| Device | Package | Shipping | Marking |
|-----------|---------------------|------------------------|---------|
| MMBT2907A | SOT-23 (Pb-free) | 3000 pcs / Tape & Reel | 2T |

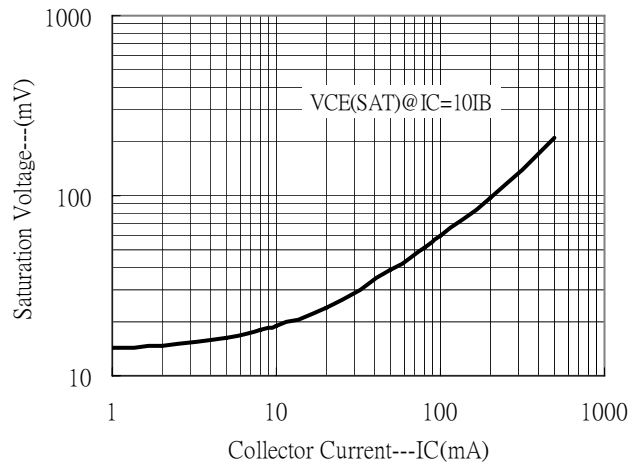


Characteristic Curves

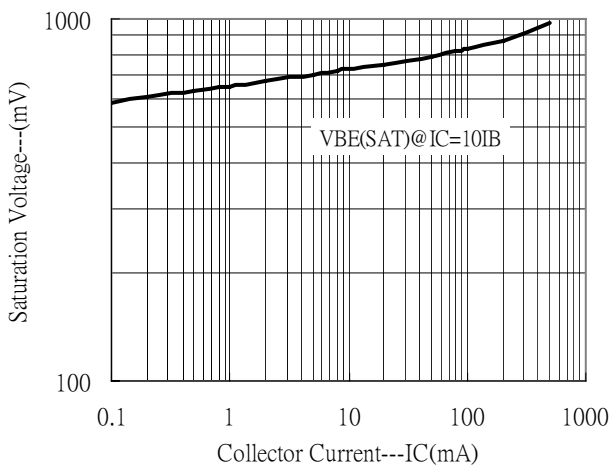
Current Gain vs Collector Current



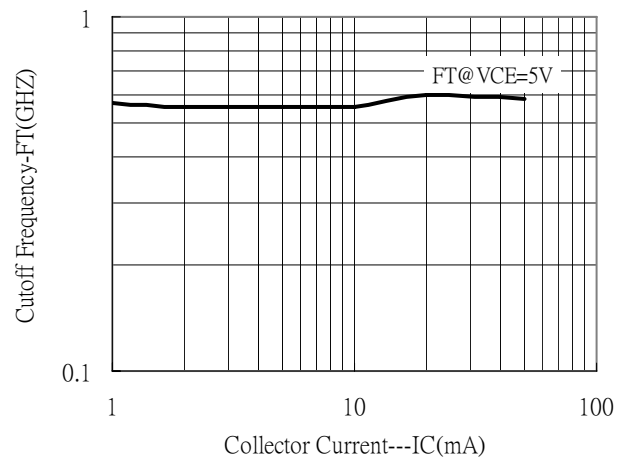
Saturation Voltage vs Collector Current



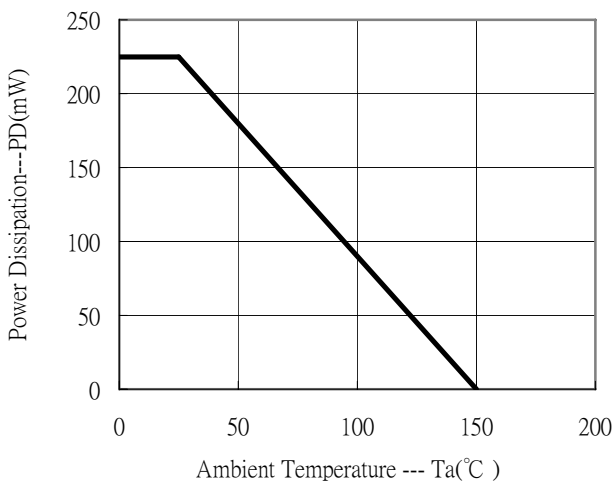
Saturation Voltage vs Collector Current



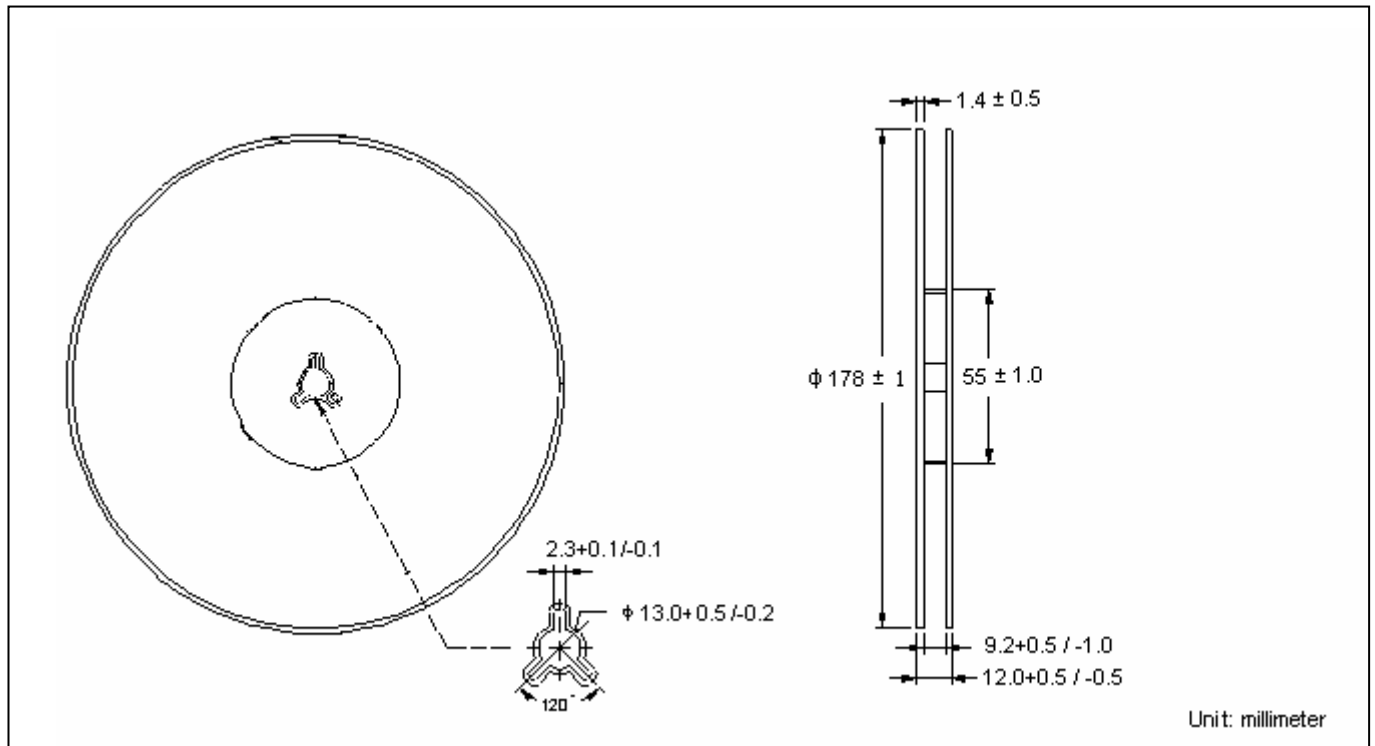
Cutoff Frequency vs Collector Current



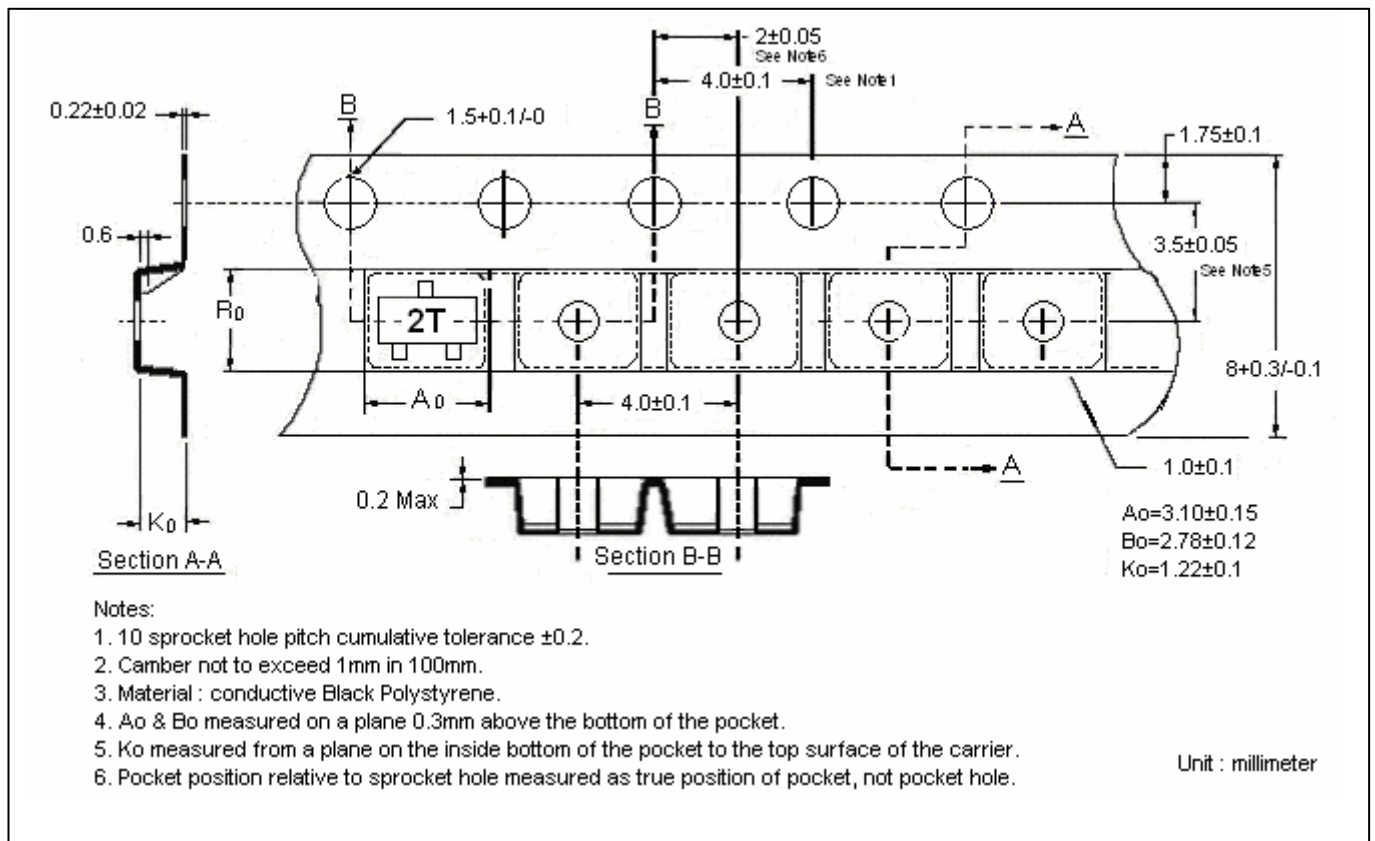
Power Derating Curve



Reel Dimension



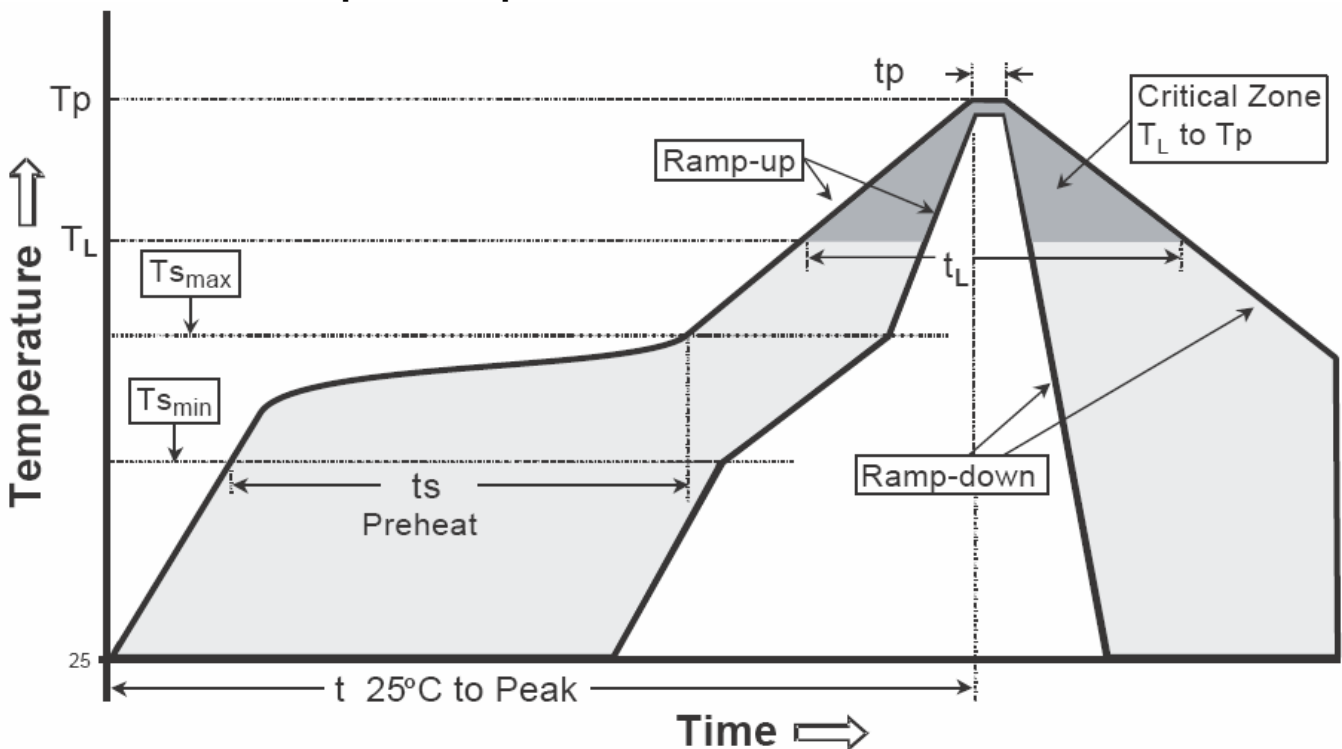
Carrier Tape Dimension



Recommended wave soldering condition

| | | |
|-----------------|------------------|-----------------|
| Product | Peak Temperature | Soldering Time |
| Pb-free devices | 260 +0/-5 °C | 5 +1/-1 seconds |

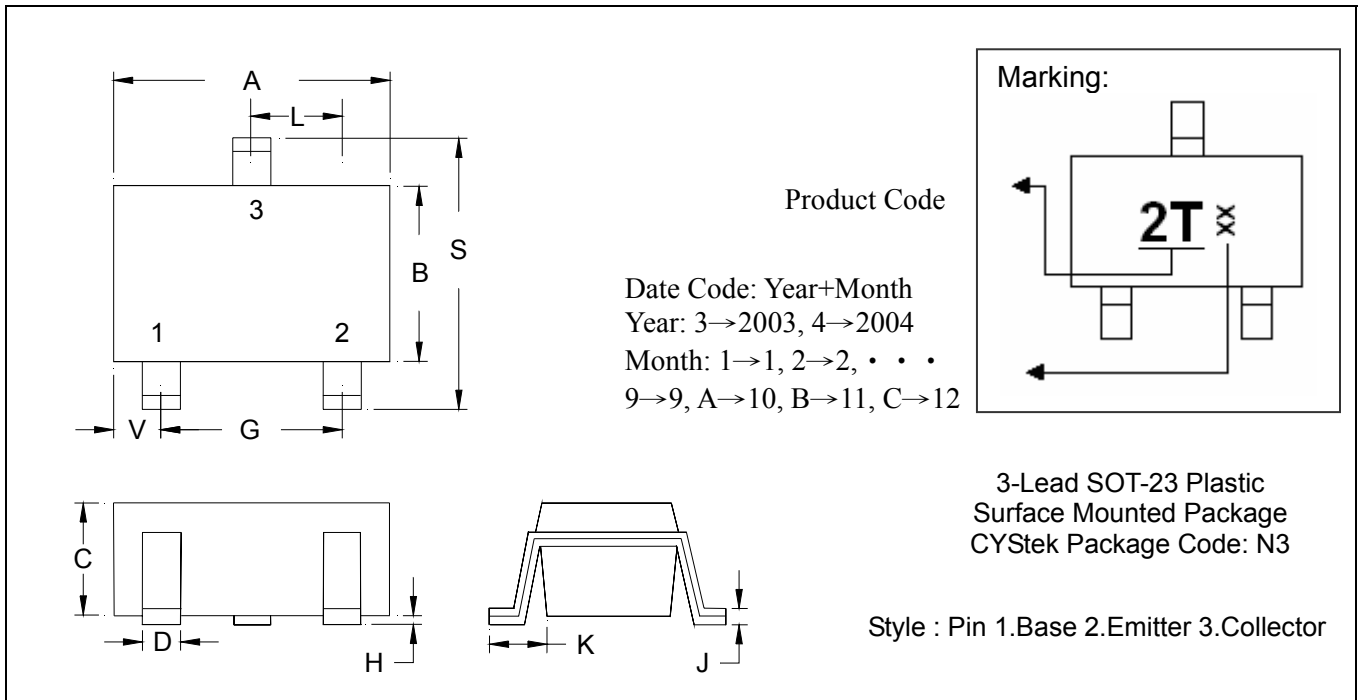
Recommended temperature profile for IR reflow



| Profile feature | Sn-Pb eutectic Assembly | Pb-free Assembly |
|--|-------------------------|------------------|
| Average ramp-up rate (Tsmax to Tp) | 3°C/second max. | 3°C/second max. |
| Preheat | | |
| -Temperature Min(Ts min) | 100°C | 150°C |
| -Temperature Max(Ts max) | 150°C | 200°C |
| -Time(ts min to ts max) | 60-120 seconds | 60-180 seconds |
| Time maintained above: | | |
| -Temperature (TL) | 183°C | 217°C |
| - Time (tL) | 60-150 seconds | 60-150 seconds |
| Peak Temperature(TP) | 240 +0/-5 °C | 260 +0/-5 °C |
| Time within 5°C of actual peak temperature(tp) | 10-30 seconds | 20-40 seconds |
| Ramp down rate | 6°C/second max. | 6°C/second max. |
| Time 25 °C to peak temperature | 6 minutes max. | 8 minutes max. |

Note : All temperatures refer to topside of the package, measured on the package body surface.

SOT-23 Dimension



*:Typical

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|-----|--------|--------|-------------|------|-----|--------|--------|-------------|-------|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | 0.1102 | 0.1204 | 2.80 | 3.04 | J | 0.0034 | 0.0070 | 0.085 | 0.177 |
| B | 0.0472 | 0.0630 | 1.20 | 1.60 | K | 0.0128 | 0.0266 | 0.32 | 0.67 |
| C | 0.0335 | 0.0512 | 0.89 | 1.30 | L | 0.0335 | 0.0453 | 0.85 | 1.15 |
| D | 0.0118 | 0.0197 | 0.30 | 0.50 | S | 0.0830 | 0.1083 | 2.10 | 2.75 |
| G | 0.0669 | 0.0910 | 1.70 | 2.30 | V | 0.0098 | 0.0256 | 0.25 | 0.65 |
| H | 0.0005 | 0.0040 | 0.013 | 0.10 | | | | | |

Notes : 1.Controlling dimension : millimeters.
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material :

- Lead : Pure tin plated
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0

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