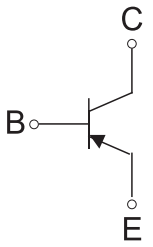
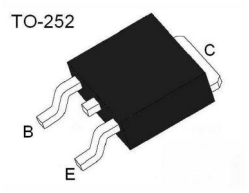
## FEATURES

Designed for General Purpose Amplifier
Lead Formed for Surface Mount Applications in Plastic Sleeves (No Suffix)
Straight Lead Version in Plastic Sleeves ("–1" Suffix)
Lead Formed Version in 16 mm Tape and Reel ("T4" Suffix)
Electrically Similar to Popular TIP41 and TIP42 Series
Monolithic Construction With Built–in Base–Emitter Resistors




**Equivalent Circuit**




## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

**Absolute Maximum Ratings**

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | -100 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | -100 | V |
| $V_{EBO}$ | Emitter-Base Voltage | -5 | V |
| $I_C$ | Collector Current -Continuous | -3 | A |
| $I_{CP}^*$ | Collector Current -Pluse | -10 | A |
| $P_C$ | Collector Power Dissipation | 1.25 | W |
| $T_J, T_{stg}$ | Operating Junction and Storage Temperature Range | -55-150 | ℃ |

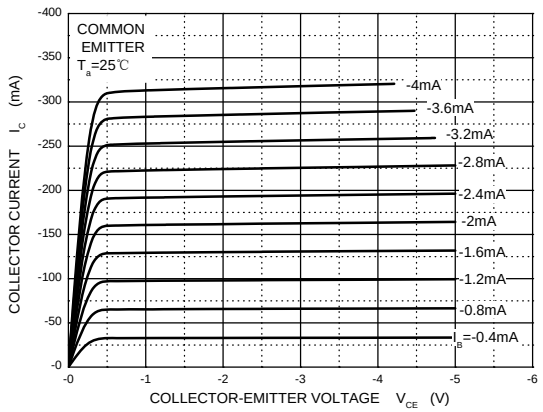
## ELECTRICAL CHARACTERISTICS(Ta=25℃ unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Collector-base breakdown voltage** | $V_{(BR)CBO}$ | $I_C$=-100μA,$I_E$=0 | -100 | | | V |
| **Collector-emitter breakdown voltage** | $V_{CEO(sus)}$ | $I_C$=-30mA,$I_B$=0 | -100 | | | V |
| **Emitter-base breakdown voltage** | $V_{(BR)EBO}$ | $I_E$=-100μA,$I_C$=0 | -5 | | | V |
| **Collector cut-off current** | $I_{CEO}$ | $V_{CB}$=-60V,$I_E$=0 | | | -50 | μA |
| **Emitter cut-off current** | $I_{EBO}$ | $V_{EB}$=-5V $I_C$=0 | | | -0.5 | mA |
| **DC current gain** | $h_{FE(1)}$ | $V_{CE}$=-4V $I_C$=-0.3A | 30 | | | |
| | $h_{FE(2)}$ | $V_{CE}$=-4V,$I_C$=-3A | 15 | | 75 | |
| **Collector-emitter saturation voltage** | $V_{CE(sat)}$ | $I_C$=-3A,$I_B$=-0.6A | | | -1.5 | V |
| **Base-emitter voltage** | $V_{BE}$ | $V_{CE}$=-4V,$I_C$=-6A | | | -2 | V |
| **Transition frequency** | $f_T$ | $V_{CE}$=-10V,$I_C$=-500mA,f=1MHz | 3 | | | MHz |

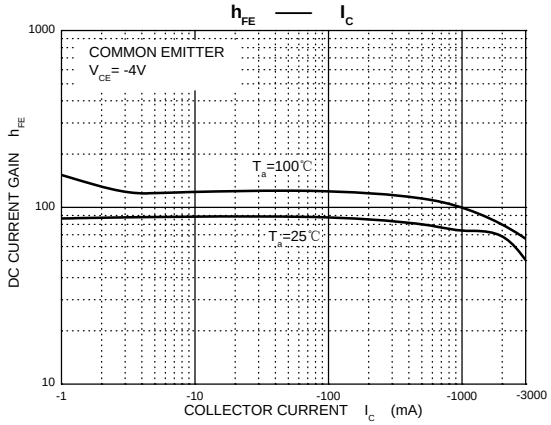
* Pulse Test: PW≤300μs, Duty Cycle≤2%

## RATING AND CHARACTERISTIC CURVES

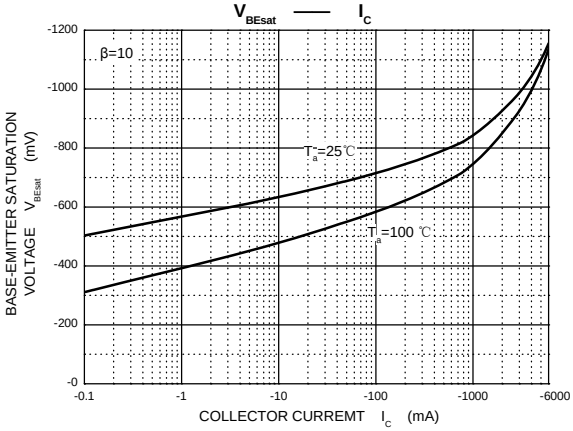
Static Characteristic



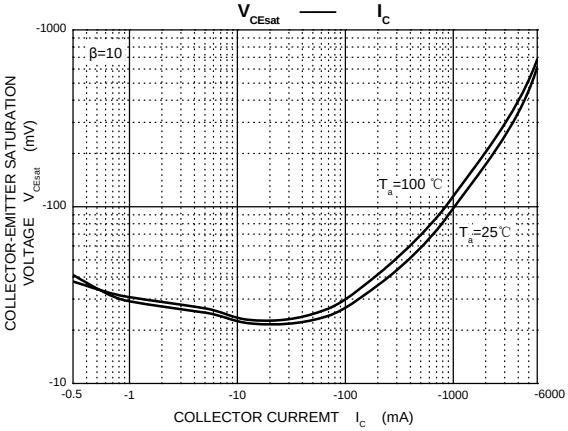

$h_{FE}$ —— $I_C$



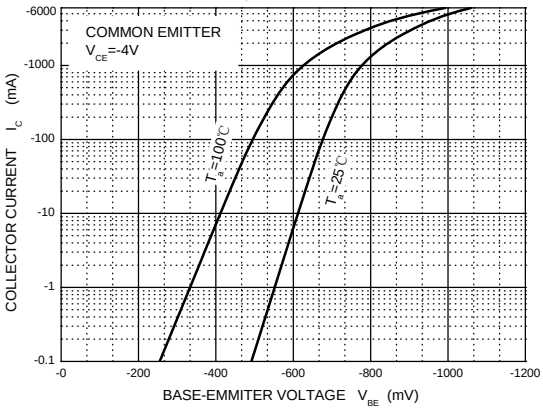

$V_{BEsat}$ —— $I_C$



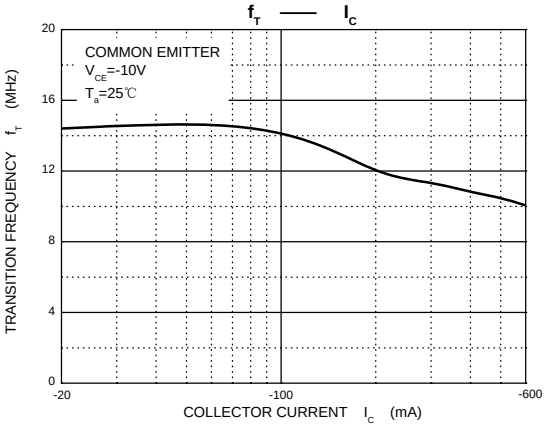

$V_{CEsat}$ —— $I_C$



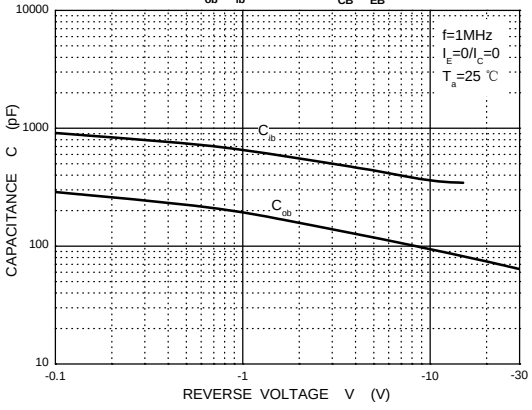

$I_C$ —— $V_{BE}$



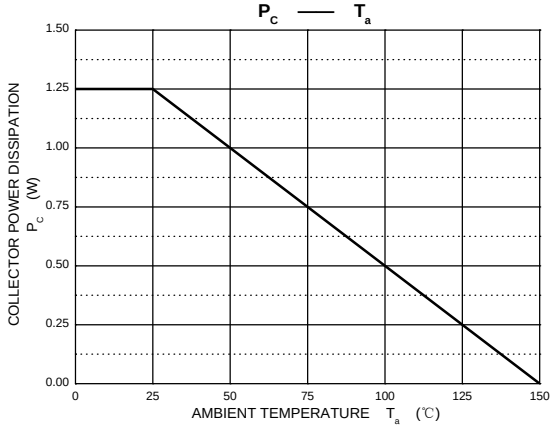

$f_T$ —— $I_C$




$C_{ob}/C_{ib}$ —— $V_{CB}/V_{EB}$



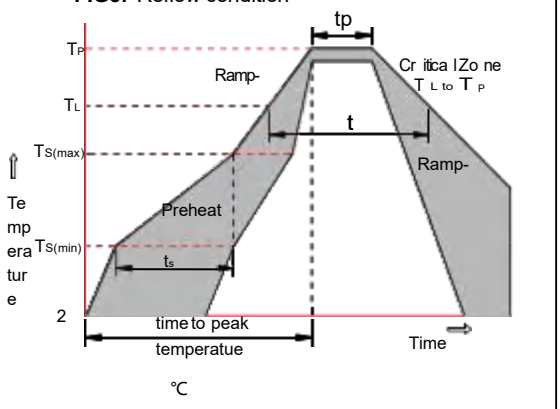

$P_C$ —— $T_a$



## Soldering parameters

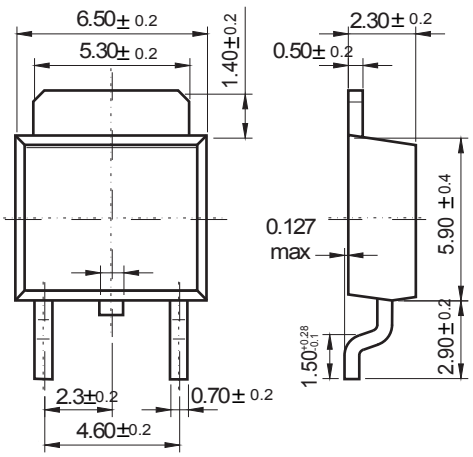
| Reflow Condition | | Pb-Free assembly (see as bellow) |
|---|---|---|
| Pre Heat | -Temperature Min ($T_{s(min)}$) | +150℃ |
| | -Temperature Max($T_{s(max)}$) | +200℃ |
| | -Time (Min to Max) (ts) | 60-180 secs. |
| Average ramp up rate (Liquid us Temp ($T_L$) to peak) | | 3℃/sec. Max |
| $T_{s(max)}$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

**FIG5:** Reflow condition

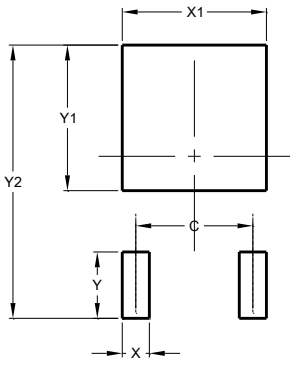



## Package Dimensions & Suggested Pad Layout

### TO-252



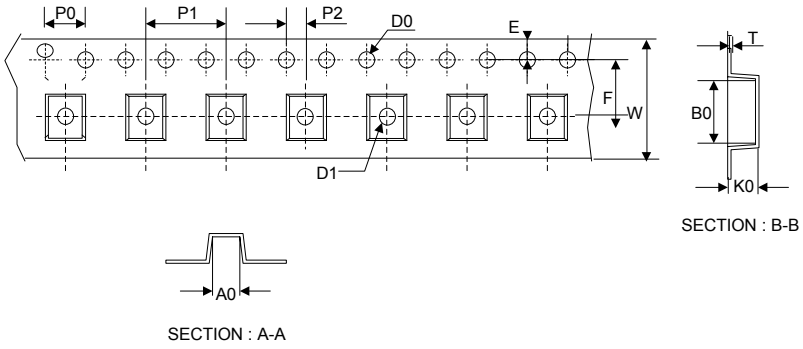

Dimensions in inches and (millimeters)




| Dimensions | Value (in mm) |
|---|---|
| C | 4.55 |
| X | 1.50 |
| X1 | 5.80 |
| Y | 2.70 |
| Y1 | 6.00 |
| Y2 | 10.90 |

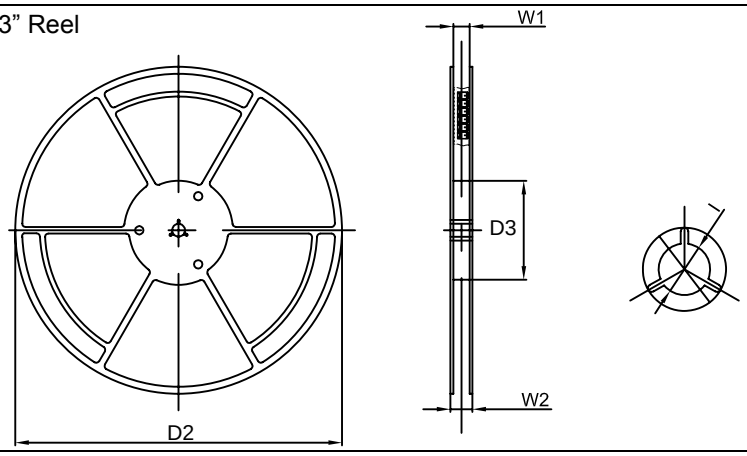
## Tape & rell specification

Tape




| Symbol | Dimension (mm) |
|---|---|
| P0 | 4.00±0.20 |
| P1 | 8.00±0.20 |
| P2 | 2.00±0.20 |
| D0 | 1.55±0.15 |
| D1 | 1.55±0.20 |
| E | 1.75±0.20 |
| F | 7.50±0.20 |
| W | 16.00±0.20 |
| A0 | 7.10±0.20 |
| B0 | 10.50±0.20 |
| K0 | 2.70±0.20 |
| T | 0.30±0.10 |

13” Reel




| | |
|---|---|
| D2 | 330.0±5.0 |
| D3 | 100.0±4.0 |
| W1 | 20.0±5.0 |
| W2 | 25.0±5.0 |
| I | 13.0±2.0 |

Quantity: 2500PCS