

DESCRIPTION

- High DC Current Gain-
: $h_{FE} = 1000(\text{Min}) @ I_C = -5\text{A}$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(\text{SUS})} = -100\text{V}(\text{Min})$
- Complement to Type TIP142

APPLICATIONS

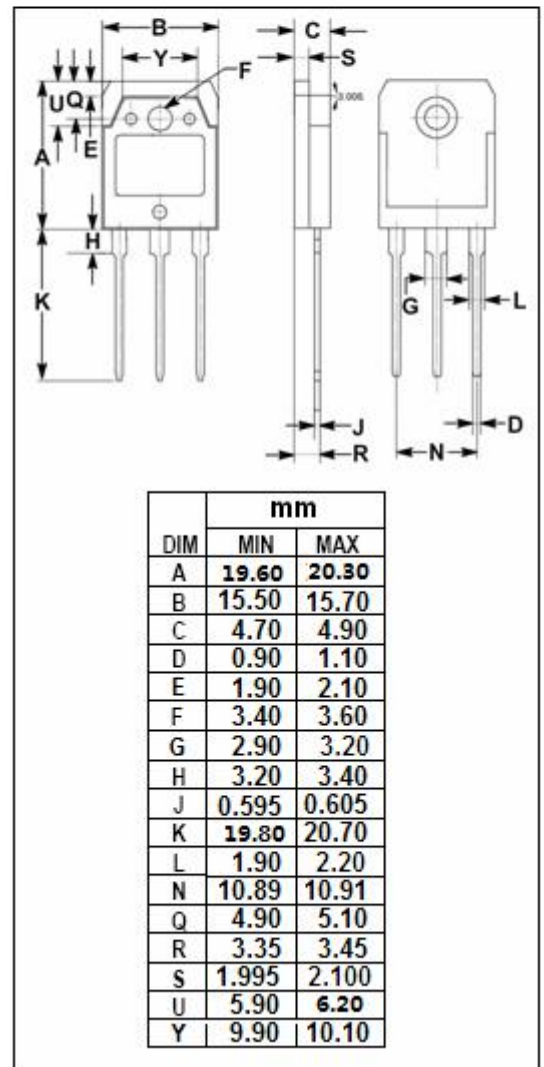
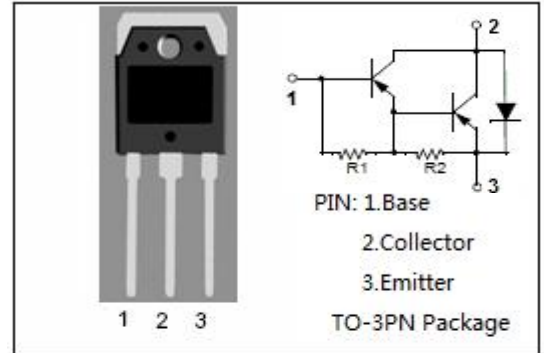
- Designed for general purpose amplifier and low frequency switching applications.

ABSOLUTE MAXIMUM RATINGS($T_a=25^\circ\text{C}$)

| 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 | -10 | A |
| I_{CM} | Collector Current-Peak | -15 | A |
| I_B | Base Current- Continuous | -0.5 | A |
| P_C | Collector Power Dissipation @ $T_C=25^\circ\text{C}$ | 125 | W |
| T_j | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature Range | -65~150 | $^\circ\text{C}$ |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------|---|------|---------------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 1.0 | $^\circ\text{C}/\text{W}$ |
| $R_{th\ j-a}$ | Thermal Resistance, Junction to Ambient | 35.7 | $^\circ\text{C}/\text{W}$ |



ELECTRICAL CHARACTERISTICS

$T_C=25^{\circ}\text{C}$ unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|-----------------|--------------------------------------|--|------|------|------|------|
| $V_{CE0(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C = -30\text{mA}, I_B = 0$ | -100 | | | V |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | $I_C = -5\text{A}, I_B = -10\text{mA}$ | | | -2.0 | V |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C = -10\text{A}, I_B = -40\text{mA}$ | | | -3.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C = -10\text{A}, I_B = -40\text{mA}$ | | | -3.5 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $I_C = -10\text{A}; V_{CE} = -4\text{V}$ | | | -3.0 | V |
| I_{CBO} | Collector Cutoff current | $V_{CB} = -100\text{V}, I_E = 0$ | | | -1 | mA |
| I_{CEO} | Collector Cutoff current | $V_{CE} = -50\text{V}, I_B = 0$ | | | -2 | mA |
| I_{EBO} | Emitter Cutoff Current | $V_{EB} = -5\text{V}; I_C = 0$ | | | -2 | mA |
| h_{FE-1} | DC Current Gain | $I_C = -5\text{A}; V_{CE} = -4\text{V}$ | 1000 | | | |
| h_{FE-2} | DC Current Gain | $I_C = -10\text{A}; V_{CE} = -4\text{V}$ | 500 | | | |

Switching Times

| | | | | | | |
|-----------|--------------|---|--|------|--|---------------|
| t_d | Delay Time | $V_{CC} = -30\text{V}, I_C = -5.0\text{A},$ $I_B = -20\text{mA};$ Duty Cycle $\leq 20\%$ $I_{B1} = I_{B2},$ $R_C \ \& \ R_B \ \text{Varied},$ $T_J = 25^{\circ}\text{C}$ | | 0.15 | | μs |
| t_r | Rise Time | | | 0.55 | | μs |
| t_{stg} | Storage Time | | | 2.5 | | μs |
| t_f | Fall Time | | | 2.5 | | μs |