

DESCRIPTION

- High DC Current Gain-
: $h_{FE} = 1000(\text{Min}) @ I_C = 5A$
- Collector-Emitter Sustaining Voltage-
: $V_{CE0(SUS)} = 60V(\text{Min})$
- Complement to Type TIP145

APPLICATIONS

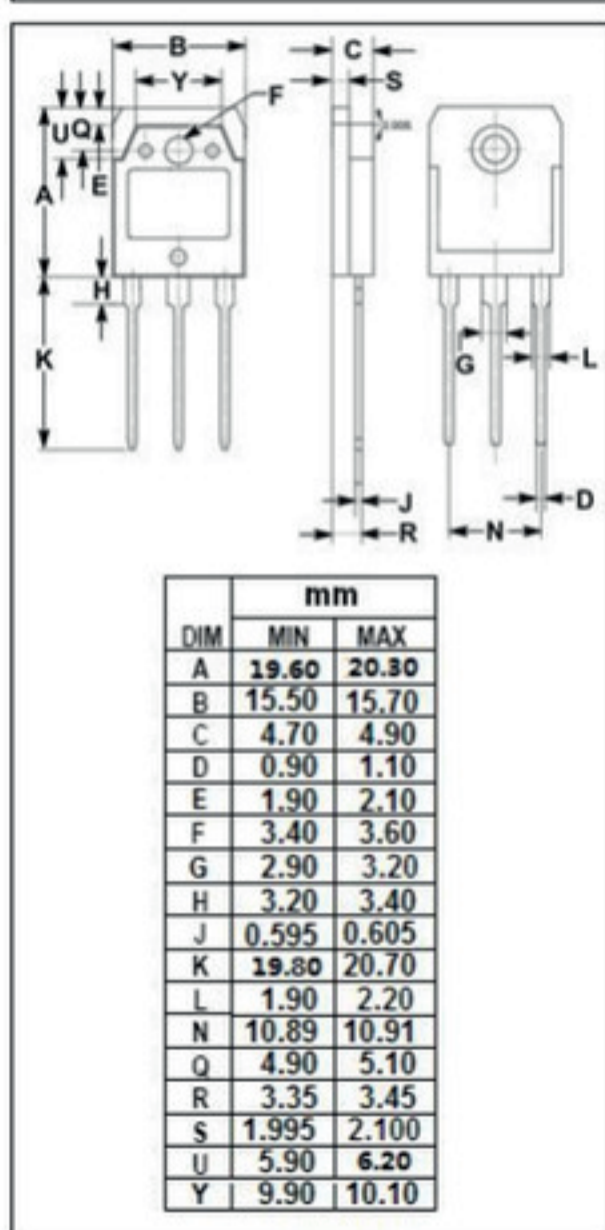
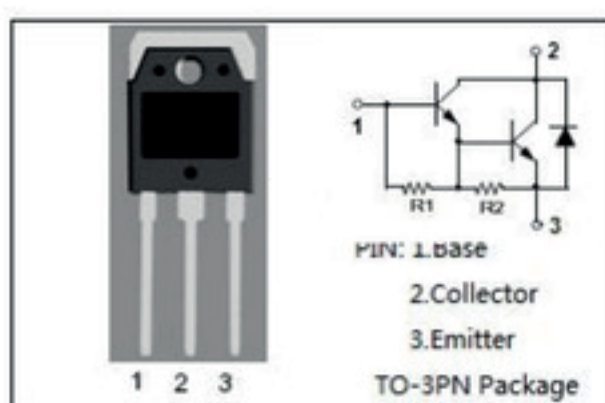
- Designed for general purpose amplifier and low frequency switching applications.

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|--|---------|------------------|
| V_{CB0} | Collector-Base Voltage | 60 | V |
| V_{CE0} | Collector-Emitter Voltage | 60 | V |
| V_{EB0} | 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 | $^\circ\text{C/W}$ |
| $R_{th(j-a)}$ | Thermal Resistance, Junction to Ambient | 35.7 | $^\circ\text{C/W}$ |



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 | $I_C = 30\text{mA}, I_B = 0$ | 60 | | | V |
| $V_{CE(sat)1}$ | Collector-Emitter Saturation Voltage | $I_C = 5A, I_B = 10\text{mA}$ | | | 2.0 | V |
| $V_{CE(sat)2}$ | Collector-Emitter Saturation Voltage | $I_C = 10A, I_B = 40\text{mA}$ | | | 3.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C = 10A, I_B = 40\text{mA}$ | | | 3.5 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $I_C = 10A; V_{CE} = 4V$ | | | 3.0 | V |
| I_{CB0} | Collector Cutoff current | $V_{CB} = 60V, I_E = 0$ | | | 1 | mA |
| I_{CE0} | Collector Cutoff current | $V_{CE} = 30V, I_B = 0$ | | | 2 | mA |
| I_{EB0} | Emitter Cutoff Current | $V_{EB} = 5V; I_C = 0$ | | | 2 | mA |
| h_{FE1} | DC Current Gain | $I_C = 5A; V_{CE} = 4V$ | 1000 | | | |
| h_{FE2} | DC Current Gain | $I_C = 10A; V_{CE} = 4V$ | 500 | | | |

Switching Times

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