

isc Silicon NPN Power Transistor

2SD1705

DESCRIPTION

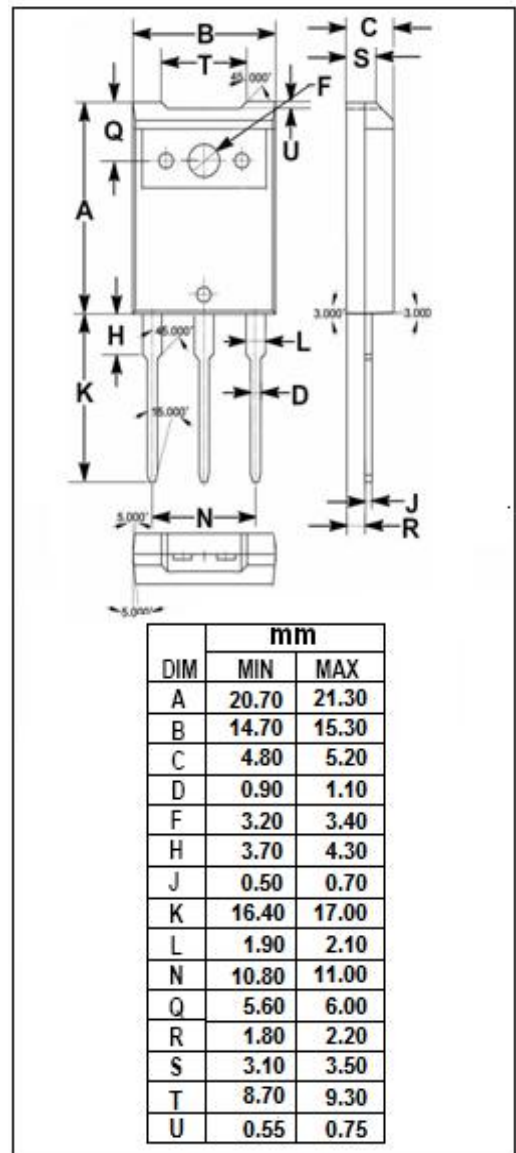
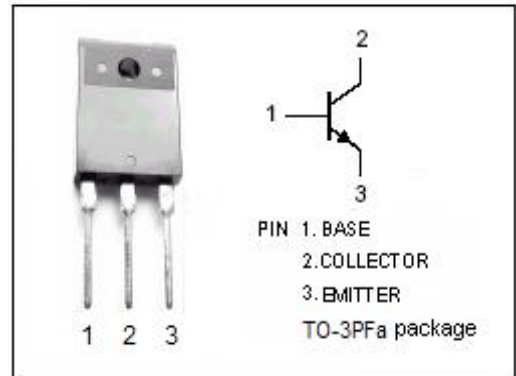
- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 80V(\text{Min})$
- Good Linearity of h_{FE}
- Low Collector Saturation Voltage-
: $V_{CE(sat)} = 0.5V(\text{Max.}) @ I_C = 6A$
- Complement to Type 2SB1154
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

- Designed for power switching applications

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|--|---------|------------------|
| V_{CBO} | Collector-Base Voltage | 130 | V |
| V_{CEO} | Collector-Emitter Voltage | 80 | V |
| V_{EBO} | Emitter-Base Voltage | 7 | V |
| I_C | Collector Current-Continuous | 10 | A |
| I_{CP} | Collector Current-Pulse | 20 | A |
| P_C | Collector Power Dissipation @ $T_C=25^\circ\text{C}$ | 70 | W |
| | Collector Power Dissipation @ $T_a=25^\circ\text{C}$ | 3 | |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature Range | -55~150 | $^\circ\text{C}$ |



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ELECTRICAL CHARACTERISTICS

 T_C=25°C unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|------------------------|--------------------------------------|--|-----|------|-----|------|
| V _{(BR)CEO} | Collector-Emitter Breakdown Voltage | I _C = 10mA; I _B = 0 | 80 | | | V |
| V _{CE(sat)-1} | Collector-Emitter Saturation Voltage | I _C = 6A; I _B = 0.3A | | | 0.5 | V |
| V _{CE(sat)-2} | Collector-Emitter Saturation Voltage | I _C = 10A; I _B = 1A | | | 1.5 | V |
| V _{BE(sat)-1} | Base -Emitter Saturation Voltage | I _C = 6A; I _B = 0.3A | | | 1.5 | V |
| V _{BE(sat)-2} | Base -Emitter Saturation Voltage | I _C = 10A; I _B = 1A | | | 2.5 | V |
| I _{CBO} | Collector Cutoff Current | V _{CB} = 100V; I _E = 0 | | | 10 | μ A |
| I _{EBO} | Emitter Cutoff Current | V _{EB} = 5V; I _C = 0 | | | 50 | μ A |
| h _{FE-1} | DC Current Gain | I _C = 0.1A; V _{CE} = 2V | 45 | | | |
| h _{FE-2} | DC Current Gain | I _C = 3A; V _{CE} = 2V | 90 | | 260 | |
| h _{FE-3} | DC Current Gain | I _C = 6A; V _{CE} = 2V | 30 | | | |
| f _T | Current-Gain—Bandwidth Product | I _C = 0.5A; V _{CE} = 10V | | 20 | | MHz |

Switching Times

| | | | | | | |
|------------------|--------------|---|--|-----|--|-----|
| t _{on} | Turn-on Time | I _C = 6A, I _{B1} = I _{B2} = 0.6A; V _{CC} = 50V | | 0.5 | | μ s |
| t _{stg} | Storage Time | | | 2.0 | | μ s |
| t _f | Fall Time | | | 0.2 | | μ s |

◆ h_{FE-2}Classifications

| Q | P |
|--------|---------|
| 90-180 | 130-260 |

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