

isc Silicon NPN Power Transistor
2SC3725
DESCRIPTION

- High Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 400V(\text{Min})$
- High Switching Speed
- High Reliability
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

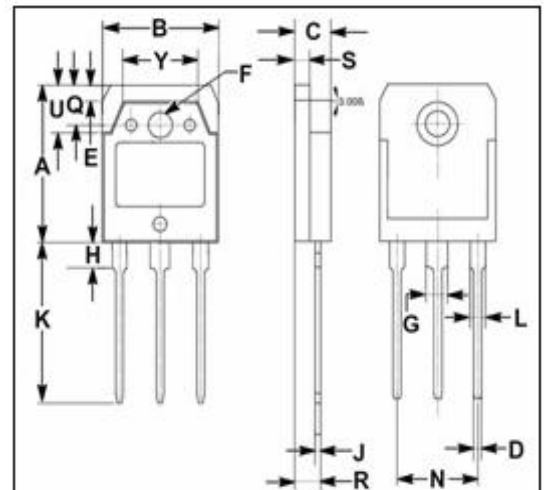
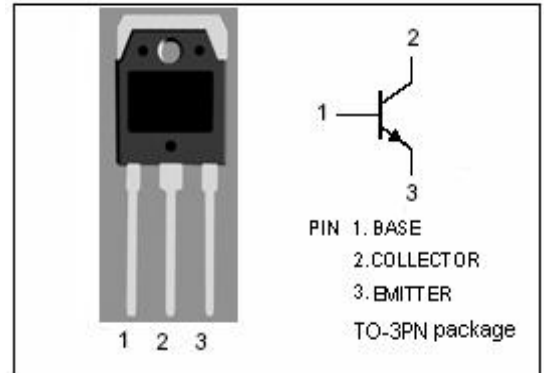
- Switching regulators
- Ultrasonic generators
- High frequency inverters
- General purpose power amplifiers

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|----------------|---|---------|------------------|
| V_{CBO} | Collector-Base Voltage | 450 | V |
| V_{CEO} | Collector-Emitter Voltage | 400 | V |
| $V_{CEO(SUS)}$ | Collector-Emitter Voltage | 400 | V |
| V_{EBO} | Emitter-Base voltage | 10 | V |
| I_C | Collector Current-Continuous | 15 | A |
| I_B | Base Current-Continuous | 5 | A |
| P_C | Collector Power Dissipation @ $T_C = 25^\circ\text{C}$ | 80 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature Range | -55~150 | $^\circ\text{C}$ |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------|--------------------------------------|------|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 1.56 | $^\circ\text{C/W}$ |



| DIM | mm | |
|-----|-------|-------|
| | MIN | MAX |
| A | 19.60 | 20.10 |
| B | 15.50 | 15.70 |
| C | 4.70 | 4.90 |
| D | 0.90 | 1.10 |
| E | 1.90 | 2.10 |
| F | 3.40 | 3.60 |
| G | 2.90 | 3.20 |
| H | 3.20 | 3.40 |
| J | 0.595 | 0.605 |
| K | 20.00 | 20.70 |
| L | 1.90 | 2.20 |
| N | 10.89 | 10.91 |
| Q | 4.90 | 5.10 |
| R | 3.35 | 3.45 |
| S | 1.995 | 2.100 |
| U | 5.90 | 6.10 |
| Y | 9.90 | 10.10 |

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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 | 400 | | | V |
| V _{(BR)CBO} | Collector-Base Breakdown Voltage | I _C = 1mA ; I _E = 0 | 450 | | | V |
| V _{(BR)EBO} | Emitter-Base Breakdown Voltage | I _E = 1mA; I _C = 0 | 10 | | | V |
| V _{CE(sat)} | Collector-Emitter Saturation Voltage | I _C = 6A; I _B = 1.2A | | | 0.8 | V |
| V _{BE(sat)} | Base-Emitter Saturation Voltage | I _C = 6A; I _B = 1.2A | | | 1.2 | V |
| I _{CBO} | Collector Cutoff Current | V _{CB} = 450V; I _E = 0 | | | 0.1 | mA |
| I _{EBO} | Emitter Cutoff Current | V _{EB} = 7V; I _C = 0 | | | 0.1 | mA |
| h _{FE} | DC Current Gain | I _C = 6A; V _{CE} = 5V | 10 | | | |

Switching times

| | | | | | | |
|------------------|--------------|---|--|--|-----|-----|
| t _{on} | Turn-on Time | | | | 1.0 | μ s |
| t _{stg} | Storage Time | I _C = 6A, I _{B1} = 2A; I _{B2} = -4A; R _L = 15 Ω ; P _w =20 μ s Duty Cycle ≤2% | | | 2.5 | μ s |
| t _f | Fall Time | | | | 0.5 | μ s |

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