

isc Silicon NPN Power Transistor

2SC3749

DESCRIPTION

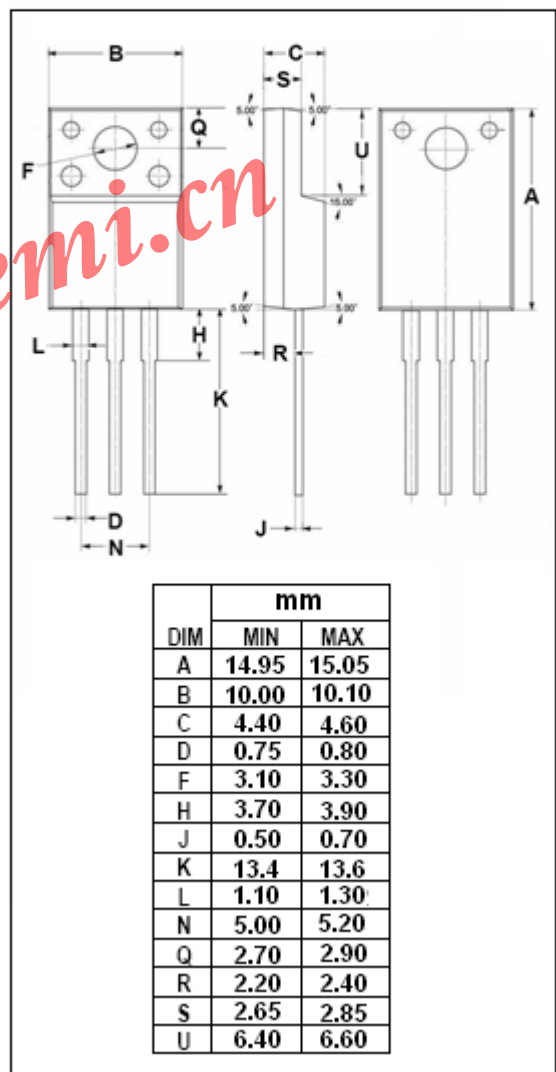
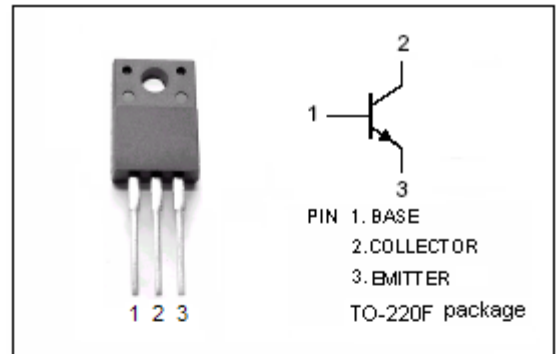
- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 500V(\text{Min.})$
- High Switching Speed
- Wide Area of Safe Operation

APPLICATIONS

- Designed for switching regulator applications.

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|---|---------|------------------|
| V_{CBO} | Collector-Base Voltage | 800 | V |
| V_{CEO} | Collector-Emitter Voltage | 500 | V |
| V_{EBO} | Emitter-Base Voltage | 7 | V |
| I_C | Collector Current-Continuous | 3 | A |
| I_{CM} | Collector Current-Pulse | 6 | A |
| I_B | Base Current-Continuous | 1 | A |
| P_C | Collector Power Dissipation @ $T_C=25^\circ\text{C}$ | 25 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature | -55~150 | $^\circ\text{C}$ |



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ELECTRICAL CHARACTERISTICS

T_j=25°C unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|--|-----|------|-----|------|
| V _{(BR)CEO} | Collector-Emitter Breakdown Voltage | I _C = 5mA; R _{BE} = ∞ | 500 | | | V |
| V _{(BR)CBO} | Collector-Base Breakdown Voltage | I _C = 1mA; I _E = 0 | 800 | | | V |
| V _{(BR)EBO} | Emitter-Base Breakdown Voltage | I _E = 1mA; I _C = 0 | 7 | | | V |
| V _{CE(sat)} | Collector-Emitter Saturation Voltage | I _C = 1.5A; I _B = 0.3A | | | 1.0 | V |
| V _{BE(sat)} | Base-Emitter Saturation Voltage | I _C = 1.5A; I _B = 0.3A | | | 1.5 | V |
| I _{CBO} | Collector Cutoff Current | V _{CB} = 500V; I _E = 0 | | | 10 | μ A |
| I _{EBO} | Emitter Cutoff Current | V _{EB} = 5V; I _C = 0 | | | 10 | μ A |
| h _{FE-1} | DC Current Gain | I _C = 0.3A; V _{CE} = 5V | 15 | | 50 | |
| h _{FE-2} | DC Current Gain | I _C = 1.5A; V _{CE} = 5V | 8 | | | |
| C _{OB} | Collector Output Capacitance | I _E = 0; V _{CB} = 10V; f= 1MHz | | 50 | | pF |
| f _T | Current-Gain—Bandwidth Product | I _C = 0.3A; V _{CE} = 10V | | 18 | | MHz |

Switching times

| | | | | | | |
|------------------|--------------|---|--|--|-----|-----|
| t _{on} | Turn-on Time | I _C = 2A, I _{B1} = 0.4A; I _{B2} = -0.8A; R _L = 100 Ω; V _{CC} = 200V | | | 0.5 | μ s |
| t _{stg} | Storage Time | | | | 3.0 | μ s |
| t _f | Fall Time | | | | 0.3 | μ s |

◆ h_{FE-1} Classifications

| L | M | N |
|-------|-------|-------|
| 15-30 | 20-40 | 30-50 |