

Silicon NPN Power Transistors

2SC3748

DESCRIPTION

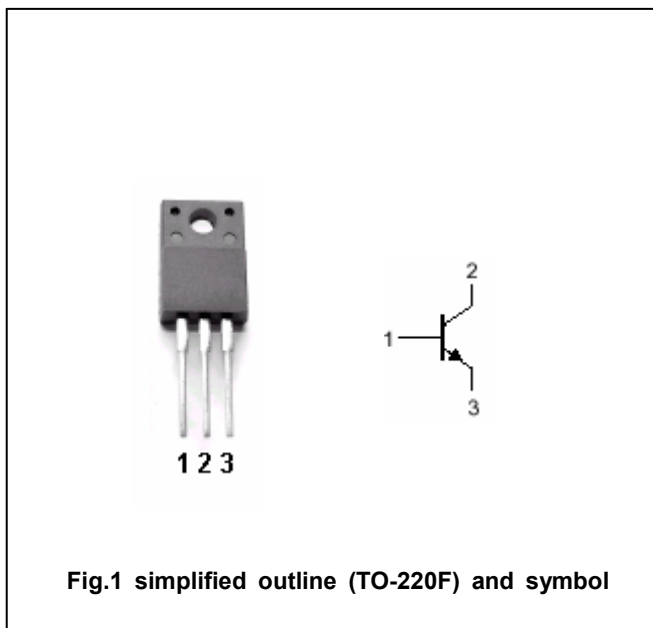
- With TO-220F package
- Low saturation voltage.
- Excellent dependence of h_{FE} on current.
- Fast switching speed.

APPLICATIONS

- Car-use inductance drivers, lamp drivers.
- Inverters drivers, converters (strokes, flashes, FLT lighting circuits).
- Power amplifiers
- High-speed switching applications

PINNING

| PIN | DESCRIPTION |
|-----|--------------------------------------|
| 1 | Base |
| 2 | Collector;connected to mounting base |
| 3 | Emitter |



Absolute maximum ratings($T_a=25^\circ C$)

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|-----------|---------------------------|------------------|---------|------------|
| V_{CBO} | Collector-base voltage | Open emitter | 80 | V |
| V_{CEO} | Collector-emitter voltage | Open base | 60 | V |
| V_{EBO} | Emitter-base voltage | Open collector | 5 | V |
| I_C | Collector current | | 10 | A |
| I_{CM} | Collector current-peak | | 12 | A |
| P_C | Collector dissipation | | 2 | W |
| | | $T_C=25^\circ C$ | 30 | |
| T_j | Junction temperature | | 150 | $^\circ C$ |
| T_{stg} | Storage temperature | | -55~150 | $^\circ C$ |

Silicon NPN Power Transistors

2SC3748

CHARACTERISTICS

T_j=25°C unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|---|-----|------|-----|------|
| V _{(BR)CBO} | Collector-base breakdown voltage | I _C =1mA; I _E =0 | 80 | | | V |
| V _{(BR)CEO} | Collector-emitter breakdown voltage | I _C =1mA; R _{BE} =∞ | 60 | | | V |
| V _{(BR)EBO} | Emitter-base breakdown voltage | I _E =1mA; I _C =0 | 5 | | | V |
| V _{CEsat} | Collector-emitter saturation voltage | I _C =5A; I _B =0.25A | | | 0.4 | V |
| I _{CBO} | Collector cut-off current | V _{CB} =40V; I _E =0 | | | 100 | μA |
| I _{EBO} | Emitter cut-off current | V _{EB} =4V; I _C =0 | | | 100 | μA |
| h _{FE} | DC current gain | I _C =1A; V _{CE} =2V | 70 | | 280 | |
| f _T | Transition frequency | I _C =1A; V _{CE} =5V | | 100 | | MHz |

Switching times

| | | | | | | |
|------------------|--------------|--|--|-----|--|----|
| t _{on} | Turn-on time | V _{CC} =20V; I _C =5A I _{B1} =-I _{B2} =0.25A R _L =4Ω | | 0.1 | | μs |
| t _{stg} | Storage time | | | 0.5 | | μs |
| t _f | Fall time | | | 0.1 | | μs |

◆ h_{FE} Classifications

| Q | R | S |
|--------|---------|---------|
| 70-140 | 100-200 | 140-280 |

Silicon NPN Power Transistors

2SC3748

PACKAGE OUTLINE

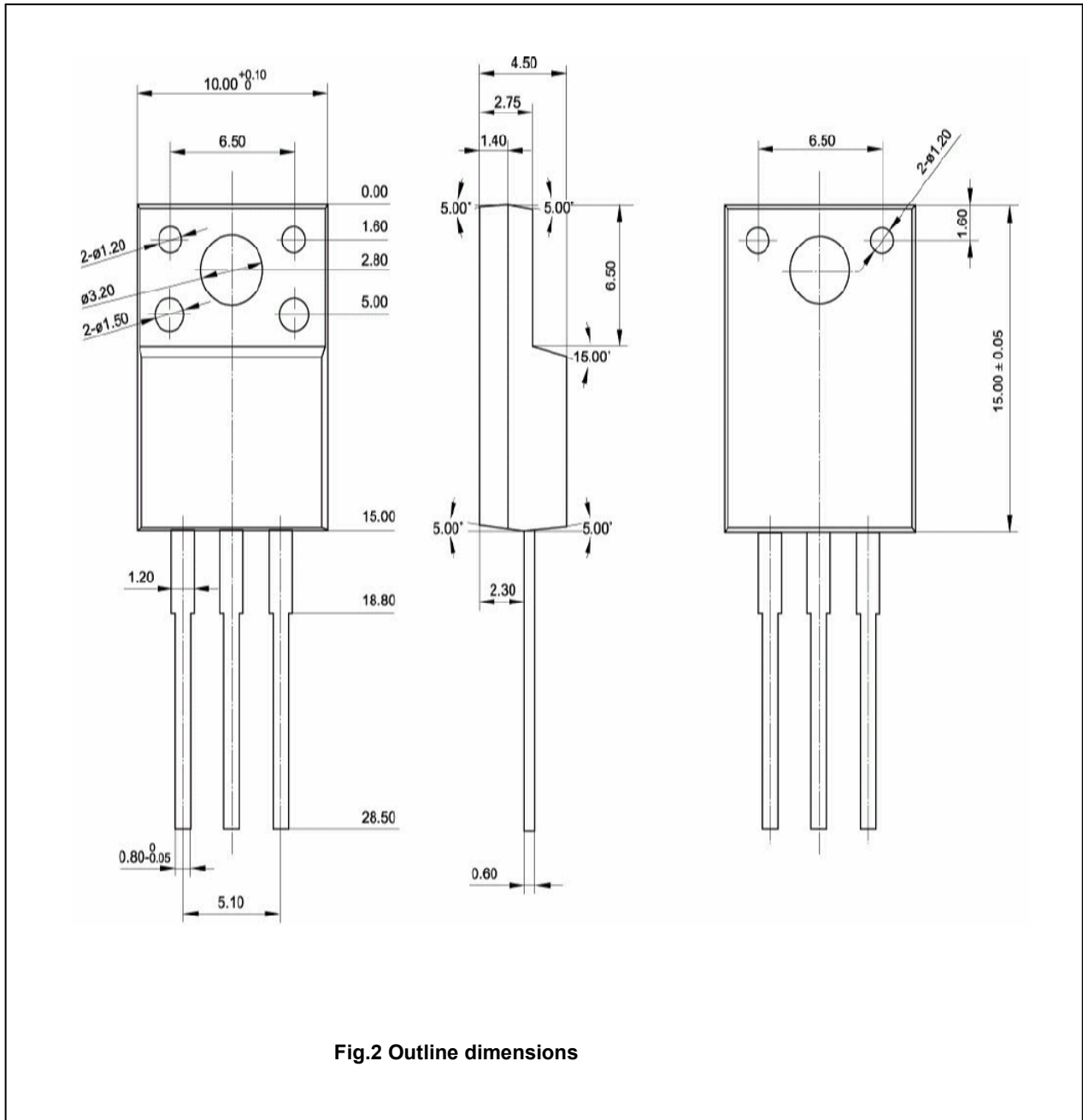


Fig.2 Outline dimensions

Silicon NPN Power Transistors

2SC3748

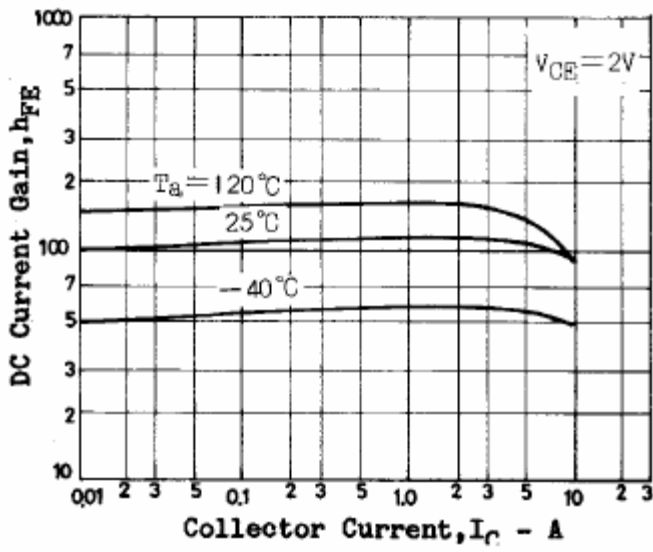


Fig.3 DC current Gain

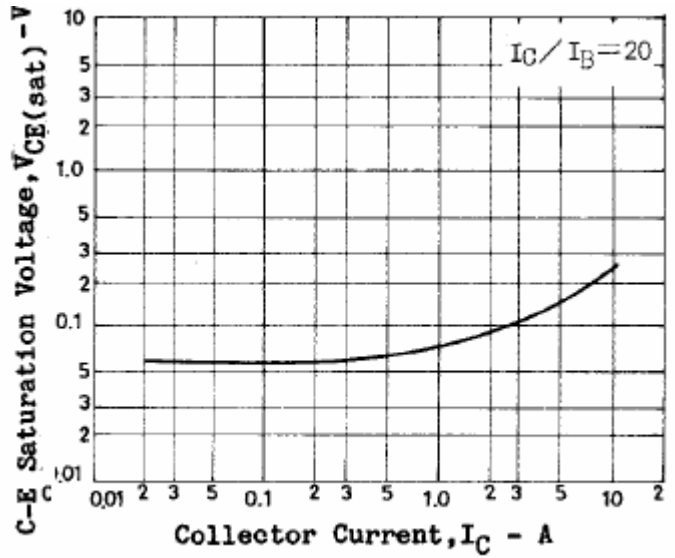


Fig.4 Collector-Emitter Saturation Voltage

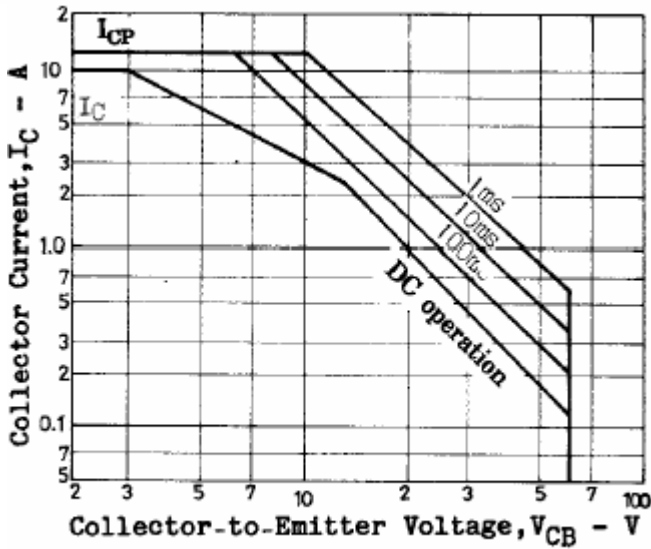


Fig.5 Safe Operating Area