

Silicon NPN Power Transistors

2SC3568

DESCRIPTION

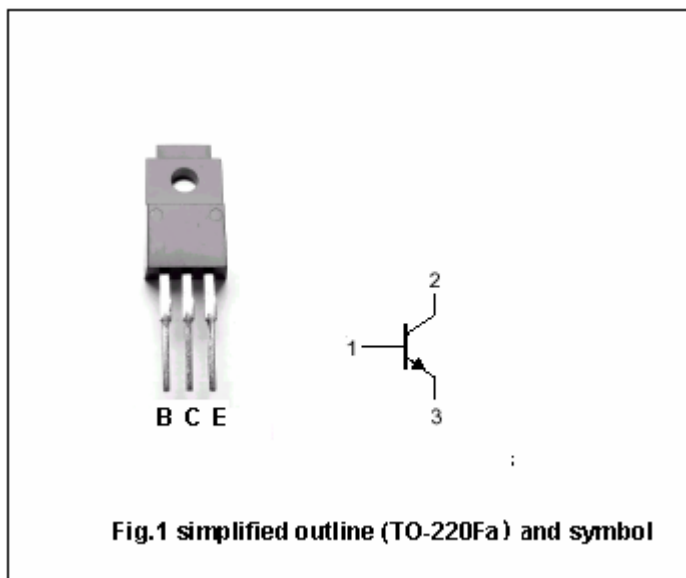
- With TO-220Fa package
- Complement to type 2SA1396
- Low collector saturation voltage
- High switching speed

APPLICATIONS

- Switching regulator
- DC-DC converter
- High frequency power amplifier

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | Base |
| 2 | Collector |
| 3 | Emitter |

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

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|-----------|-----------------------------|------------------------|---------|------------------|
| V_{CBO} | Collector-base voltage | Open emitter | 150 | V |
| V_{CEO} | Collector-emitter voltage | Open base | 100 | V |
| V_{EBO} | Emitter-base voltage | Open collector | 7 | V |
| I_C | Collector current(DC) | | 10 | A |
| I_{CM} | Collector current-peak | | 20 | A |
| I_B | Base current (DC) | | 5 | A |
| P_C | Collector power dissipation | $T_C=25^\circ\text{C}$ | 30 | W |
| T_j | Junction temperature | | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage temperature | | -55~150 | $^\circ\text{C}$ |

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CHARACTERISTICS

T_j=25°C unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|-----------------------|--------------------------------------|---|-----|------|-----------|----------|
| V _{CEO(SUS)} | Collector-emitter sustaining voltage | I _C =5A ; I _B =0.5A; L=1mH | 100 | | | V |
| V _{CEsat} | Collector-emitter saturation voltage | I _C =5A ; I _B =0.5A | | | 0.6 | V |
| V _{BEsat} | Base-emitter saturation voltage | I _C =5A ; I _B =0.5A | | | 1.5 | V |
| I _{CBO} | Collector cut-off current | V _{CB} =100V; I _E =0 | | | 10 | μA |
| I _{CEX} | Collector cut-off current | V _{CE} =100V; V _{BE(OFF)} =-1.5V T _a =125°C | | | 10 1.0 | μA mA |
| I _{EBO} | Emitter cut-off current | V _{EB} =5V; I _C =0 | | | 10 | μA |
| h _{FE-1} | DC current gain | I _C =0.5A ; V _{CE} =5V | 40 | | | |
| h _{FE-2} | DC current gain | I _C =3A ; V _{CE} =5V | 40 | | 200 | |
| h _{FE-3} | DC current gain | I _C =5A ; V _{CE} =5V | 20 | | | |

Switching times

| | | | | | | |
|-----------------|--------------|---|--|--|-----|----|
| t _{on} | Turn-on time | I _C =5A ; I _{B1} =-I _{B2} =0.5A V _{CC} ≈50V; R _L =10Ω | | | 0.5 | μs |
| t _s | Storage time | | | | 1.5 | μs |
| t _f | Fall time | | | | 0.5 | μs |

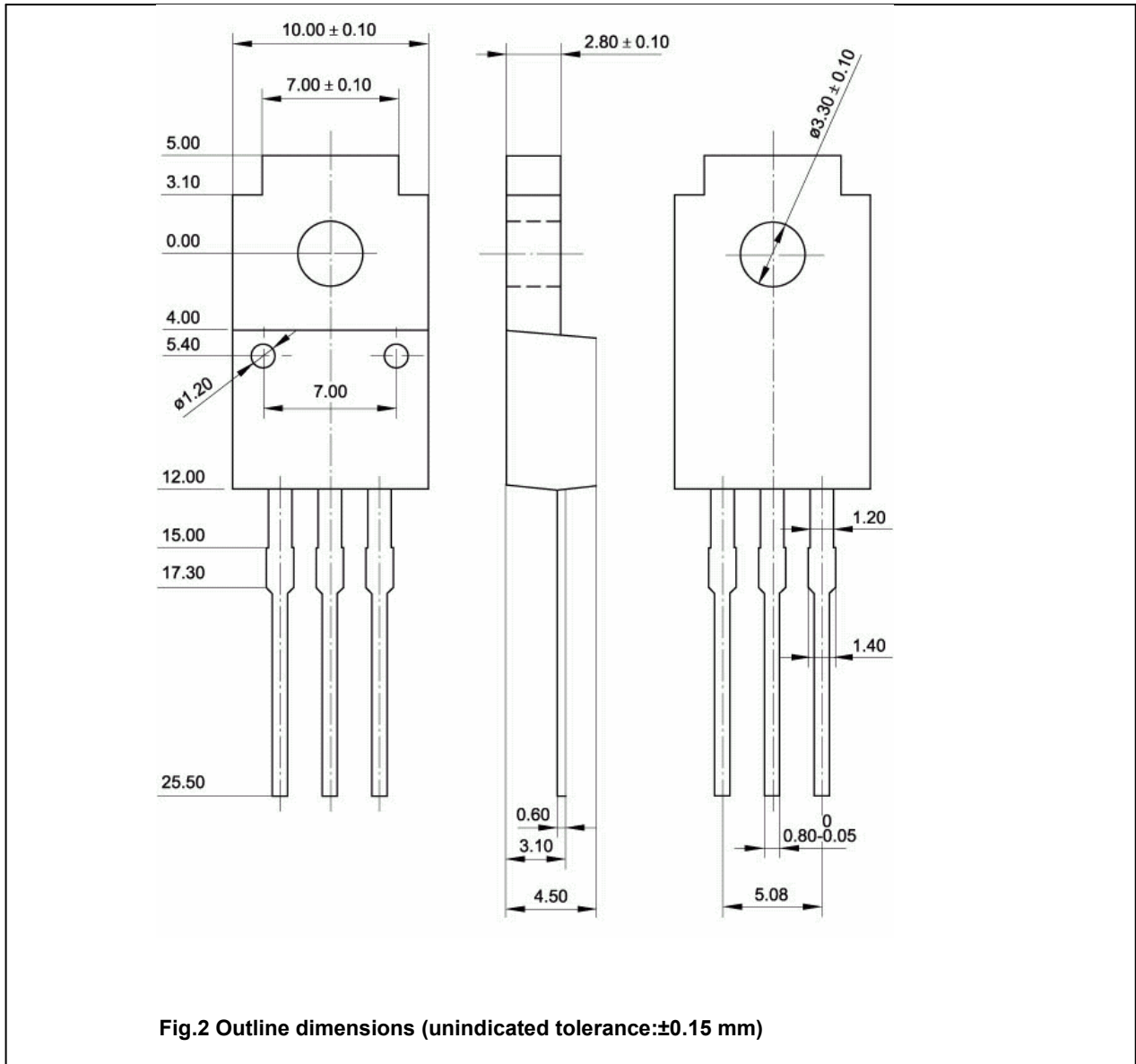
◆ h_{FE-2} Classifications

| M | L | K |
|-------|--------|---------|
| 40-80 | 60-120 | 100-200 |

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PACKAGE OUTLINE



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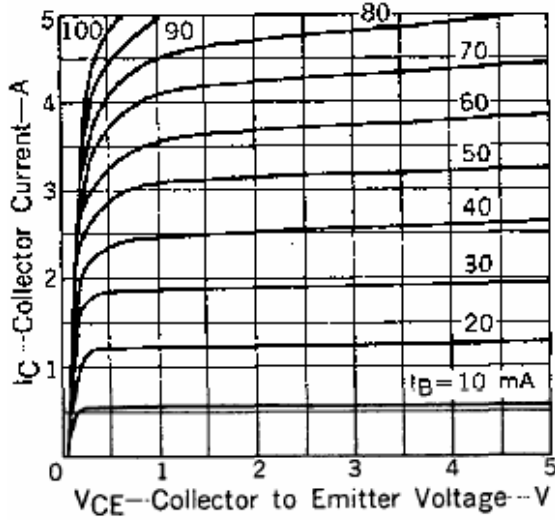


Fig.3 Static Characteristic

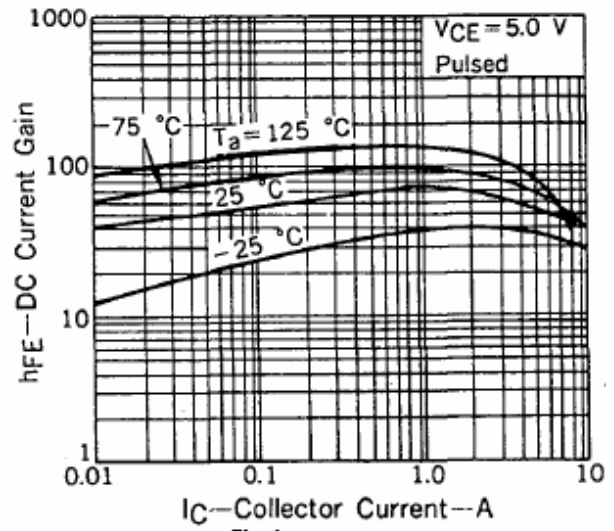


Fig.4 DC current Gain

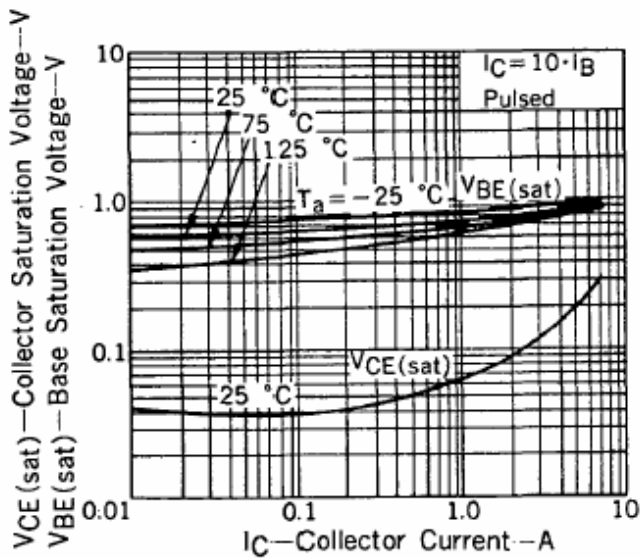


Fig.5 Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

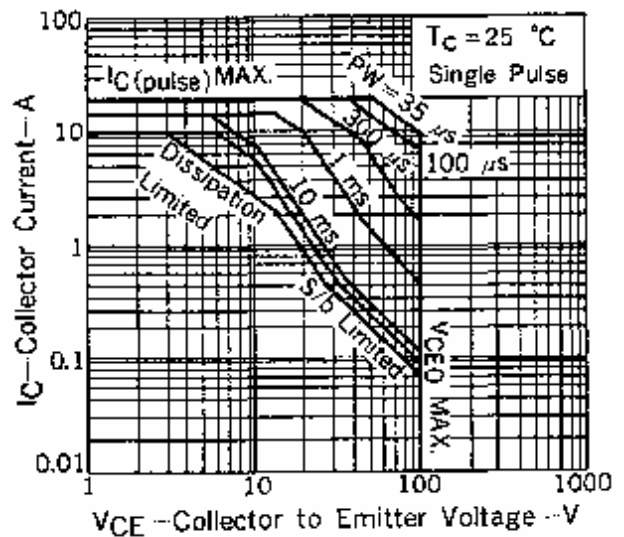


Fig.6 Safe Operating Area