# Silicon NPN Power Transistors 2SC4531

## DESCRIPTION

- With TO-3P(H)IS package
- High speed
- High voltage
- Low saturation voltage
- Bult-in damper type

## APPLICATIONS

- Horizontal deflection output applications

**PINNING**

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

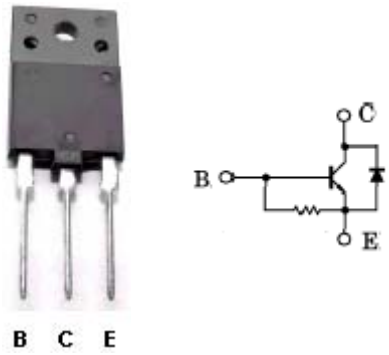


**Fig.1 simplified outline (TO-3P(H)IS) and symbol**

**Absolute maximum ratings(Ta=25℃)**

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---|---|---|---|---|
| $V_{CBO}$ | Collector-base voltage | Open emitter | 1500 | V |
| $V_{CEO}$ | Collector-emitter voltage | Open base | 600 | V |
| $V_{EBO}$ | Emitter-base voltage | Open collector | 5 | V |
| $I_C$ | Collector current | | 10 | A |
| $I_{CM}$ | Collector current-Peak | | 20 | A |
| $I_B$ | Base current | | 5 | A |
| $P_C$ | Total power dissipation | $T_C$=25℃ | 50 | W |
| $T_j$ | Junction temperature | | 150 | ℃ |
| $T_{stg}$ | Storage temperature | | -55~150 | ℃ |

# Silicon NPN Power Transistors 2SC4531

## CHARACTERISTICS

**Tj=25℃ unless otherwise specified**

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|
| $V_{EBO}$ | Emitter-base breakdown voltage | $I_E$=200mA ;$I_C$=0 | 5 | | | V |
| $V_{CEsat}$ | Collector-emitter saturation voltage | $I_C$=7A; $I_B$=1.7A | | | 5 | V |
| $V_{BEsat}$ | Base-emitter saturation voltage | $I_C$=7A; $I_B$=1.7A | | | 1.5 | V |
| $I_{CBO}$ | Collector cut-off current | $V_{CB}$=500V; $I_E$=0 | | | 10 | μA |
| $I_{EBO}$ | Emitter cut-off current | $V_{EB}$=5V; $I_C$=0 | 66 | 100 | 200 | mA |
| $h_{FE}$ | DC current gain | $I_C$=1A ; $V_{CE}$=5V | 8 | | | |
| $C_{ob}$ | Collector output capacitance | $I_E$=0 ; $V_{CB}$=10V,f=1MHz | | 210 | | pF |
| $V_F$ | Forward voltage(damper diode) | $I_F$=7A | | 1.5 | 1.8 | V |
| $f_T$ | Transition frequency | $I_E$=0.1A ; $V_{CE}$=10V | 1 | 3 | | MHz |
| Switching times inductive load | | | | | | |
| $t_s$ | Storage time | $I_{CP}$=7A;$I_{B1}$ =1.4A<br>$I_{B2}$ =-2.8A<br>$L_Y$=110μH;$C_Y$=19000pF | | 4 | 6 | μs |
| $t_f$ | Fall time | | | 0.2 | 0.5 | μs |

# Silicon NPN Power Transistors 2SC4531

**PACKAGE OUTLINE**

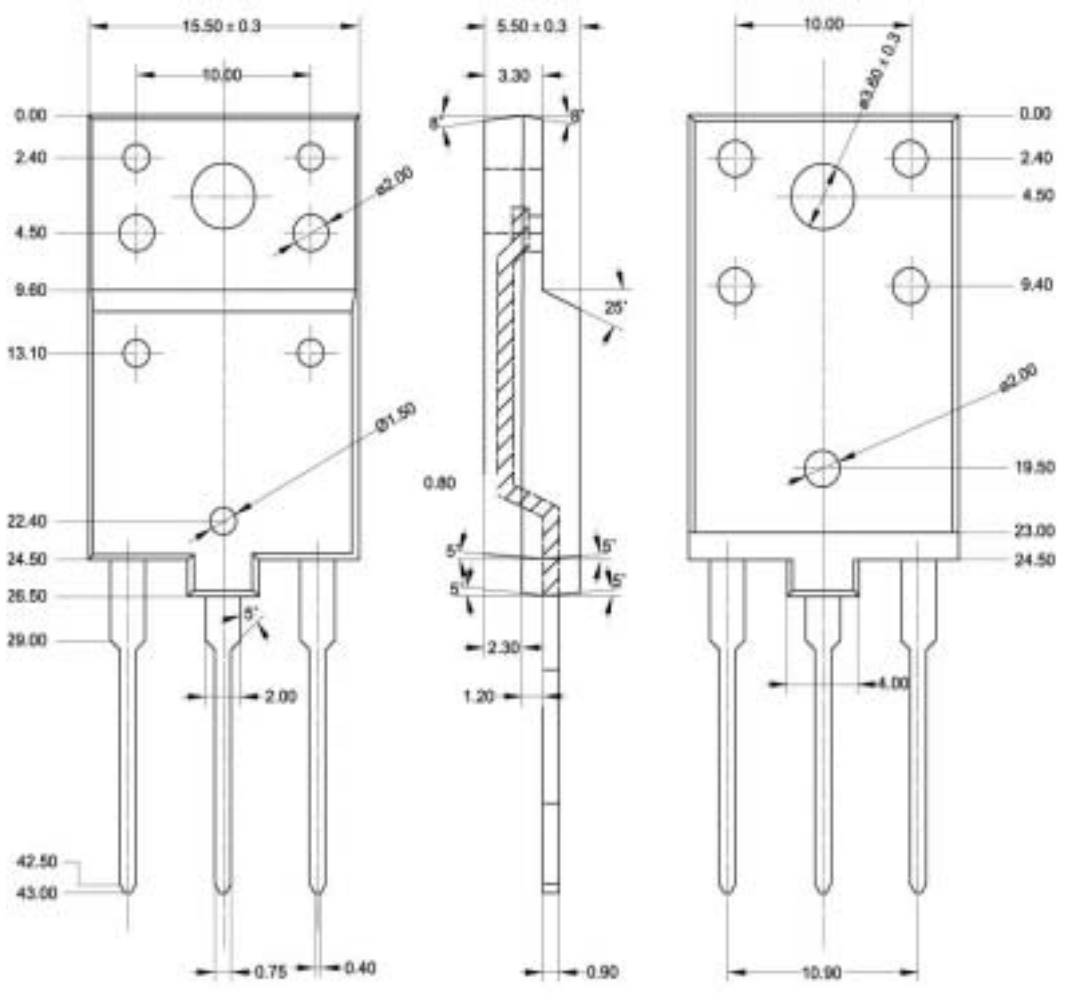


**Fig.2 Outline dimensions (unindicated tolerance:±0.20 mm)**

## Silicon NPN Power Transistors 2SC4531

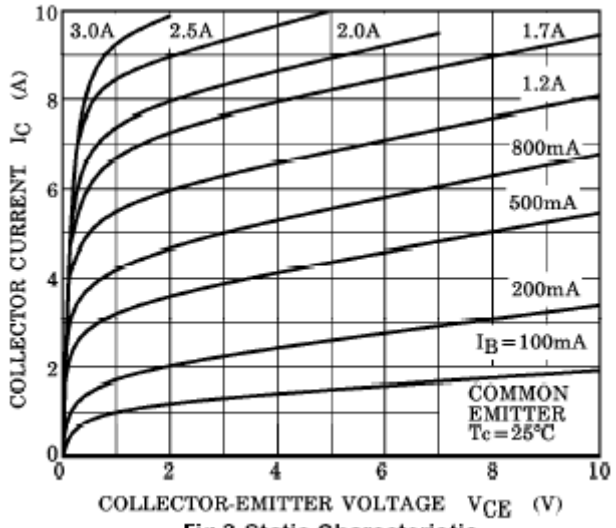


Fig.3 Static Characteristic

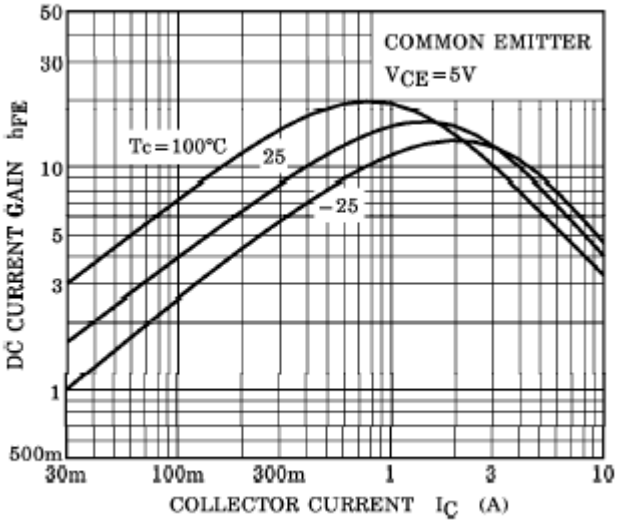


Fig.4 DC current Gain

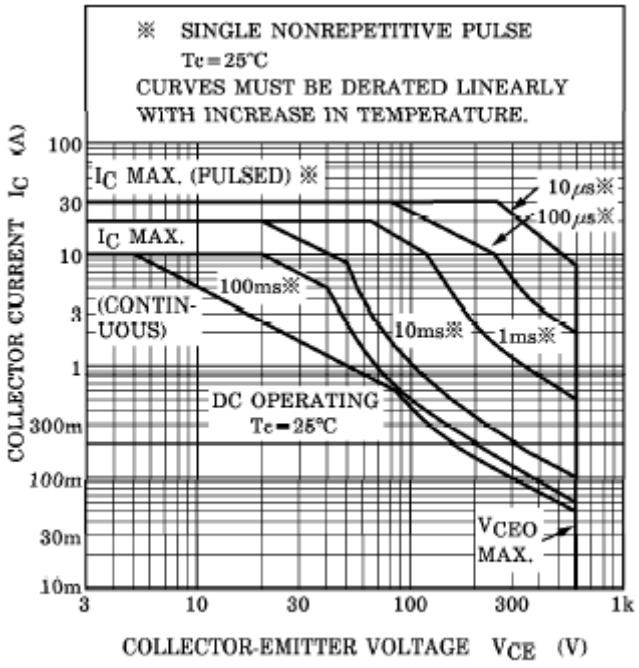


Fig.5 Safe Operating Area