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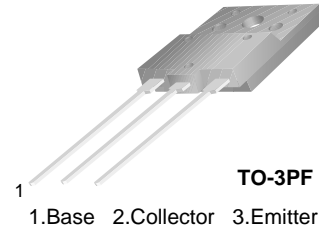
October 2009

# FJAF4310

## NPN Epitaxial Silicon Transistor

### Features

- Audio Power Amplifier
- High Current Capability :  $I_C=10A$
- High Power Dissipation
- Wide S.O.A
- Complement to FJAF4210



### Absolute Maximum Ratings\* $T_A=25^\circ C$ unless otherwise noted

| Symbol          | Parameter                                  | Value      | Units        |
|-----------------|--|------------|--------------|
| $V_{CBO}$       | Collector-Base Voltage                     | 200        | V            |
| $V_{CEO}$       | Collector-Emitter Voltage                  | 140        | V            |
| $V_{EBO}$       | Emitter-Base Voltage                       | 6          | V            |
| $I_C$           | Collector Current (DC)                     | 10         | A            |
| $I_B$           | Base Current (DC)                          | 1.5        | A            |
| $P_C$           | Collector Dissipation ( $T_C=25^\circ C$ ) | 80         | W            |
| $R_{\theta JC}$ | Junction to Case                           | 1.48       | $^\circ C/W$ |
| $T_J$           | Junction Temperature                       | 150        | $^\circ C$   |
| $T_{STG}$       | Storage Temperature                        | - 55 ~ 150 | $^\circ C$   |

### Electrical Characteristics $T_A=25^\circ C$ unless otherwise noted

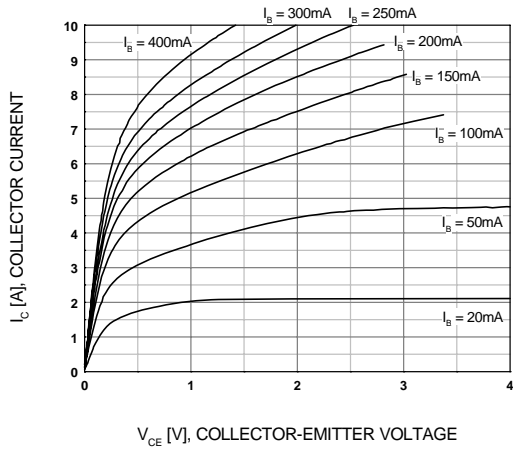
| Symbol        | Parameter                            | Test Condition            | Min. | Typ. | Max. | Units   |
|---------------|--------------------------------------|---------------------------|------|------|------|---------|
| $BV_{CBO}$    | Collector-Base Breakdown Voltage     | $I_C=5mA, I_E=0$          | 200  |      |      | V       |
| $BV_{CEO}$    | Collector-Emitter Breakdown Voltage  | $I_C=50mA, R_{BE}=\infty$ | 140  |      |      | V       |
| $BV_{EBO}$    | Emitter-Base Breakdown Voltage       | $I_E=5mA, I_C=0$          | 6    |      |      | V       |
| $I_{CBO}$     | Collector Cut-off Current            | $V_{CB}=200V, I_E=0$      |      |      | 10   | $\mu A$ |
| $I_{EBO}$     | Emitter Cut-off Current              | $V_{EB}=6V, I_C=0$        |      |      | 10   | $\mu A$ |
| $h_{FE}$      | * DC Current Gain                    | $V_{CE}=4V, I_C=3A$       | 50   |      | 180  |         |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=5A, I_B=0.5A$        |      |      | 0.5  | V       |
| $C_{ob}$      | Output Capacitance                   | $V_{CB}=10V, f=1MHz$      |      | 250  |      | pF      |
| $f_T$         | Current Gain Bandwidth Product       | $V_{CE}=5V, I_C=1A$       |      | 30   |      | MHz     |

\* Pulse Test :  $PW=20\mu s$

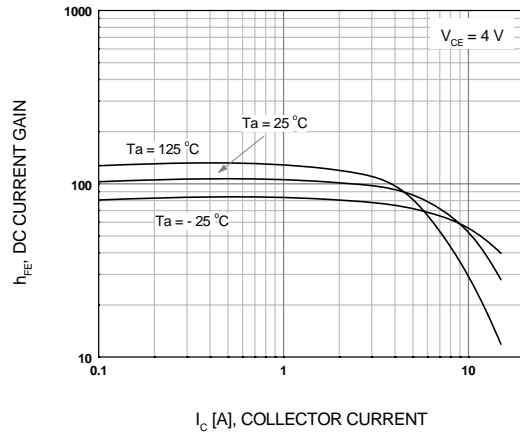
### $h_{FE}$ Classification

| Classification | R        | O        | Y        |
|----------------|----------|----------|----------|
| $h_{FE}$       | 50 ~ 100 | 70 ~ 140 | 90 ~ 180 |

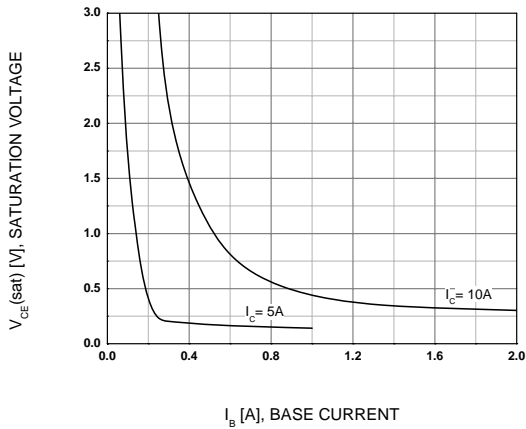
## Typical Performance Characteristics



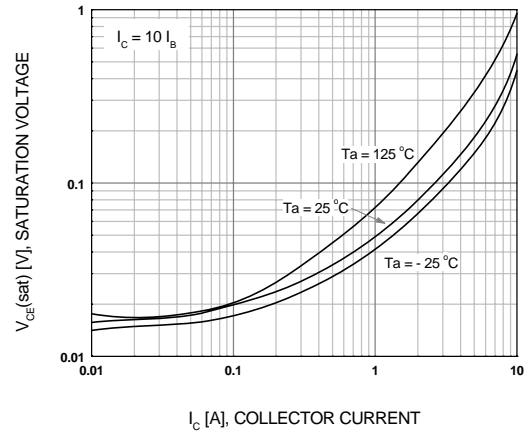
**Figure 1. Static Characteristic**



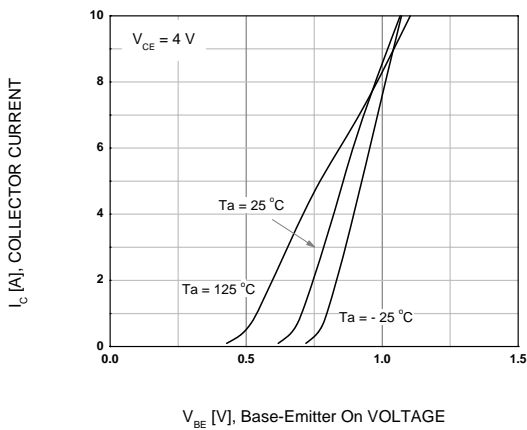
**Figure 2. DC current Gain**



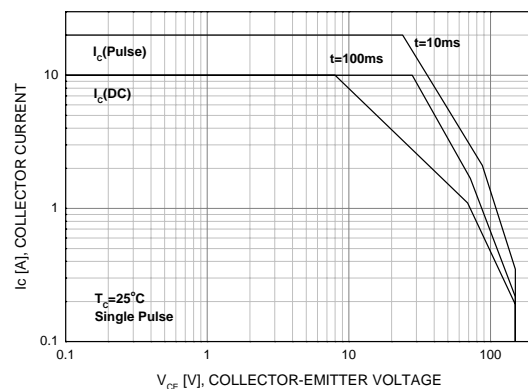
**Figure 3.  $V_{CE(sat)}$  vs.  $I_B$  Characteristics**



**Figure 4. Collector-Emitter Saturation Voltage**



**Figure 5. Base-Emitter On Voltage**



**Figure 6. Forward Bias Safe Operating Area**

### Typical Performance Characteristics

(Continued)

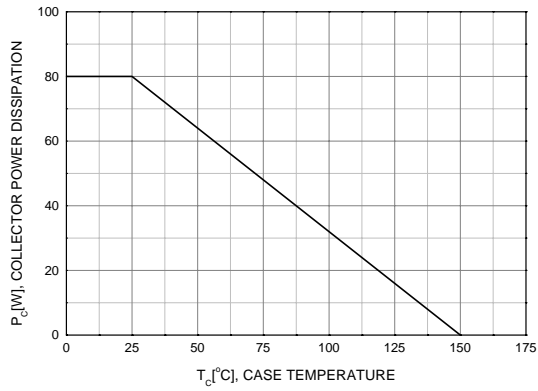
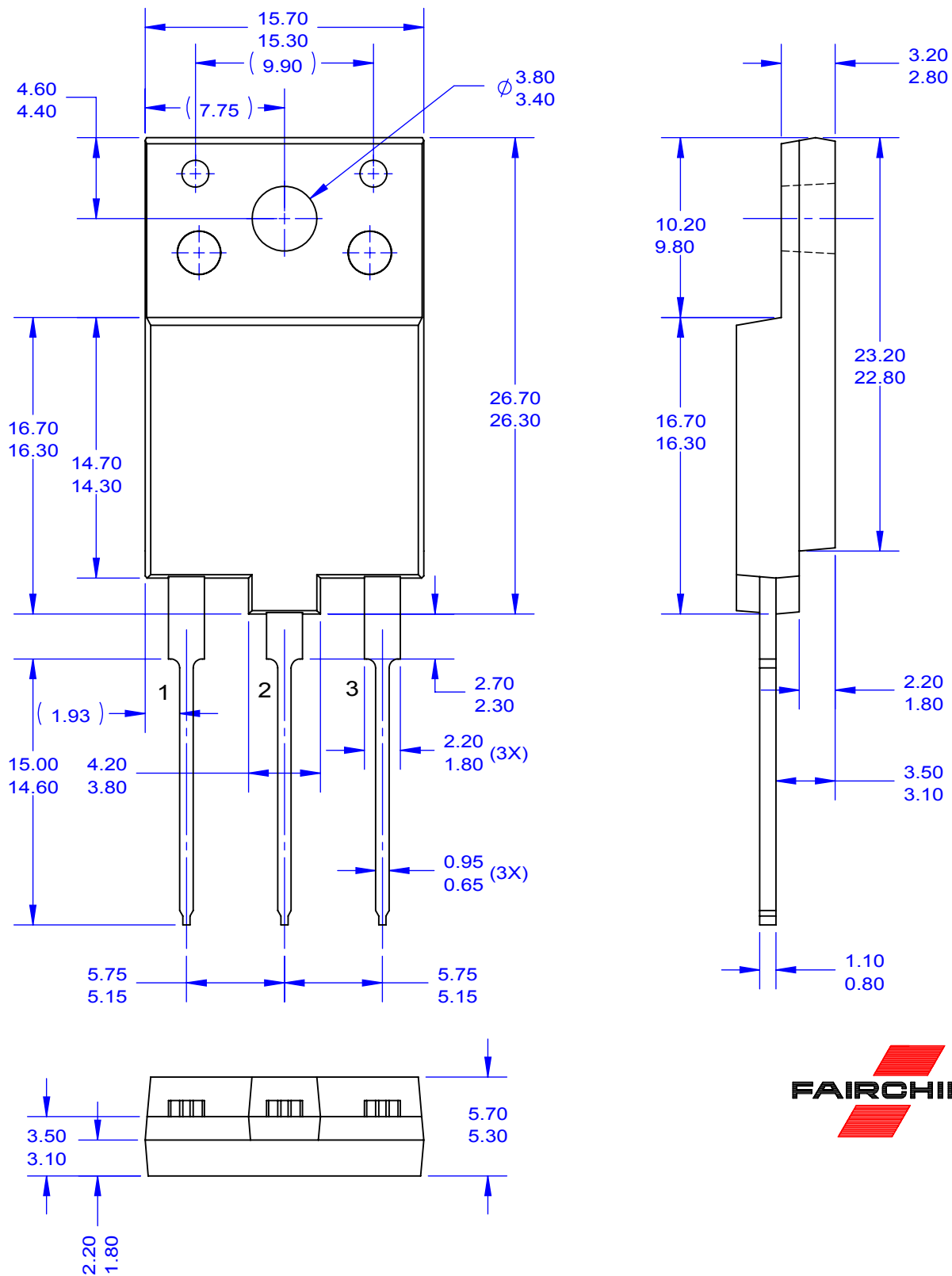


Figure 7. Power Derating



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