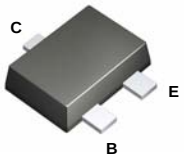
FAIRCHILD SEMICONDUCTOR®

November 2006

# FJY4004R
# PNP Epitaxial Silicon Transistor

## Features

- Switching circuit, Inverter, Interface circuit, Driver Circuit
- Built in bias Resistor ($R_1$=47KΩ, $R_2$=47KΩ)
- Complement to FJY3004R

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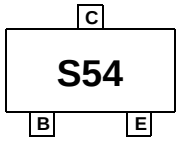
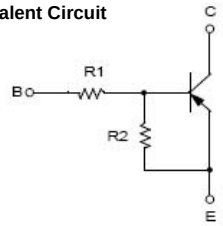



Eqivalent Circuit




## Absolute Maximum Ratings * $T_a$ = 25°C unless otherwise noted

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | -50 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | -50 | V |
| $V_{EBO}$ | Emitter-Base Voltage | -10 | V |
| $I_C$ | Collector Current | -100 | mA |
| $T_{STG}$ | Storage Temperature Range | -55~150 | °C |
| $T_J$ | Junction Temperature | 150 | °C |
| $P_C$ | Collector Power Dissipation, by $R_{\theta JA}$ | 200 | mW |

* These ratings are limiting values above which the serviceability of any semiconductor device may by impaired.

## Thermal Characteristics* $T_a$=25°C unless otherwise noted

| Symbol | Parameter | Max | Units |
|---|---|---|---|
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 600 | °C/W |

* Minimum land pad size.

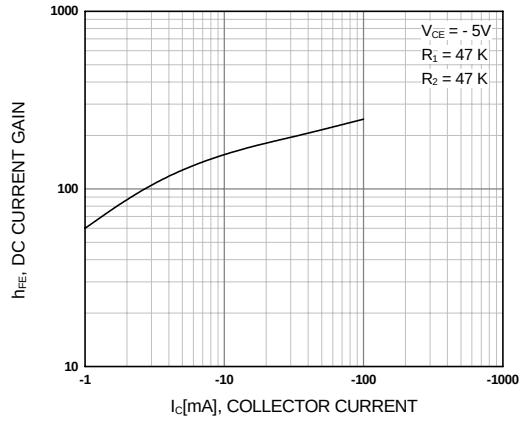
## Electrical Characteristics* $T_C$ = 25°C unless otherwise noted

| Symbol | Parameter | Test Condition | MIN | Typ | MAX | Units |
|---|---|---|---|---|---|---|
| $V_{(BR)CBO}$ | Collector-Emitter Breakdown Voltage | $I_C$ = -10 uA, $I_E$ = 0 | -50 | | | V |
| $V_{(BR)CEO}$ | Collector-Base Breakdown Voltage | $I_C$ = -100 uA, $I_B$ = 0 | -50 | | | V |
| $I_{CBO}$ | Collector-Cutoff Current | $V_{CB}$ = -40 V, $I_E$ = 0 | | | -0.1 | uA |
| $h_{FE}$ | DC Current Gain | $V_{CE}$ = -5 V, $I_C$ = -5mA | 68 | | | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$ = -10 mA, $I_B$ = -0.5 mA | | | -0.3 | V |
| $f_T$ | Current Gain - Bandwidth Product | $V_{CE}$ = -10V, $I_C$ = -5 mA | | 200 | | MHz |
| $C_{cb}$ | Output Capacitance | $V_{CB}$ = -10 V, $I_E$ = 0, f = 1.0 MHz | | 5.5 | | pF |
| $V_{I(off)}$ | Input Off Voltage | $V_{CE}$ = -5 V, $I_C$ = -100uA | -0.5 | | | V |
| $V_{I(on)}$ | Input On Voltage | $V_{CE}$ = -0.3V, $I_C$ = -2mA | | | -3.0 | V |
| $R_1$ | Input Resistor | | 32 | 47 | 62 | KΩ |
| $R_1/R_2$ | Resistor Ratio | | 0.9 | 1.0 | 1.1 | |

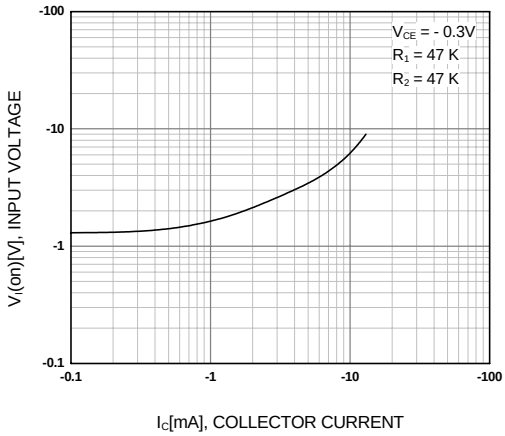
* Pulse Test: PW≤300μs, Duty Cycle≤2%

## Typical Performance Characteristics

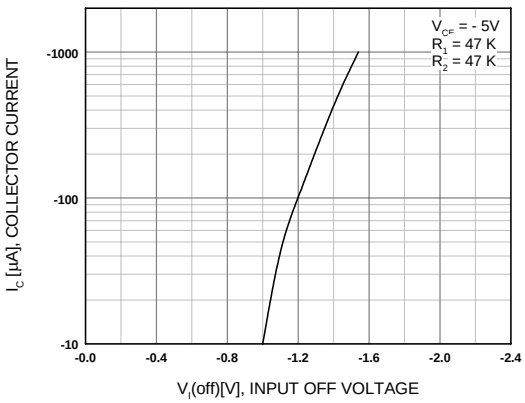
### Figure 1. DC current Gain



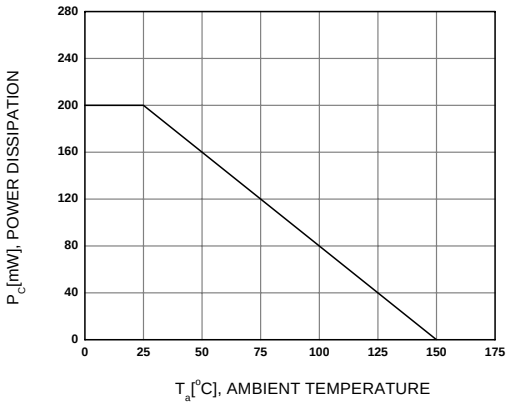

### Figure 2. Input On Voltage




### Figure 3. Input off Voltage

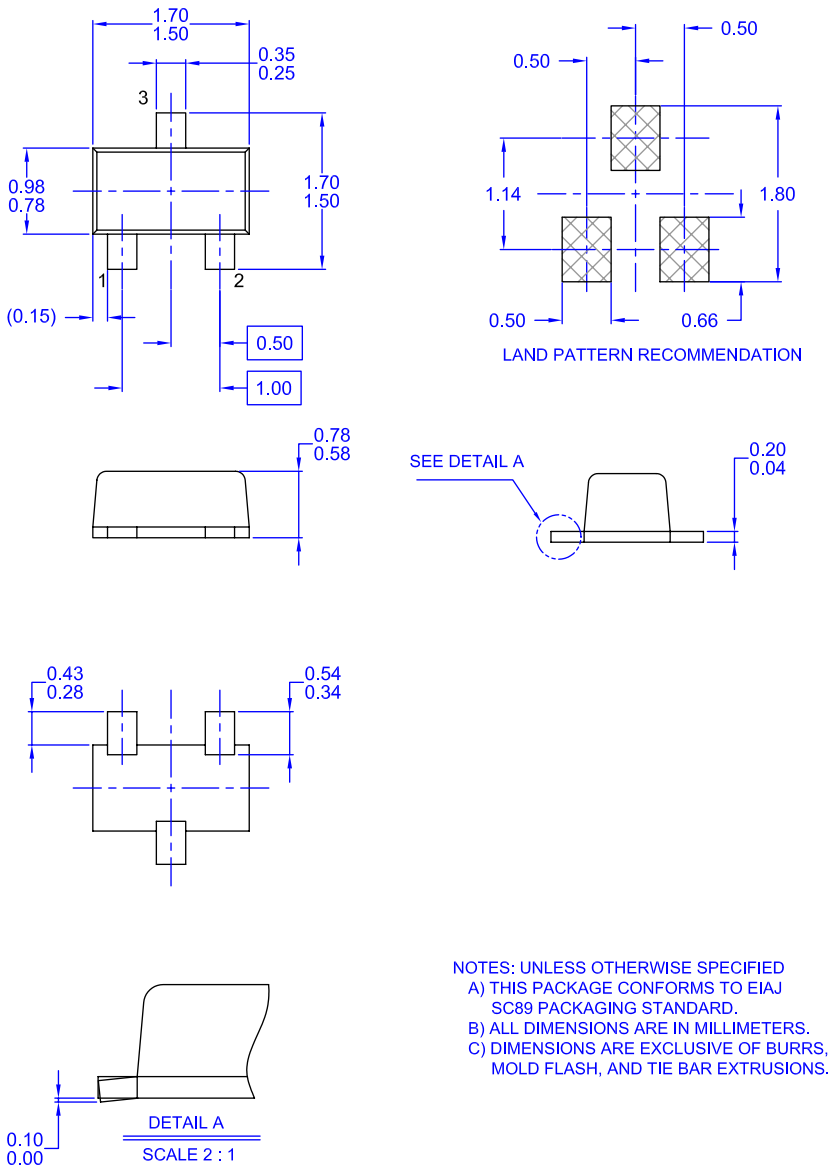



### Figure 4. Power Derating



## Package Dimensions

### SOT-523F




NOTES: UNLESS OTHERWISE SPECIFIED
A) THIS PACKAGE CONFORMS TO EIAJ SC89 PACKAGING STANDARD.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.

Dimensions in Millimeters

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