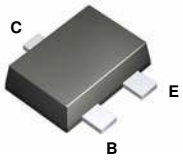
FAIRCHILD SEMICONDUCTOR®

July 2007

# FJY3012R
# NPN Epitaxial Silicon Transistor

## Features

- Switching circuit, Inverter, Interface circuit, Driver Circuit
- Built in bias Resistor (R=47KΩ)
- Complement to FJY4012R

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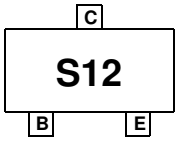
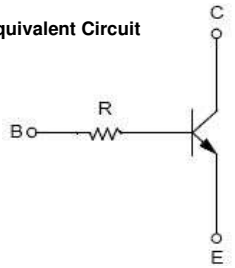



Equivalent Circuit




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

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 40 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 40 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 5 | 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.

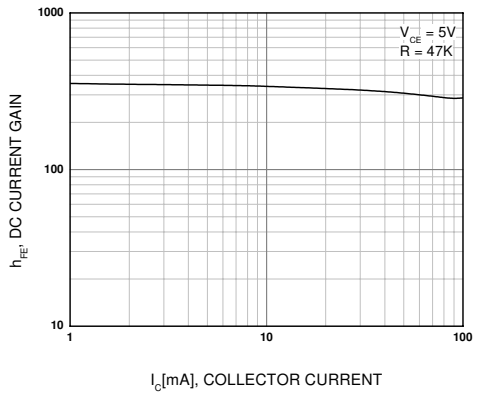
## Electrical Characteristics* $T_C$ = 25°C unless otherwise noted

| Symbol | Parameter | Test Condition | MIN | Typ | MAX | Units |
|---|---|---|---|---|---|---|
| $V_{(BR)CBO}$ | Collector-Emitter Breakdown Voltage | $I_C$ = 100 uA, $I_E$ = 0 | 40 | | | V |
| $V_{(BR)CEO}$ | Collector-Base Breakdown Voltage | $I_C$ = 1mA, $I_B$ = 0 | 40 | | | V |
| $I_{CBO}$ | Collector-Cutoff Current | $V_{CB}$ = 30 V, $I_E$ = 0 | | | 0.1 | uA |
| $h_{FE}$ | DC Current Gain | $V_{CE}$ = 5 V, $I_C$ = 1 mA | 100 | | 600 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$ = 10 mA, $I_B$ = 1 mA | | | 0.3 | V |
| $f_T$ | Current Gain - Bandwidth Product | $V_{CE}$ = 10V, $I_C$ = 5 mA | | 250 | | MHz |
| $C_{cb}$ | Output Capacitance | $V_{CB}$ = 10 V, $I_E$ = 0, f = 1.0 MHz | | 3.7 | | pF |
| R | Input Resistor | | 32 | 47 | 62 | KΩ |

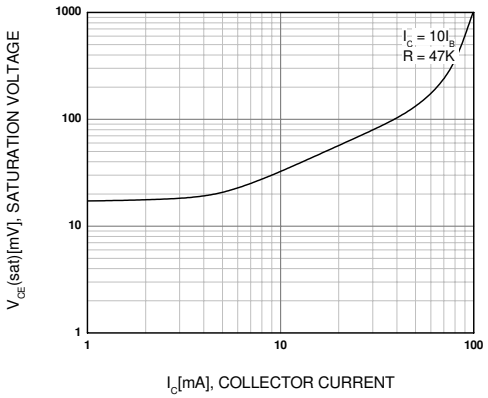
* Pulse Test: PW≤300μs, Duty Cycle≤2%

## Typical Performance Characteristics

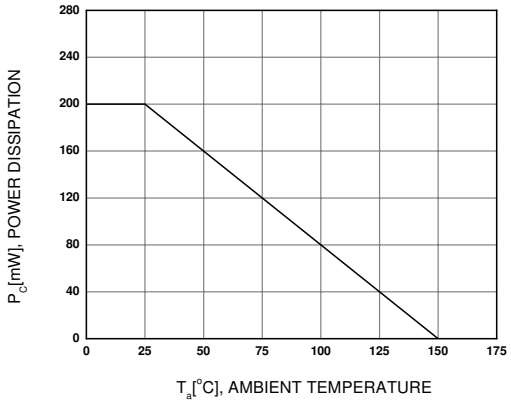
### Figure 1. DC current Gain




### Figure 2. Collector-Emitter Saturation Voltage

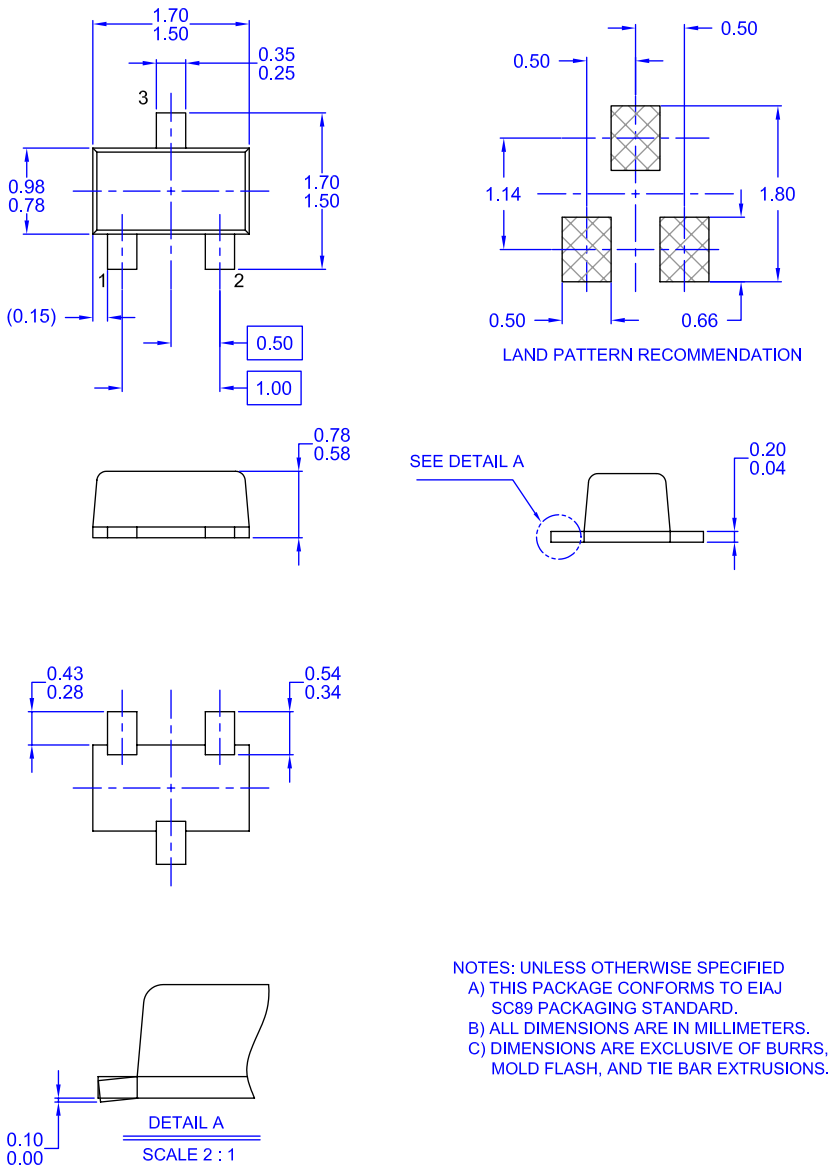



### Figure 3. Power Derating



## Package Dimensions

### SOT-523F




Dimensions in Millimeters

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SuperSOT™-8
SyncFET™
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|---|---|---|
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Rev. I25