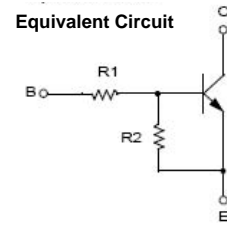
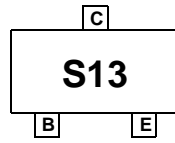
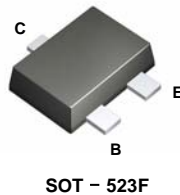


# FJY3013R

## NPN Epitaxial Silicon Transistor

### Features

- Switching circuit, Inverter, Interface circuit, Driver Circuit
- Built in bias Resistor (R1=2.2KΩ, R2=47KΩ)
- Complement to FJY4013R



### Absolute Maximum Ratings\* $T_a = 25^\circ\text{C}$ 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 | $^\circ\text{C}$ |
| $T_J$     | Junction Temperature                            | 150     | $^\circ\text{C}$ |
| $P_C$     | Collector Power Dissipation, by $R_{\theta JA}$ | 200     | mW               |

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

### Thermal Characteristics\* $T_a = 25^\circ\text{C}$ unless otherwise noted

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

\* Minimum land pad size.

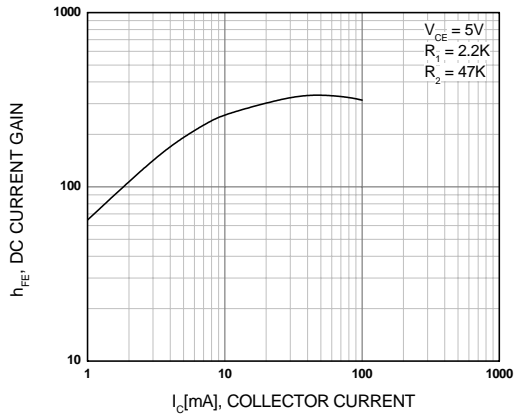
### Electrical Characteristics\* $T_C = 25^\circ\text{C}$ unless otherwise noted

| Symbol        | Parameter                            | Test Condition                                      | MIN   | Typ   | MAX   | Units         |
|---------------|--------------------------------------|---|-------|-------|-------|---------------|
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage     | $I_C = 10 \mu\text{A}, I_E = 0$                     | 50    |       |       | V             |
| $V_{(BR)CEO}$ | Collector-Base Breakdown Voltage     | $I_C = 100 \mu\text{A}, I_B = 0$                    | 50    |       |       | V             |
| $I_{CBO}$     | Collector-Cutoff Current             | $V_{CB} = 40 \text{V}, I_E = 0$                     |       |       | 0.1   | $\mu\text{A}$ |
| $h_{FE}$      | DC Current Gain                      | $V_{CE} = 5 \text{V}, I_C = 5 \text{mA}$            | 56    |       |       |               |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 10 \text{mA}, I_B = 0.5 \text{mA}$           |       |       | 0.3   | V             |
| $f_r$         | Current Gain - Bandwidth Product     | $V_{CE} = 10 \text{V}, I_C = 5 \text{mA}$           |       | 250   |       | MHz           |
| $C_{cb}$      | Output Capacitance                   | $V_{CB} = 10 \text{V}, I_E = 0, f = 1.0 \text{MHz}$ |       | 3.7   |       | pF            |
| $V_{I(off)}$  | Input Off Voltage                    | $V_{CE} = 5 \text{V}, I_C = 100 \mu\text{A}$        | 0.5   |       |       | V             |
| $V_{I(on)}$   | Input On Voltage                     | $V_{CE} = 0.2 \text{V}, I_C = 5 \text{mA}$          |       |       | 1.1   | V             |
| $R_1$         | Input Resistor                       |   | 1.5   | 2.2   | 2.9   | KΩ            |
| $R_1/R_2$     | Resistor Ratio                       |   | 0.042 | 0.047 | 0.052 |               |

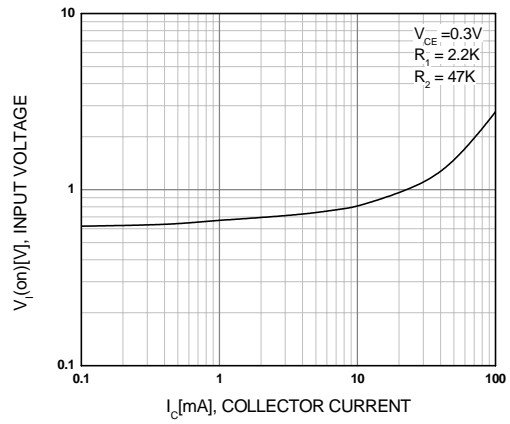
\* Pulse Test:  $PW \leq 300 \mu\text{s}$ , Duty Cycle  $\leq 2\%$

## Typical Performance Characteristics

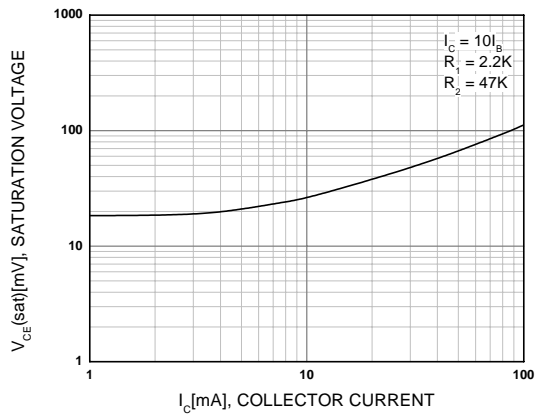
**Figure 1. DC current Gain**



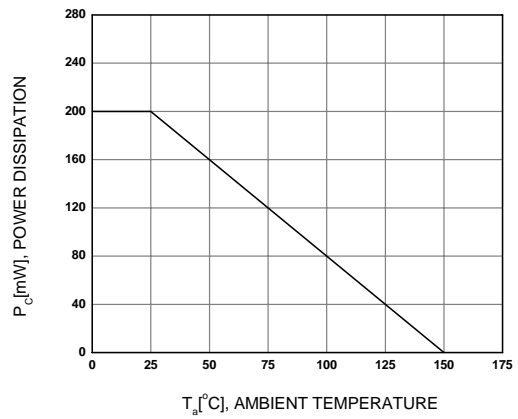
**Figure 2. Input On Voltage**



**Figure 3. Collector-Emitter Saturation Voltage**

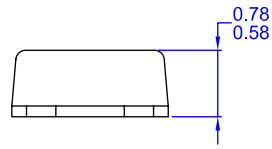


**Figure 4. Power Derating**



# 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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| FASTr <sup>™</sup>                               | PDP-SPM <sup>™</sup>           | SuperSOT <sup>™</sup> -8  |                             |
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| GlobalOptoisolator <sup>™</sup>                  | Power247 <sup>®</sup>          | The Power Franchise <sup>®</sup>  |                             |
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