

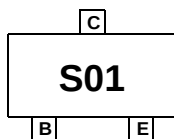
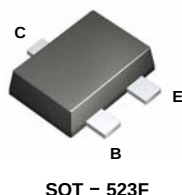


# FJY3001R

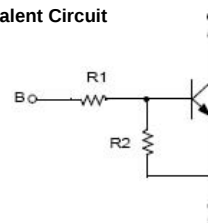
## NPN Epitaxial Silicon Transistor

### Features

- Switching circuit, Inverter, Interface circuit, Driver Circuit
- Built in bias Resistor ( $R_1=4.7K\Omega$ ,  $R_2=4.7K\Omega$ )
- Complement to FJY4001R



Equivalent Circuit



### 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-Emitter 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                      | $V_{CE} = 5 \text{ V}$ , $I_C = 10 \text{ mA}$              | 22  |     |     |               |
| $V_{CE(sat)}$ | 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                     | $V_{CE} = 0.3 \text{ V}$ , $I_C = 20 \text{ mA}$            |     |     | 3   | V             |
| $R_1$         | Input Resistor                       |                                                             | 3.2 | 4.7 | 6.2 | $K\Omega$     |
| $R_1/R_2$     | Resistor Ratio                       |                                                             | 0.9 | 1.0 | 1.1 |               |

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

## Typical Performance Characteristics

Figure 1. DC current Gain

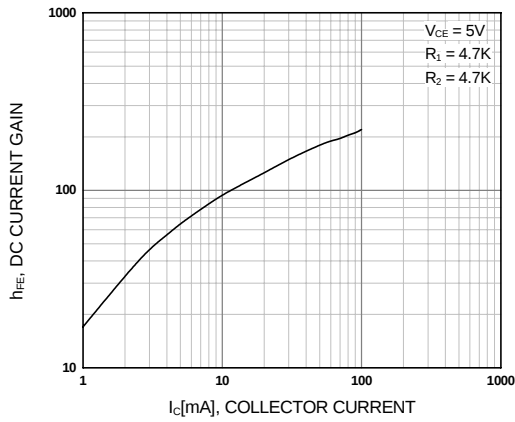


Figure 2. Input On Voltage

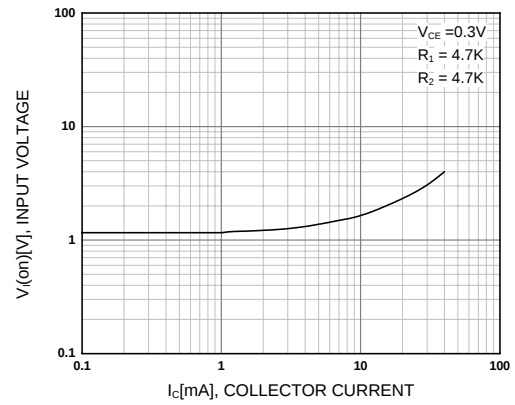


Figure 3. Input off Voltage

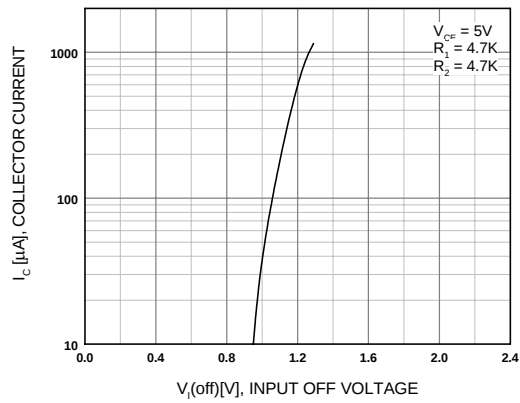
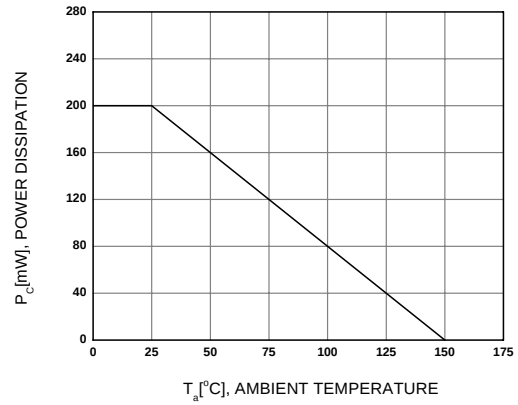
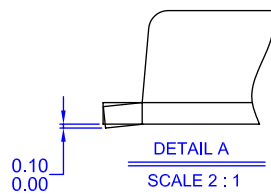
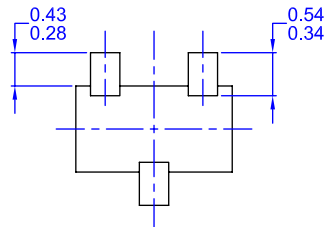
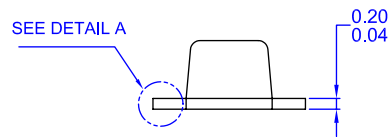
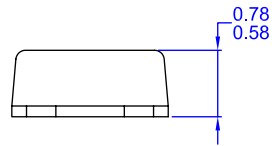
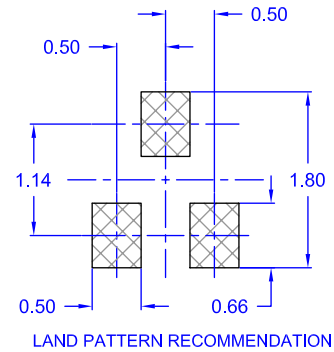
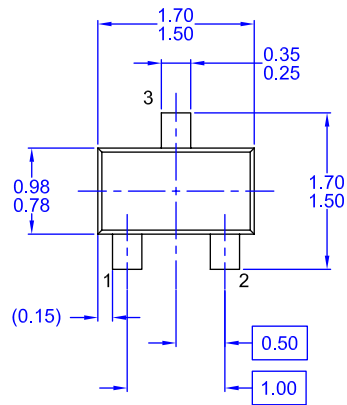


Figure 4. Power Derating



# 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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