



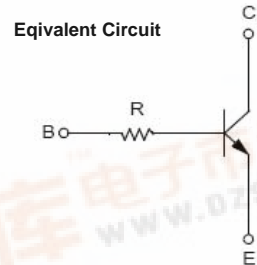
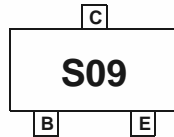
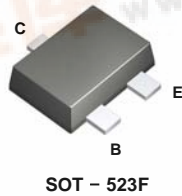
November 2006

# FJY3009R

## NPN Epitaxial Silicon Transistor

### Features

- Switching circuit, Inverter, Interface circuit, Driver Circuit
- Built in bias Resistor (R=4.7KΩ)
- Complement to FJY4009R



### Absolute Maximum Ratings \* $T_a = 25^\circ\text{C}$ 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	$^\circ\text{C}$
$T_J$	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	$^\circ\text{C}/\text{W}$

\* Minimum land pad size.

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

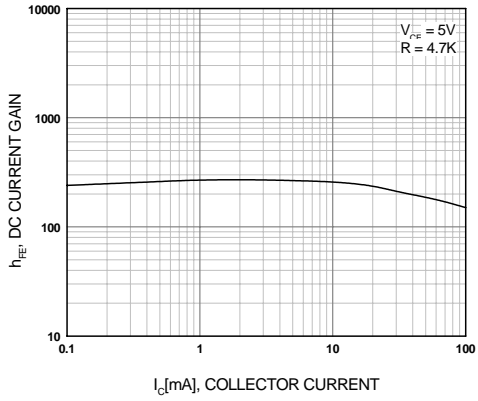
Symbol	Parameter	Test Condition	MIN	Typ	MAX	Units
$V_{(BR)CBO}$	Collector-Emitter Breakdown Voltage	$I_C = 100 \mu\text{A}, I_E = 0$	40			V
$V_{(BR)CEO}$	Collector-Base Breakdown Voltage	$I_C = 1 \text{mA}, I_B = 0$	40			V
$I_{CBO}$	Collector-Cutoff Current	$V_{CB} = 30 \text{V}, I_E = 0$			0.1	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$V_{CE} = 5 \text{V}, I_C = 1 \text{mA}$	100		600	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10 \text{mA}, I_B = 1 \text{mA}$			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
R	Input Resistor		3.2	4.7	6.2	K $\Omega$

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

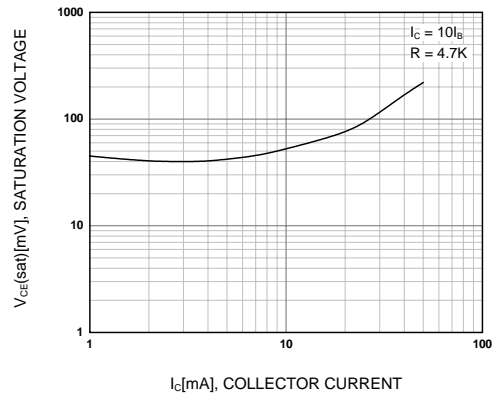


## Typical Performance Characteristics

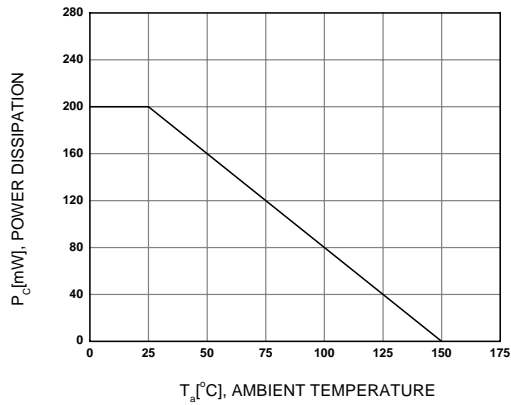
**Figure 1. DC current Gain**



**Figure 2. Collector-Emitter Saturation Voltage**

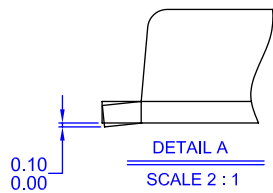
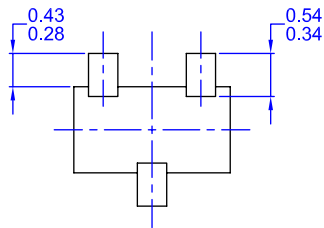
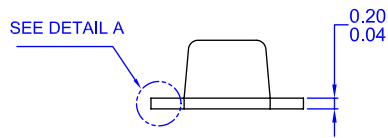
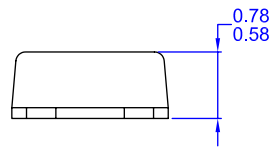
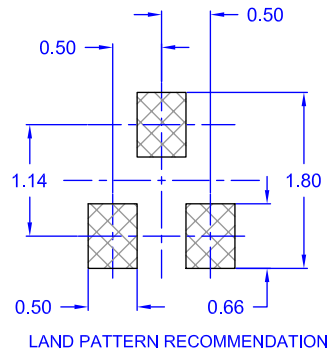
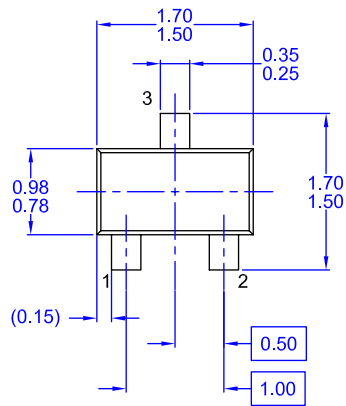


**Figure 3. Power Derating**



# 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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Build it Now™	HiSeC™	OPTOPLANAR™	Stealth™	
CoolFET™	I <sup>2</sup> C™	PACMAN™	SuperFET™	
CROSSVOLT™	<i>i-Lo</i> ™	POP™	SuperSOT™-3	
DOME™	ImpliedDisconnect™	Power247™	SuperSOT™-6	
EcoSPARK™	IntelliMAX™	PowerEdge™	SuperSOT™-8	
E <sup>2</sup> C MOS™	ISOPLANAR™	PowerSaver™	SyncFET™	
EnSigna™	LittleFET™	PowerTrench®	TCM™	
FACT®	MICROCOUPLER™	QFET®	TinyBoost™	
FAST®	MicroFET™	QS™	TinyBuck™	
FAST <sub>r</sub> ™	MicroPak™	QT Optoelectronics™	TinyPWM™	
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