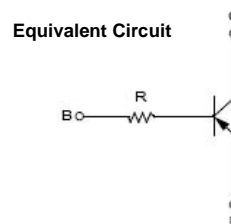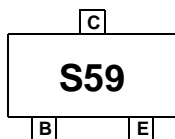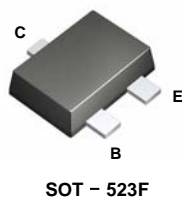**FAIRCHILD**

SEMICONDUCTOR®

July 2007

FJY4009R
PNP Epitaxial Silicon Transistor

Features

• Switching circuit, Inverter, Interface circuit, Driver Circuit

• Built in bias Resistor (R=4.7KΩ)

• Complement to FJY3009R

C

E

B

SOT − 523F

C

S59

B   E

Equivalent Circuit

C

B○—R—〜〜〜—

E

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		200		MHz
C_{cb}	Output Capacitance	V_{CB} = -10 V, I_E = 0, f = 1.0 MHz		5.5		pF
R	Input Resistor		3.2	4.7	6.2	KΩ

* Pulse Test: PW≤300μs, Duty Cycle≤2%

Typical Performance Characteristics

Figure 1. DC current Gain

$V_{CE} = -5V$
R = 4.7K

h$_{FE}$, DC CURRENT GAIN

I$_C$[mA], COLLECTOR CURRENT
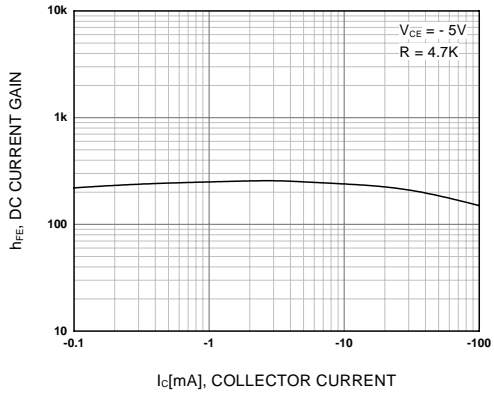
Figure 2. Collector-Emitter Saturation Voltage

$I_C = 10I_B$
R = 4.7k

V_{CE}(sat)[mV], SATURATION VOLTAGE

I$_C$[mA], COLLECTOR CURRENT
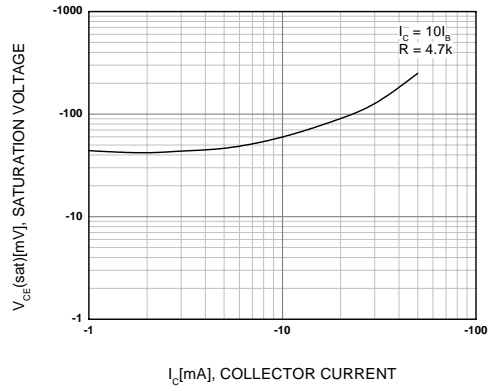
Figure 3. Power Derating

P$_C$[mW], POWER DISSIPATION

T$_a$[^{o}C], AMBIENT TEMPERATURE
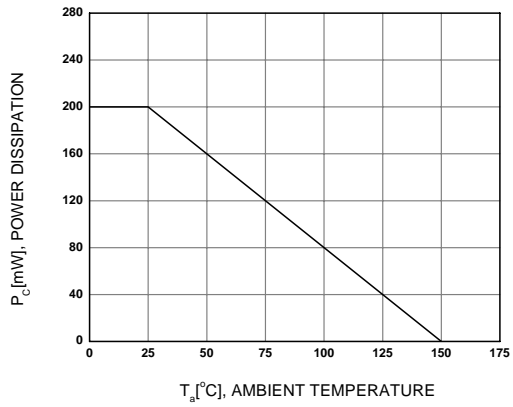
Package Dimensions

SOT-523F

1.70
1.50

0.35
0.25

3

0.98
0.78

1.70
1.50

1

2

(0.15)

0.50

1.00

0.78
0.58

0.50

0.50

0.50

1.14

1.80

0.50

0.66

LAND PATTERN RECOMMENDATION

SEE DETAIL A

0.20
0.04

0.43
0.28

0.54
0.34

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.

0.10
0.00

DETAIL A
SCALE 2 : 1

Dimensions in Millimeters

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FJY4009R Rev. B

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FACT®	OPTOPLANAR®	SuperSOT™-3	
FAST®	PACMAN™	SuperSOT™-6	
FASTr™	PDP-SPM™	SuperSOT™-8	
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PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
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