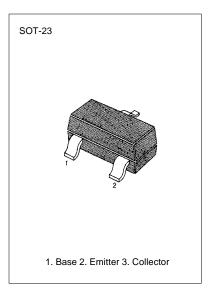
# PNP EPITAXIAL SILICON TRANSISTOR

## **SWITCHING AND AMPLIFIER APPLICATIONS**

- Suitable for automatic insertion in thick and thin-film circuits
- LOW NOISE: BC859, BC860
- Complement to BC846 ... BC850

# ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage : BC856 : BC857/860 : BC858/859 Collector-Emitter Voltage : BC856 : BC857/860 : BC857/860 : BC858/859 Emitter-Base Voltage Collector Current (DC) Collector Dissipation Junction Temperature Storage Temperature	V <sub>CBO</sub> V <sub>CEO</sub> V <sub>EBO</sub> I <sub>C</sub> P <sub>C</sub> T <sub>J</sub> T <sub>STG</sub>	-80 -50 -30 -65 -45 -30 -5 -100 310 150 -65 ~ 150	>>>



# **ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C)**

Charac	teristic	Symbol	Test Conditions	Min	Тур	Max	Unit
Collector Cut-off Curr	ent	I <sub>CBO</sub>	V <sub>CB</sub> = -30V, I <sub>E</sub> =0			-15	nA
DC Current Gain		h <sub>FE</sub>	$V_{CE}$ = -5V, $I_{C}$ = -2mA	110		800	
Collector-Emitter Sate	uration Voltage	V <sub>CE</sub> (sat)	$I_{C}$ = -10mA, $I_{B}$ = -0.5mA		-90	-300	mV
			$I_C = -100 \text{mA}, I_B = -5 \text{mA}$		-250	-650	mV
Collector-Base Saturation Voltage		V <sub>BE</sub> (sat)	$I_{C}$ = -10mA, $I_{B}$ = -0.5mA		-700		mV
9			$I_C = -100 \text{mA}, I_B = -5 \text{mA}$		-900		mV
Base-Emitter On Voltage		V <sub>BE</sub> (on)	$V_{CE}$ = -5V, $I_{C}$ = -2mA	-600	-660	-750	mV
			$V_{CE}$ = -5V, $I_{C}$ = -10mA			-800	mV
Current Gain Bandwidth Product		f <sub>T</sub>	$V_{CE}$ = -5V, $I_{C}$ = -10mA		150		MHz
			f=100MHz				
Collector-Base Capacitance		Ссво	V <sub>CB</sub> = -10V, f=1MHz			6	pF
Noise Figure	: BC856/857/858	NF	$V_{CF} = -5V$ , $I_{C} = -200\mu A$		2	10	dB
J	: BC859/860		$f=1KHz$ , $R_G=2K\Omega$		_	4	dB
		N.E	$V_{CF} = -5V$ , $I_{C} = -200\mu A$				
	: BC859	NF	$R_G=2K\Omega$		1.2	4	dB
	: BC860		f=30~15000Hz		1.2	2	dB

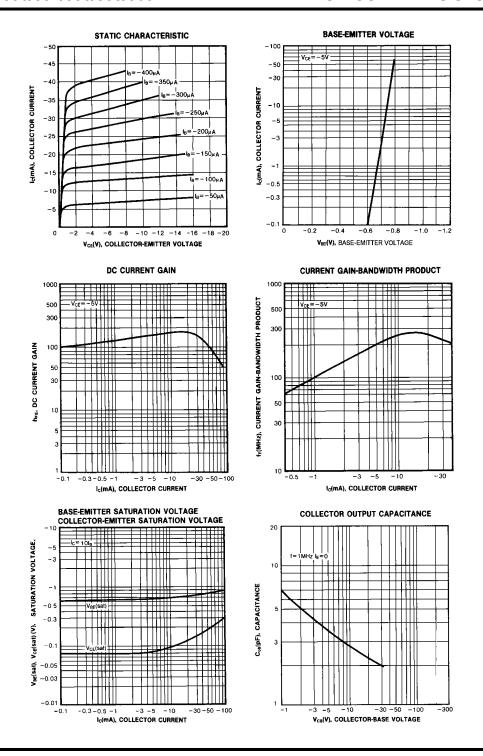
## **h**<sub>FE</sub> CLASSIFICATION

Classification	Α	В	С		
h <sub>FE</sub>	110-220	200-450	420-800		

# **MARKING CODE**

TYPE	856A	856B	856C	857A	857B	857C	858A	858B	858C	859A	859B	859C	860A	860B	860C
MARK	9AA	9AB	9AC	9BA	9BB	9BC	9CA	9CB	9CC	9DA	9DB	9DC	9EA	9EB	9EC







## **TRADEMARKS**

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

ACEX<sup>TM</sup> ISOPLANAR<sup>TM</sup>
CoolFET<sup>TM</sup> MICROWIRE<sup>TM</sup>

CROSSVOLT<sup>TM</sup> POP<sup>TM</sup>

E<sup>2</sup>CMOS<sup>™</sup> PowerTrench<sup>™</sup>

FACT<sup>TM</sup> QS<sup>TM</sup>

 $\begin{array}{lll} \mathsf{FACT} \ \mathsf{Quiet} \ \mathsf{Series^{\mathsf{TM}}} & \mathsf{Quiet} \ \mathsf{Series^{\mathsf{TM}}} \\ \mathsf{FAST}^{\otimes} & \mathsf{SuperSOT^{\mathsf{TM}}}\text{-}3 \\ \mathsf{FASTr^{\mathsf{TM}}} & \mathsf{SuperSOT^{\mathsf{TM}}}\text{-}6 \\ \mathsf{GTO^{\mathsf{TM}}} & \mathsf{SuperSOT^{\mathsf{TM}}}\text{-}8 \\ \mathsf{HiSeC^{\mathsf{TM}}} & \mathsf{TinyLogic^{\mathsf{TM}}} \end{array}$ 

#### **DISCLAIMER**

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

#### LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

 A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

### **PRODUCT STATUS DEFINITIONS**

#### **Definition of Terms**

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.