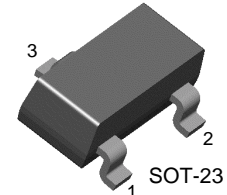


# BC817/BC818

## NPN Epitaxial Silicon Transistor

### Features

- Switching and Amplifier Applications
- Suitable for AF-Driver stages and low power output stages
- Complement to BC807/ BC808



1. Base 2. Emitter 3. Collector

### Absolute Maximum Ratings\* $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage		
	: BC817	50	V
	: BC818	30	V
$V_{CEO}$	Collector-Emitter Voltage		
	: BC817	45	V
	: BC818	25	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current (DC)	800	mA
$P_C$	Collector Power Dissipation	310	mW
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-65 ~ 150	$^\circ\text{C}$

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

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}, I_B = 0$				
	: BC817		45			V
	: BC818		25			V
$BV_{CES}$	Collector-Emitter Breakdown Voltage	$I_C = 0.1\text{mA}, V_{BE} = 0$				
	: BC817		50			V
	: BC818		30			V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 0.1\text{mA}, I_C = 0$	5			V
$I_{CES}$	Collector Cut-off Current	$V_{CE} = 25\text{V}, V_{BE} = 0$			100	nA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 4\text{V}, I_C = 0$			100	nA
$h_{FE1}$	DC Current Gain	$V_{CE} = 1\text{V}, I_C = 100\text{mA}$	100		630	
$h_{FE2}$		$V_{CE} = 1\text{V}, I_C = 300\text{mA}$	60			
$V_{CE}(\text{sat})$	Collector-Emitter Saturation Voltage	$I_C = 500\text{mA}, I_B = 50\text{mA}$			0.7	V
$V_{BE}(\text{on})$	Base-Emitter On Voltage	$V_{CE} = 1\text{V}, I_C = 300\text{mA}$			1.2	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$ $f = 50\text{MHz}$		100		MHz
$C_{ob}$	Output Capacitance	$V_{CB} = 10\text{V}, f = 1\text{MHz}$			12	pF

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

**h<sub>FE</sub> Classification**

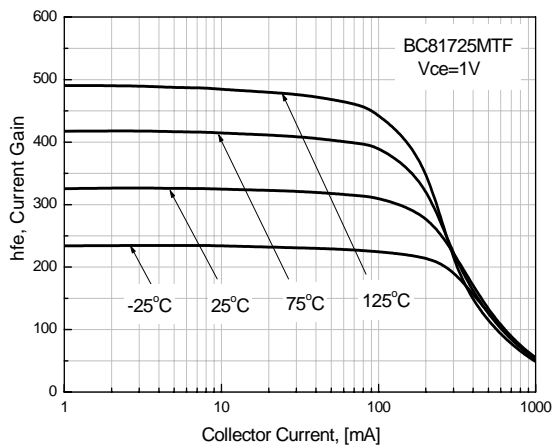
Classification	16	25	40
h <sub>FE1</sub>	110 ~ 250	160 ~ 400	250 ~ 630
h <sub>FE2</sub>	60~	100~	170~

**Ordering Information**

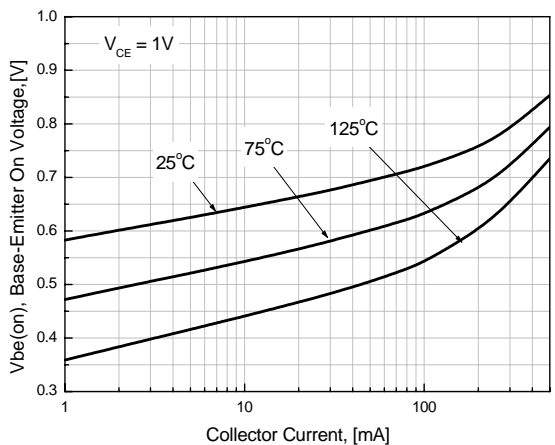
Device <sup>(note1)</sup>	Device Marking	Package	Packing Method	Qty(pcs)	Pin Difinitions
BC81716MTF	8FA	SOT-23	Tape & Reel	3000	1.Base 2.Emitter 3.Collector
BC81725MTF	8FB	SOT-23	Tape & Reel	3000	1.Base 2.Emitter 3.Collector
BC81740MTF	8FC	SOT-23	Tape & Reel	3000	1.Base 2.Emitter 3.Collector
BC81816MTF	8GA	SOT-23	Tape & Reel	3000	1.Base 2.Emitter 3.Collector
BC81825MTF	8GB	SOT-23	Tape & Reel	3000	1.Base 2.Emitter 3.Collector
BC81840MTF	8GC	SOT-23	Tape & Reel	3000	1.Base 2.Emitter 3.Collector

Note1 : Affix "-16,-25,-40" means h<sub>FE</sub> classification.  
 Affix "-M" means the matte type package.  
 Affix "-TF" means the tape & reel type packing.

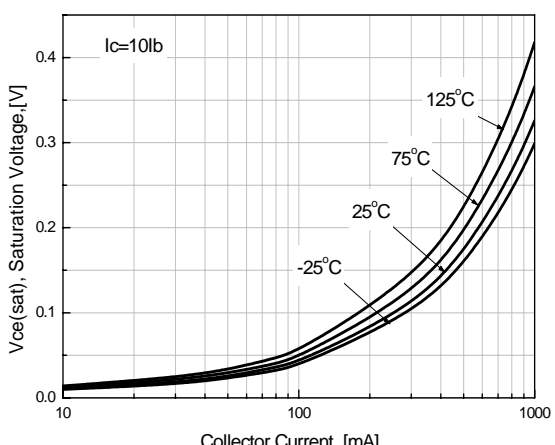
**Typical Performance Characteristics**



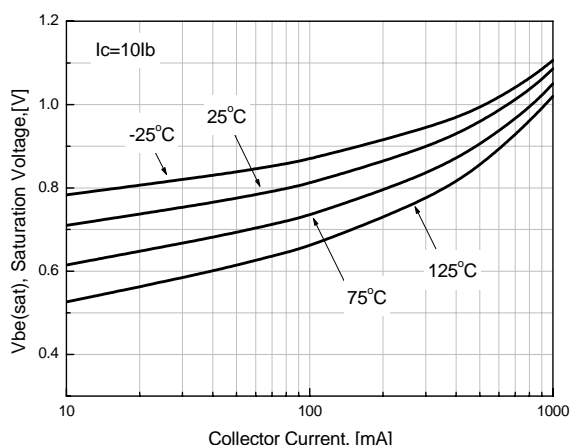
**Figure 1. DC current Gain**



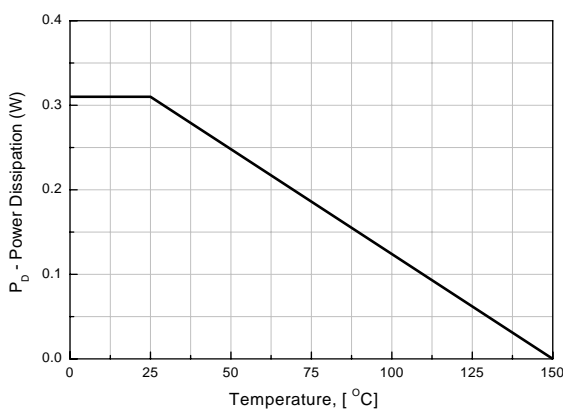
**Figure 2. Base-Emitter On Voltage**



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



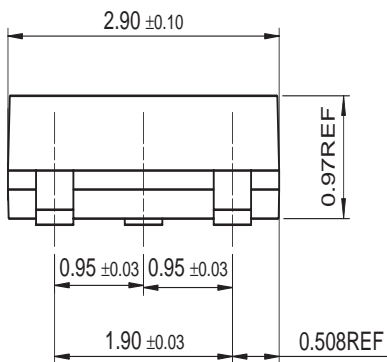
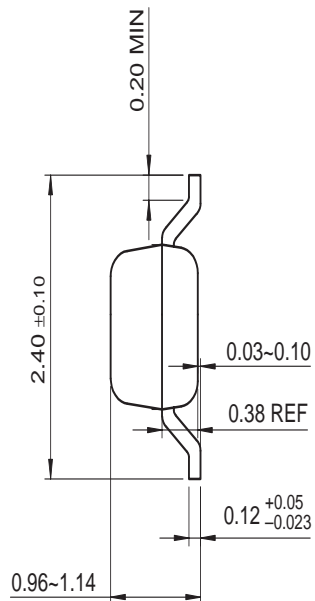
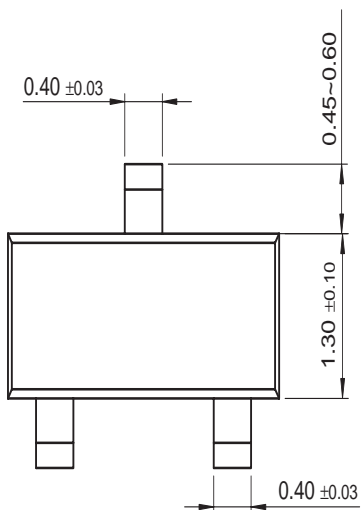
**Figure 4. Base-Emitter Saturation Voltage**



**Figure 5. Power Dissipation vs Ambient Temperature**

Mechanical Dimensions

SOT-23



Dimensions in Millimeters

**FAIRCHILD SEMICONDUCTOR 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™	FACT Quiet Series™	OCX™	SILENT SWITCHER®	UltraFET®
ActiveArray™	GlobalOptoisolator™	OCXPro™	SMART START™	UniFET™
Bottomless™	GTO™	OPTOLOGIC®	SPM™	VCX™
Build it Now™	HiSeC™	OPTOPLANAR™	Stealth™	Wire™
CoolFET™	I <sup>2</sup> C™	PACMAN™	SuperFET™	
CROSSVOLT™	i-Lo™	POPT™	SuperSOT™-3	
DOMET™	ImpliedDisconnect™	Power247™	SuperSOT™-6	
EcoSPARK™	IntelliMAX™	PowerEdge™	SuperSOT™-8	
E <sup>2</sup> CMOS™	ISOPLANAR™	PowerSaver™	SyncFET™	
EnSigna™	LittleFET™	PowerTrench®	TCM™	
FACT®	MICROCOUPLER™	QFET®	TinyBoost™	
FAST®	MicroFET™	QS™	TinyBuck™	
FASTr™	MicroPak™	QT Optoelectronics™	TinyPWM™	
FPS™	MICROWIRE™	Quiet Series™	TinyPower™	
FRFET™	MSX™	RapidConfigure™	TinyLogic®	
	MSXPro™	RapidConnect™	TINYOPTO™	
Across the board. Around the world.™		µSerDes™	TruTranslation™	
The Power Franchise®		ScalarPump™	UHC®	
Programmable Active Droop™				

**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. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

**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.
2. 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.

Rev. I21