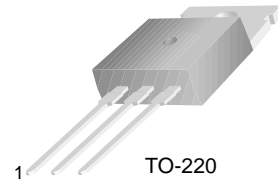**FAIRCHILD**

SEMICONDUCTOR®

TIP115/116/117

Monolithic Construction With Built In Base-Emitter Shunt Resistors

- High DC Current Gain : h_{FE}=1000 @ V_{CE}= -4V, I_C= -1A (Min.)
- Low Collector-Emitter Saturation Voltage
- Industrial Use
- Complementary to TIP110/111/112

1 TO-220

1.Base 2.Collector 3.Emitter

PNP Epitaxial Silicon Darlington Transistor

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter		Value	Units
V_{CBO}	Collector-Base Voltage	: TIP115	- 60	V
		: TIP116	- 80	V
		: TIP117	- 100	V
V_{CEO}	Collector-Emitter Voltage	: TIP115	- 60	V
		: TIP116	- 80	V
		: TIP117	- 100	V
V_{EBO}	Emitter-Base Voltage		- 5	V
I_C	Collector Current (DC)		- 2	A
I_{CP}	Collector Current (Pulse)		-4	A
I_B	Base Current (DC)		- 50	mA
P_C	Collector Dissipation (T_a=25°C)		2	W
	Collector Dissipation (T_C=25°C)		50	W
T_J	Junction Temperature		150	°C
T_{STG}	Storage Temperature		- 65 ~ 150	°C

Equivalent Circuit

C

B

R1 R2

E

$R1 \cong 10\,k\Omega$
$R2 \cong 0.6\,k\Omega$
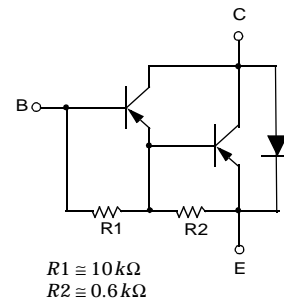
Electrical Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter		Test Condition	Min.	Max.	Units
V_{CEO}(sus)	Collector-Emitter Sustaining Voltage					
		: TIP115	I_C = -30mA, I_B = 0	-60		V
		: TIP116		-80		V
		: TIP117		-100		V
I_{CEO}	Collector Cut-off Current					
		: TIP115	V_{CE} = -30V, I_B = 0		-2	mA
		: TIP116	V_{CE} = -40V, I_B = 0		-2	mA
		: TIP117	V_{CE} = -50V, I_B = 0		-2	mA
I_{CBO}	Collector Cut-off Current					
		: TIP115	V_{CB} = -60V, I_E = 0		-1	mA
		: TIP116	V_{CB} = -80V, I_E = 0		-1	mA
		: TIP117	V_{CB} = -100V, I_E = 0		-1	mA
I_{EBO}	Emitter Cut-off Current		V_{BE} = -5V, I_C = 0		-2	mA
h_{FE}	DC Current Gain		V_{CE} = -4V, I_C = -1A	1000		
			V_{CE} = -4V, I_C = -2A	500		
V_{CE}(sat)	Collector-Emitter Saturation Voltage		I_C = -2A, I_B = -8mA		-2.5	V
V_{BE}(on)	Base-Emitter ON Voltage		V_{CE} = -4V, I_C = -2A		-2.8	V
C_{ob}	Output Capacitance		V_{CB} = -10V, I_E = 0, f = 0.1MHz		200	pF

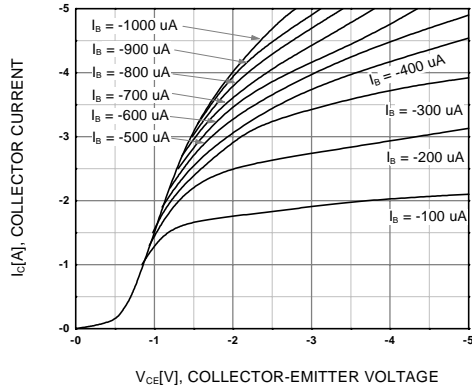# Typical Characteristics

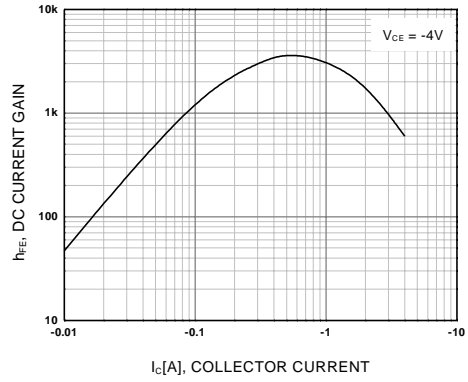**Figure 1. Static Characteristic**
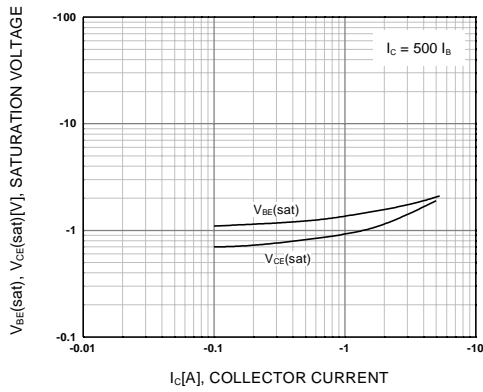
Figure 2. DC current Gain

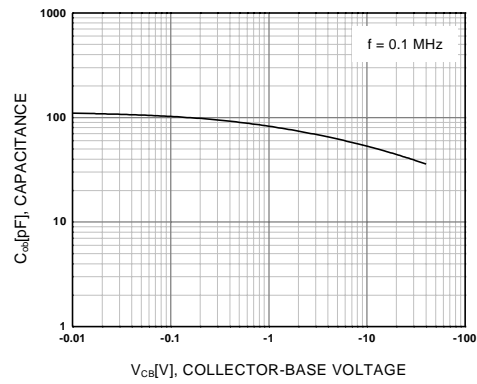**Figure 3. Collector-Emitter Saturation Voltage**
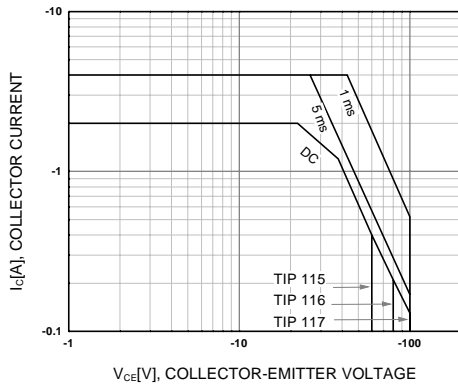**Base-Emitter Saturation Voltage**

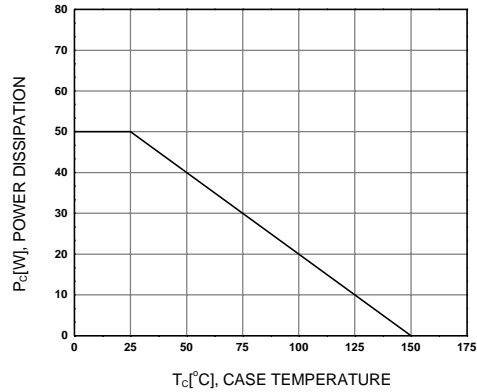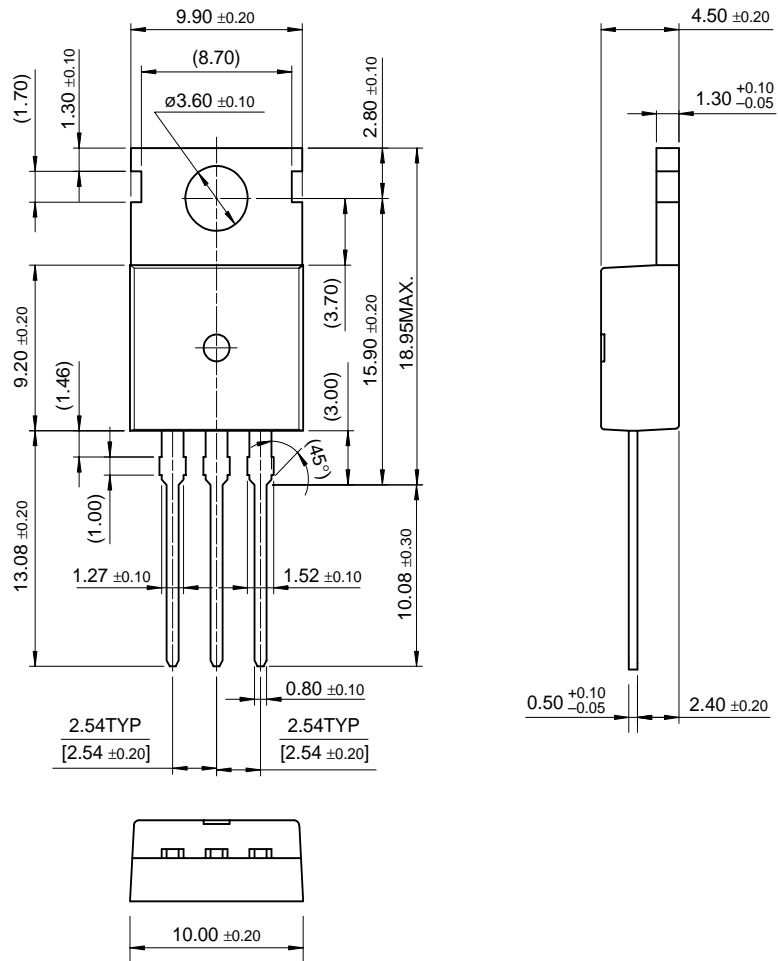**Figure 4. Collector Output Capacitance**

Figure 5. Safe Operating Area

Figure 6. Power Derating

Package Demensions

TO-220

9.90 ±0.20

(8.70)

(1.70)

1.30 ±0.10

ø3.60 ±0.10

2.80 ±0.10

4.50 ±0.20

1.30 +0.10 −0.05

(3.70)

9.20 ±0.20

15.90 ±0.20

18.95 MAX.

(1.46)

(3.00)

(45°)

13.08 ±0.20

1.27 ±0.10

1.52 ±0.10

(1.00)

10.08 ±0.30

0.80 ±0.10

0.50 +0.10 −0.05

2.40 ±0.20

2.54 TYP [2.54 ±0.20]

2.54 TYP [2.54 ±0.20]

10.00 ±0.20

Dimensions in Millimeters

Rev. A1, June 2001

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™	FAST®	OPTOPLANAR™	STAR*POWER™
Bottomless™	FASTr™	PACMAN™	Stealth™
CoolFET™	FRFET™	POP™	SuperSOT™-3
CROSSVOLT™	GlobalOptoisolator™	Power247™	SuperSOT™-6
DenseTrench™	GTO™	PowerTrench®	SuperSOT™-8
DOME™	HiSeC™	QFET™	SyncFET™
EcoSPARK™	ISOPLANAR™	QS™	TruTranslation™
E²CMOS™	LittleFET™	QT Optoelectronics™	TinyLogic™
EnSigna™	MicroFET™	Quiet Series™	UHC™
FACT™	MICROWIRE™	SLIENT SWITCHER®	UltraFET®
FACT Quiet Series™	OPTOLOGIC™	SMART START™	VCX™

STAR*POWER is used under license

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.

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.

Fairchild Semiconductor

space   Product Folders and   Applica

find products

Products groups
Analog and Mixed Signal
Discrete
Interface
Logic
Microcontrollers
Non-Volatile Memory
Optoelectronics
Markets and applications
New products
Product selection and parametric search
Cross-reference search

technical information

buy products

technical support

my Fairchild

company

TIP116
PNP Epitaxial Silicon Darlington Transistor

Contents
Features | Product status/pricing/packaging

Features

Monolithic Construction with Built In Base-Emitter Shunt Resistors

- High DC Current Gain: h_{FE}=1000 @ V_{CE}=-4V, I_C=-1A (Min.)
- Low Collector-Emitter Saturation Voltage
- Industrial Use
- Complementary to TIP110/111/112

back to top

Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
TIP116TU	Full Production	$0.362	TO-220	3	RAIL
TIP116	Full Production	$0.362	TO-220	3	BULK

* 1,000 piece Budgetary Pricing

back to top

Datasheet
Download this datasheet

PDF

e-mail this datasheet

[E-

This page Print version

Related Links

Request samples

Dotted line

How to order products

Dotted line

Product Change Notices (PCNs)

Dotted line

Support

Dotted line

Distributor and field sales representatives

Dotted line

Quality and reliability

Dotted line

Design tools

Home | Find products | Technical information | Buy products |
Support | Company | Contact us | Site index | Privacy policy

Fairchild Semiconductor

find products

Home >> Find products >>

- Products groups
  - Analog and Mixed Signal
  - Discrete
  - Interface
  - Logic
  - Microcontrollers
  - Non-Volatile Memory
  - Optoelectronics
- Markets and applications
- New products
- Product selection and parametric search
- Cross-reference search

technical information

buy products

technical support

my Fairchild

company

TIP117
PNP Epitaxial Silicon Darlington Transistor

Contents
  Features | Product status/pricing/packaging

Features

Monolithic Construction with Built In Base-Emitter Shunt Resistors

- High DC Current Gain: h_{FE}=1000 @ V_{CE}=-4V, I_C=-1A (Min.)
- Low Collector-Emitter Saturation Voltage
- Industrial Use
- Complementary to TIP110/111/112

Datasheet
Download this datasheet

PDF

e-mail this datasheet

[E-

This page Print version

Related Links

Request samples
Dotted line
How to order products
Dotted line
Product Change Notices (PCNs)
Dotted line
Support
Dotted line
Distributor and field sales representatives
Dotted line
Quality and reliability
Dotted line
Design tools

back to top

Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
TIP117	Full Production	$0.362	TO-220	3	BULK
TIP117TU	Full Production	$0.363	TO-220	3	RAIL

* 1,000 piece Budgetary Pricing

back to top

Fairchild Semiconductor

space Product Folders and Applica

find products

Home >> Find products >>

Products groups
Analog and Mixed Signal
Discrete
Interface
Logic
Microcontrollers
Non-Volatile
Memory
Optoelectronics
Markets and applications
New products
Product selection and parametric search
Cross-reference search

technical information

buy products

technical support

my Fairchild

company

TIP115
PNP Epitaxial Silicon Darlington Transistor

Contents
Features | Product status/pricing/packaging

Features

Monolithic Construction with Built In Base-Emitter Shunt Resistors

- High DC Current Gain: h_{FE}=1000 @ V_{CE}=-4V, I_C=-1A (Min.)
- Low Collector-Emitter Saturation Voltage
- Industrial Use
- Complementary to TIP110/111/112

back to top

Datasheet
Download this datasheet
PDF

e-mail this datasheet
[E-

This page Print version

Related Links

Request samples
Dotted line
How to order products
Dotted line
Product Change Notices (PCNs)
Dotted line
Support
Dotted line
Distributor and field sales representatives
Dotted line
Quality and reliability
Dotted line
Design tools

Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
TIP115	Full Production	$0.362	TO-220	3	BULK
TIP115TU	Full Production	$0.362	TO-220	3	RAIL

* 1,000 piece Budgetary Pricing

back to top