



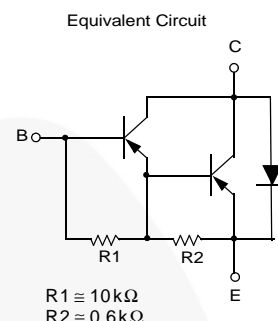
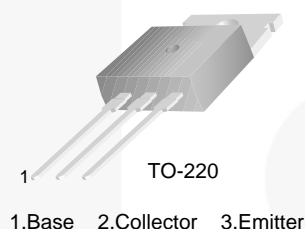
December 2014

TIP105 / TIP107

PNP Epitaxial Silicon Darlington Transistor

Features

- Monolithic Construction with Built-in Base-Emitter Shunt Resistors
- High DC Current Gain:
 $h_{FE} = 1000$ @ $V_{CE} = -4$ V, $I_C = -3$ A (Minimum)
- Collector-Emitter Sustaining Voltage
- Low Collector-Emitter Saturation Voltage
- Industrial Use
- Complementary to TIP102



Ordering Information

Part Number	Top Mark	Package	Packing Method
TIP105	TIP105	TO-220 3L (Single Gauge)	Bulk
TIP105TU	TIP105	TO-220 3L (Single Gauge)	Rail
TIP107	TIP107	TO-220 3L (Single Gauge)	Bulk
TIP107TU	TIP107	TO-220 3L (Single Gauge)	Rail

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_C = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter		Value	Unit
V_{CBO}	Collector-Base Voltage	TIP105	-60	V
		TIP107	-100	
V_{CEO}	Collector-Emitter Voltage	TIP105	-60	V
		TIP107	-100	
V_{EBO}	Emitter-Base Voltage		-5	V
I_C	Collector Current (DC)		-8	A
I_{CP}	Collector Current (Pulse)		-15	A
I_B	Base Current (DC)		-1	A
T_J	Junction Temperature		150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range		-65 to 150	$^\circ\text{C}$

Thermal Characteristics

Values are at $T_C = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
P_C	Collector Dissipation ($T_A = 25^\circ\text{C}$)	2	W
	Collector Dissipation ($T_C = 25^\circ\text{C}$)	80	

Electrical Characteristics⁽¹⁾

Values are at $T_C = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	TIP105 $I_C = -30\text{ mA}, I_B = 0$	-60		V
		TIP107	-100		
I_{CEO}	Collector Cut-Off Current	TIP105 $V_{CE} = -30\text{ V}, I_B = 0$		-50	μA
		TIP107 $V_{CE} = -50\text{ V}, I_B = 0$		-50	
I_{CBO}	Collector Cut-Off Current	TIP105 $V_{CB} = -60\text{ V}, I_E = 0$		-50	μA
		TIP107 $V_{CB} = -100\text{ V}, I_E = 0$		-50	
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = -5\text{ V}, I_C = 0$		-2	mA
h_{FE}	DC Current Gain	$V_{CE} = -4\text{ V}, I_C = -3\text{ A}$	1000	20000	
		$V_{CE} = -4\text{ V}, I_C = -8\text{ A}$	200		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -3\text{ A}, I_B = -6\text{ mA}$		-2.0	V
		$I_C = -8\text{ A}, I_B = -80\text{ mA}$		-2.5	
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = -4\text{ V}, I_C = -8\text{ A}$		-2.8	V
C_{ob}	Output Capacitance	$V_{CB} = -10\text{ V}, I_E = 0,$ $f = 0.1\text{ MHz}$		300	pF

Note:

1. Pulse test: $p_w \leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

Typical Performance Characteristics

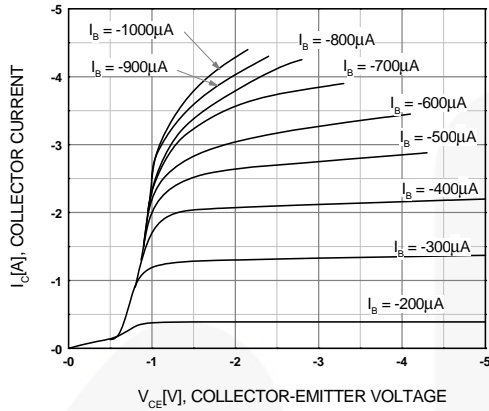


Figure 1. Static Characteristic

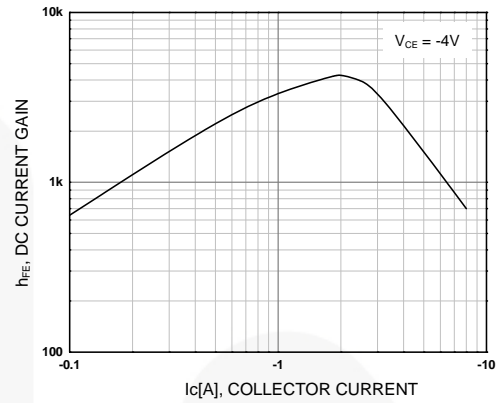


Figure 2. DC Current Gain

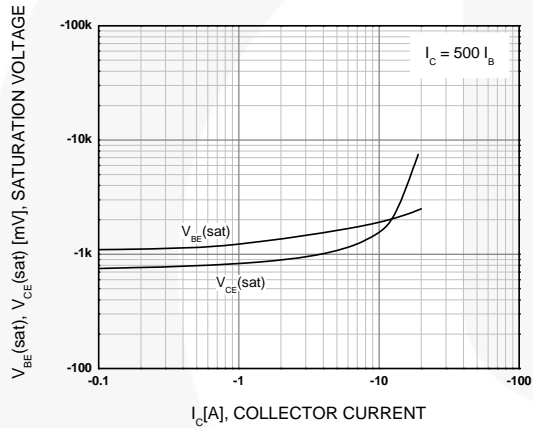


Figure 3. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

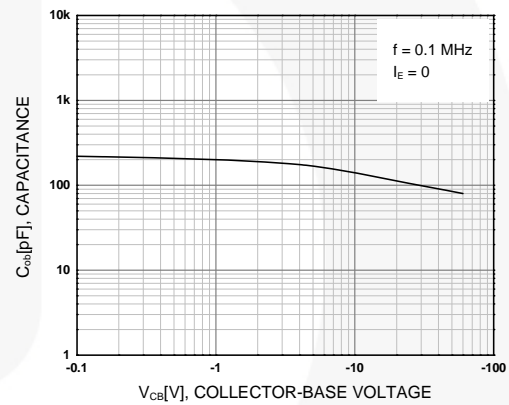


Figure 4. Collector Output Capacitance

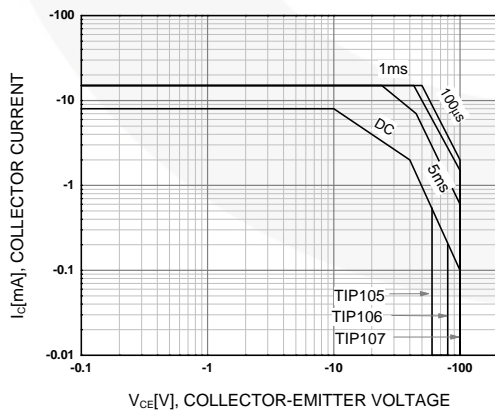


Figure 5. Safe Operating Area

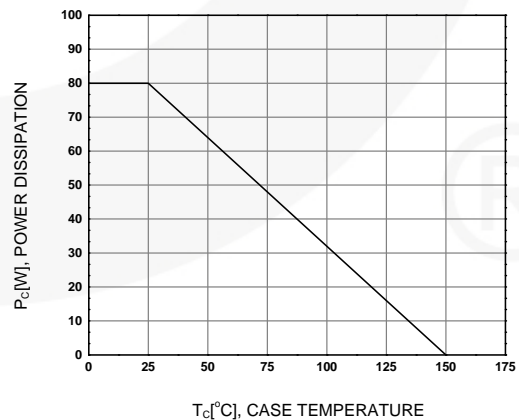


Figure 6. Power Derating

Physical Dimensions

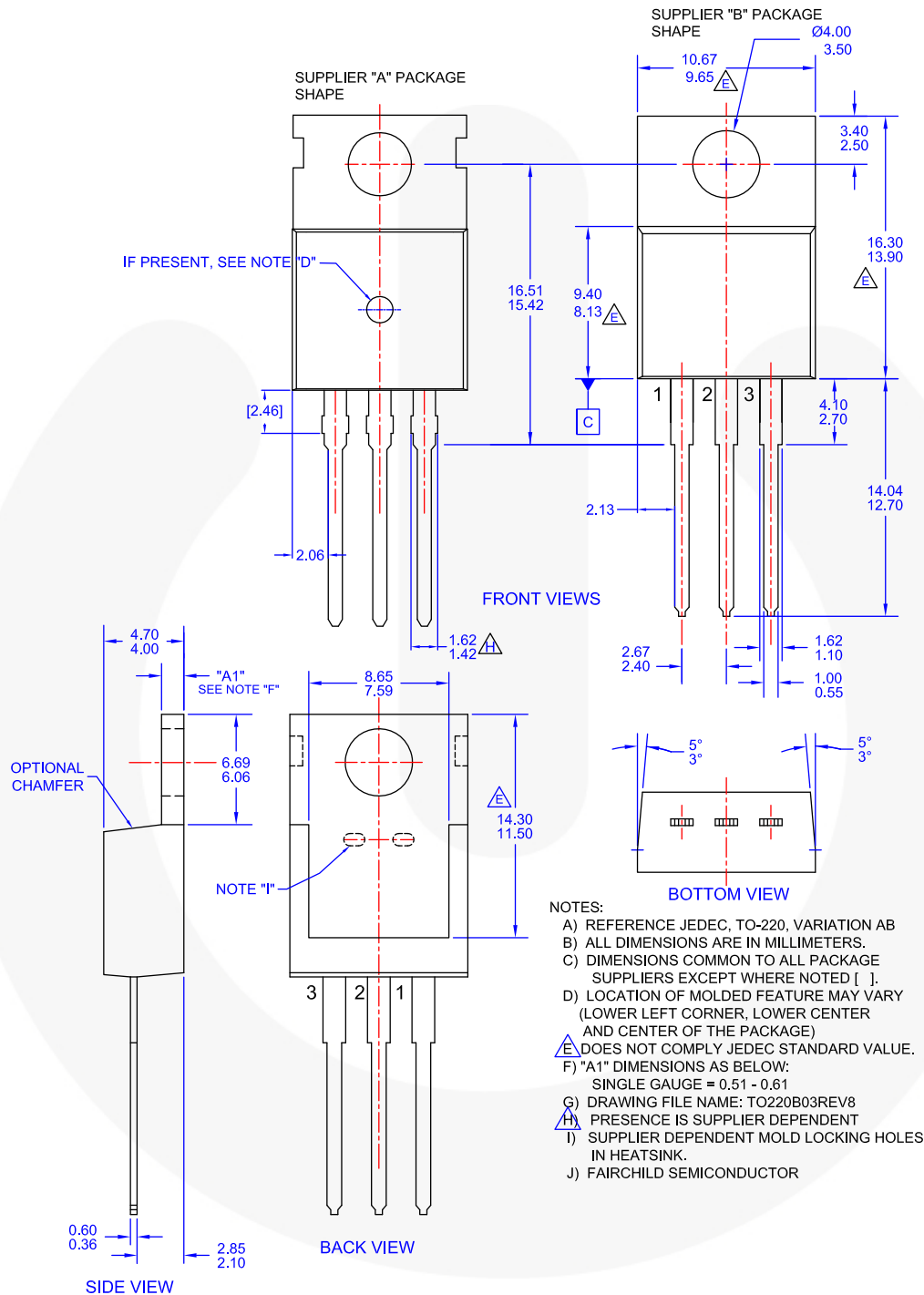




Figure 7. TO-220, MOLDED, 3LEAD, JEDEC VARIATION AB

The following includes registered and unregistered trademarks and service marks, owned by Fairchild Semiconductor and/or its global subsidiaries, and is not intended to be an exhaustive list of all such trademarks.

F-PFS™
FRFET®
Global Power ResourceSM
GreenBridge™
Green FPS™
Green FPS™ e-Series™
Gmax™
GTO™
IntelliMAX™
ISOPLANAR™
Making Small Speakers Sound Louder
and Better™
MegaBuck™
MICROCOUPLER™
MicroFET™
MicroPak™
MicroPak2™
MillerDrive™
MotionMax™
MotionGrid®
MTI®
MTx®
MVN®
mWSaver®
OptoHit™
OPTOLOGIC®



OPTOPLANAR®
 PowerTrench®
 PowerXS™
 Programmable Active Droop™
 QFET®
 QS™
 Quiet Series™
 RapidConfigure™
™
 Saving our world, 1mW/W/kW at a time™
 SignalWise™
 SmartMax™
 SMART START™
 Solutions for Your Success™
 SPM®
 STEALTH™
 SuperFET®
 SuperSOT™-3
 SuperSOT™-6
 SuperSOT™-8
 SupreMOS®
 SyncFET™
 Sync-Lock™

 SYSTEM
GENERAL[®]

TinyBoost[®]
 TinyBuck[®]
 TinyCalc[™]
 TinyLogic[®]
 TINYOPTO[™]
 TinyPower[™]
 TinyPWM[™]
 TinyWire[™]
 TransiC[™]
 TriFault Detect[™]
 TRUECURRENT[®]
 µSerDes[™]
 UHC[®]
 Ultra FRFET[™]
 UniFET[™]
 VCX[™]
 VisualMax[™]
 VoltagePlus[™]
 XS[™]
 Xsens[™]
 仙童[™]

* Trademarks of System General Corporation, used under license by Fairchild Semiconductor.

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION, OR DESIGN. TO OBTAIN THE LATEST, MOST UP-TO-DATE DATASHEET AND PRODUCT INFORMATION, VISIT OUR WEBSITE AT [HTTP://WWW.FAIRCHILDSEMI.COM](http://www.fairchildsemi.com). 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.

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.

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, and (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 a significant injury of the user.
2. A critical component in 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.

Fairchild Semiconductor Corporation's Anti-Counterfeiting Policy. Fairchild's Anti-Counterfeiting Policy is also stated on our external website, www.fairchildsemi.com, under Sales Support.

Counterfeiting of semiconductor parts is a growing problem in the industry. All manufacturers of semiconductor products are experiencing counterfeiting of their parts. Customers who inadvertently purchase counterfeit parts experience many problems such as loss of brand reputation, substandard performance, failed applications, and increased cost of production and manufacturing delays. Fairchild is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. Fairchild strongly encourages customers to purchase Fairchild parts either directly from Fairchild or from Authorized Fairchild Distributors who are listed by country on our web page cited above. Products customers buy either from Fairchild directly or from Authorized Fairchild Distributors are genuine parts, have full traceability, meet Fairchild's quality standards for handling and storage and provide access to Fairchild's full range of up-to-date technical and product information. Fairchild and our Authorized Distributors will stand behind all warranties and will appropriately address any warranty issues that may arise. Fairchild will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources. Fairchild is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

Definition of Terms

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

Rev 172

AMEYA360

Components Supply Platform

Authorized Distribution Brand :



Website :

Welcome to visit www.ameya360.com

Contact Us :

➤ Address :

401 Building No.5, JiuGe Business Center, Lane 2301, Yishan Rd
Minhang District, Shanghai , China

➤ Sales :

Direct +86 (21) 6401-6692
Email amall@ameya360.com
QQ 800077892
Skype ameyasales1 ameyasales2

➤ Customer Service :

Email service@ameya360.com

➤ Partnership :

Tel +86 (21) 64016692-8333
Email mkt@ameya360.com