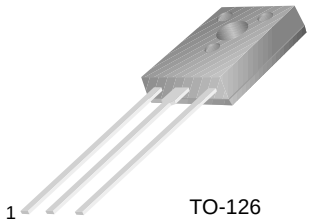
FAIRCHILD SEMICONDUCTOR™

BD675A/677A/679A/681

Medium Power Linear and Switching Applications

- Medium Power Darlington TR
- Complement to BD676A, BD678A, BD680A and BD682 respectively



TO-126

1. Emitter 2.Collector 3.Base

NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter		Value	Units
V_{CBO}	Collector-Base Voltage	: BD675A	45	V
		: BD677A	60	V
		: BD679A	80	V
		: BD681	100	V
V_{CEO}	Collector-Emitter Voltage	: BD675A	45	V
		: BD677A	60	V
		: BD679A	80	V
		: BD681	100	V
V_{EBO}	Emitter-Base Voltage		5	V
I_C	Collector Current (DC)		4	A
I_{CP}	*Collector Current (Pulse)		6	A
I_B	Base Current		100	mA
P_C	Collector Dissipation (T_C=25°C)		40	W
T_J	Junction Temperature		150	°C
T_{STG}	Storage Temperature		- 65 ~ 150	°C

Electrical Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter		Test Condition	Min.	Typ.	Max.	Units
V_{CEO}(sus)	*Collector-Emitter Sustaining Voltage						
		: BD675A	I_C = 50mA, I_B = 0	45			V
		: BD677A		60			V
		: BD679A		80			V
		: BD681		100			V
I_{CBO}	Collector-Base Voltage	: BD675A	V_{CB} = 45V, I_E = 0			200	µA
		: BD677A	V_{CB} = 60V, I_E = 0			200	µA
		: BD679A	V_{CB} = 80V, I_E = 0			200	µA
		: BD681	V_{CB} = 100V, V_{BE} = 0			200	µA
I_{CEO}	Collector Cut-off Current	: BD675A	V_{CE} = 45V, V_{BE} = 0			500	µA
		: BD677A	V_{CE} = 60V, V_{BE} = 0			500	µA
		: BD679A	V_{CE} = 80V, V_{BE} = 0			500	µA
		: BD681	V_{CE} = 100V, V_{BE} = 0			500	µA
I_{EBO}	Emitter Cut-off Current		V_{EB} = 5V, I_C = 0			2	mA
h_{FE}	* DC Current Gain	: BD675A/677A/679A	V_{CE} = 3V, I_C = 2A	750			
		: BD681	V_{CE} = 3V, I_C = 1.5A	750			
V_{CE}(sat)	* Collector-Emitter Saturation Voltage						
		: BD675A/677A/679A	I_C = 2A, I_B = 40mA			2.8	V
		: BD681	I_C = 1.5A, I_B = 30mA			2.5	V
V_{BE}(on)	* Base-Emitter ON Voltage	: BD675A/677A/679A	V_{CE} = 3V, I_C = 2A			2.5	V
		: BD681	V_{CE} = 3V, I_C = 1.5A			2.5	V

* Pulse Test: PW=300µs, duty Cycle=1.5% Pulsed

Typical Characteristics

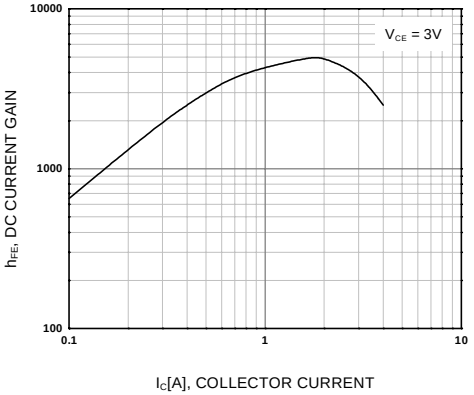


Figure 1. DC current Gain

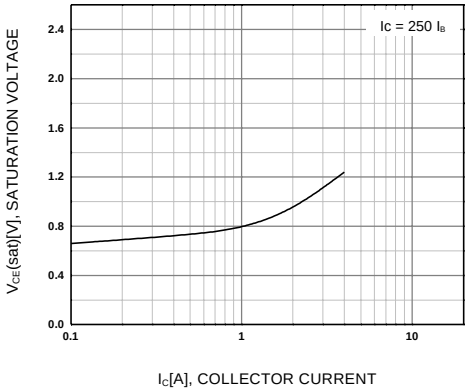


Figure 2. Collector-Emitter Saturation Voltage

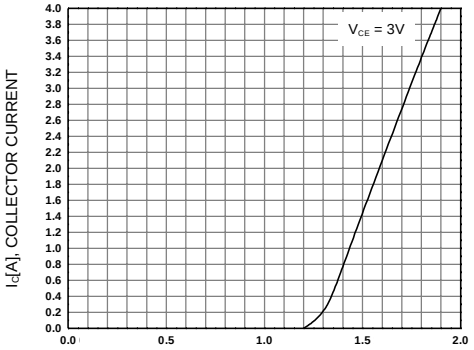


Figure 3. Base-Emitter On Voltage

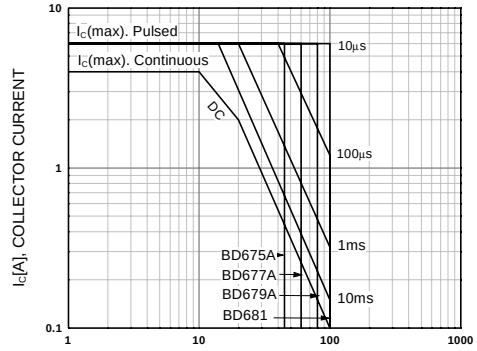


Figure 4. Safe Operating Area

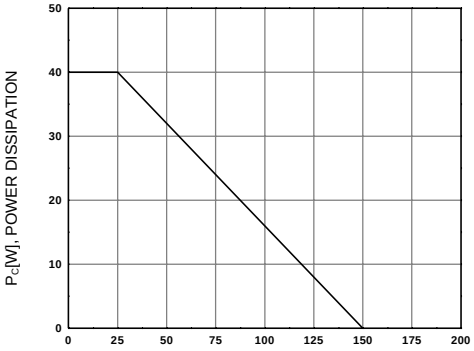
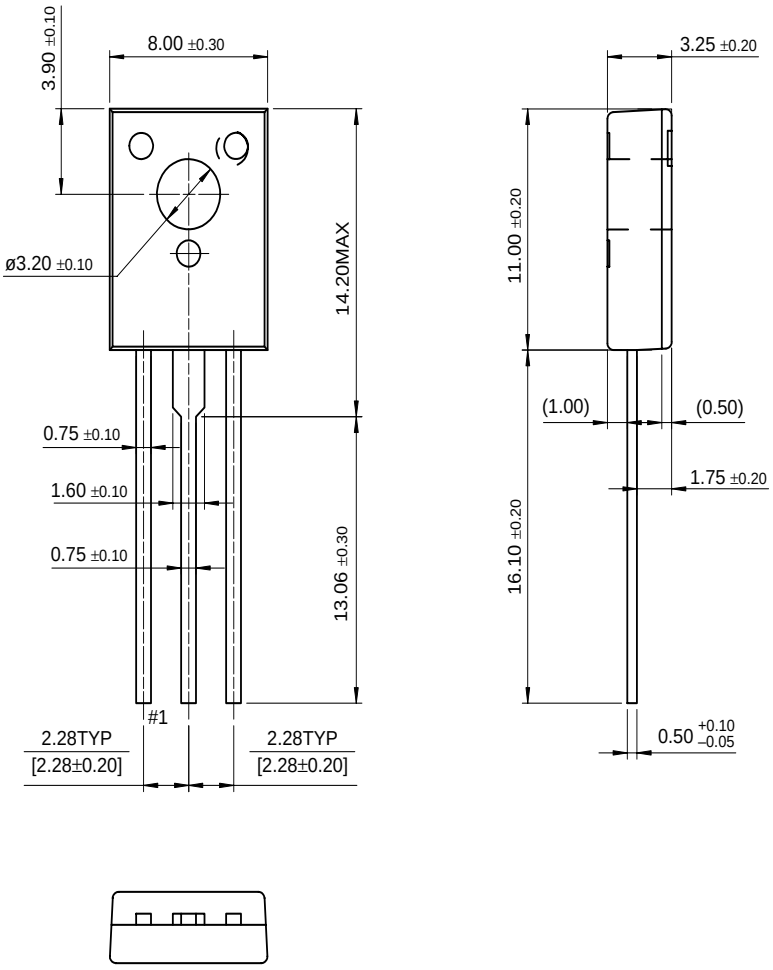


Figure 5. Power Derating

Package Demensions

TO-126



Dimensions in Millimeters

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™
Bottomless™
CoolFET™
CROSSVOLT™
E^2CMOS™
FACT™
FACT Quiet Series™
FAST®
FASTr™
GTO™
HiSeC™
ISOPLANAR™
MICROWIRE™
POP™
PowerTrench®
QFET™
QS™
Quiet Series™
SuperSOT™-3
SuperSOT™-6
SuperSOT™-8
SyncFET™
TinyLogic™
UHC™
VCX™

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 INTERNATIONAL.

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.