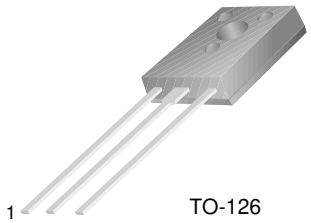
FAIRCHILD
SEMICONDUCTOR®

BD676A/678A/680A/682

Medium Power Linear and Switching Applications

- Medium Power Darlington TR
- Complement to BD675A, BD677A, BD679A and BD681 respectively



TO-126

1. Emitter 2.Collector 3.Base

PNP Epitaxial Silicon Transistor

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage : BD676A	- 45	V
	: BD678A	- 60	V
	: BD680A	- 80	V
	: BD682	- 100	V
V_{CEO}	Collector-Emitter Voltage : BD676A	- 45	V
	: BD678A	- 60	V
	: BD680A	- 80	V
	: BD682	- 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)	14	W
$R_{\theta ja}$	Thermal Resistance (Junction to Ambient)	88	°C/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					
	: BD676A	I_C = - 50mA, I_B = 0	- 45			
	: BD678A		- 60			
	: BD680A		- 80			
	: BD682		- 100			
I_{CBO}	Collector-Base Voltage : BD676A	V_{CB} = - 45V, I_E = 0			- 200	µA
	: BD678A	V_{CB} = - 60V, I_E = 0			- 200	µA
	: BD680A	V_{CB} = - 80V, I_E = 0			- 200	µA
	: BD682	V_{CB} = - 100V, V_{BE} = 0			- 200	µA
I_{CEO}	Collector Cut-off Current : BD676A	V_{CE} = - 45V, V_{BE} = 0			- 500	µA
	: BD678A	V_{CE} = - 60V, V_{BE} = 0			- 500	µA
	: BD680A	V_{CE} = - 80V, V_{BE} = 0			- 500	µA
	: BD682	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 : BD676A/678A/680A	V_{CE} = - 3V, I_C = - 2A	750			
	: BD682	V_{CE} = - 3V, I_C = - 1.5A	750			
V_{CE}(sat)	* Collector-Emitter Saturation Voltage					
	: BD676A/678A/680A	I_C = - 2A, I_B = - 40mA			- 2.8	V
	: BD682	I_C = - 1.5A, I_B = - 30mA			- 2.5	V
V_{BE}(on)	* Base-Emitter On Voltage : BD676A/678A/680A	V_{CE} = - 3V, I_C = - 2A			- 2.5	V
	: BD682	V_{CE} = - 3V, I_C = - 1.5A			- 2.5	V

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

Typical Characteristics

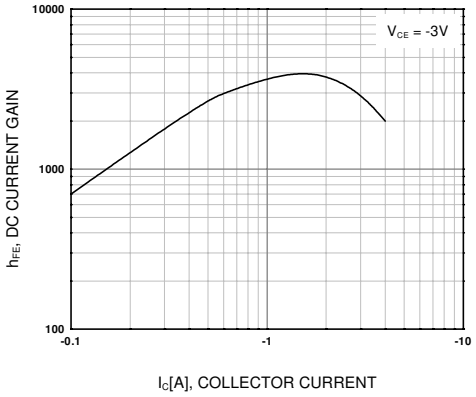


Figure 1. DC current Gain

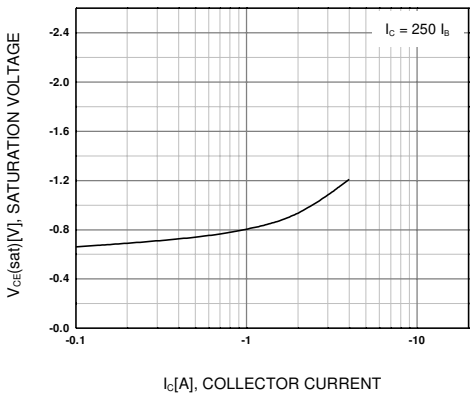


Figure 2. Collector-Emitter Saturation Voltage

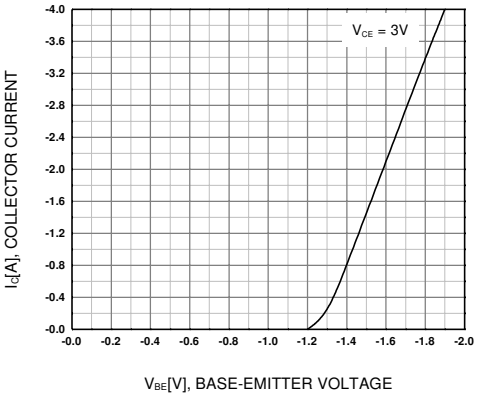


Figure 3. Base-Emitter On Voltage

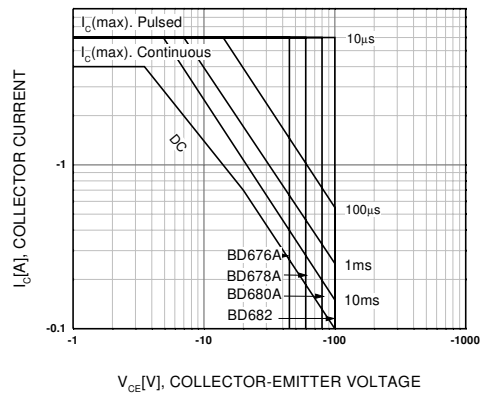


Figure 4. Safe Operating Area

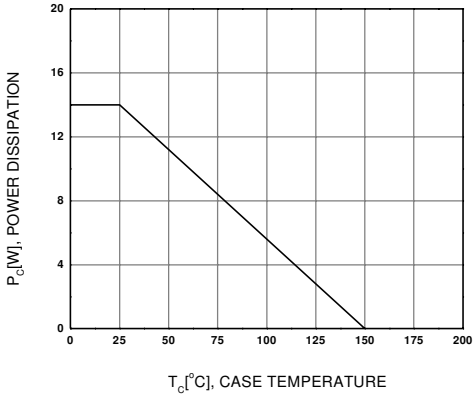


Figure 5. Power Derating

Package Dimensions

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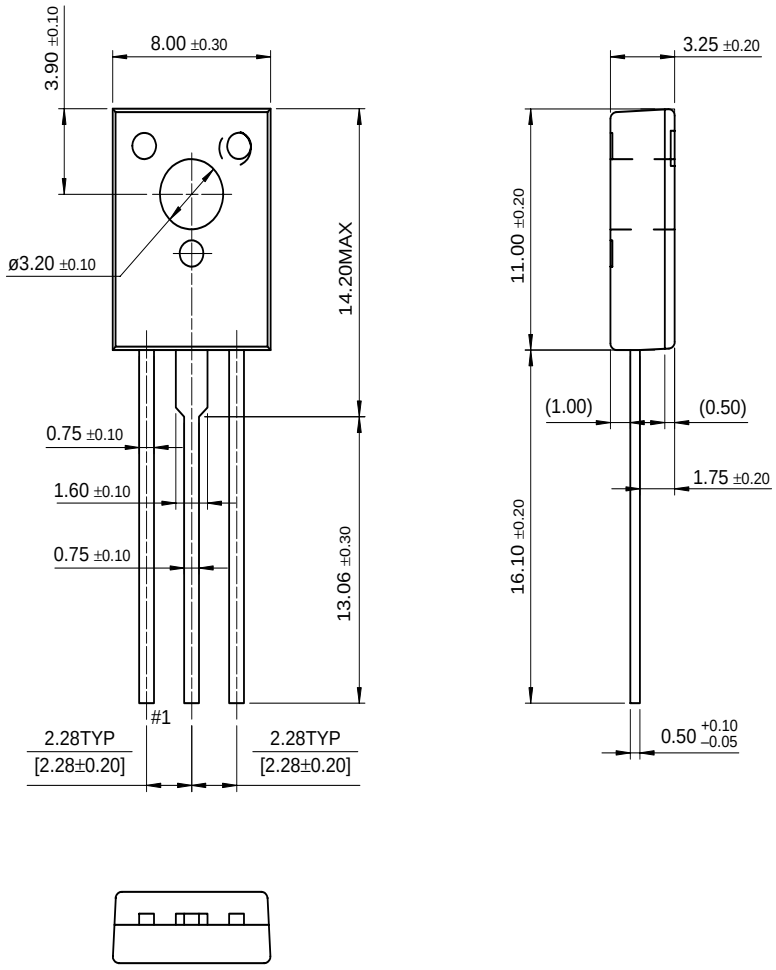

Dimensions in Millimeters

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CoolFET™	FASTr™	MicroFET™	PowerTrench®	SuperSOT™-6
CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
DOME™	GlobalOptoisolator™	MICROWIRE™	QS™	SyncFET™
EcoSPARK™	GTO™	MSX™	QT Optoelectronics™	TinyLogic™
E^2CMOS™	HiSeC™	MSXPro™	Quiet Series™	TruTranslation™
EnSigna™	I^2C™	OCX™	RapidConfigure™	UHC™
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The Power Franchise™		OPTOLOGIC®	SILENT SWITCHER®	VCX™
Programmable Active Droop™		OPTOPLANAR™	SMART START™	

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