FAIRCHILD
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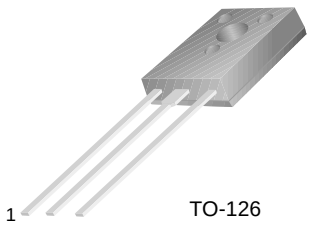
BD439/441

Medium Power Linear and Switching Applications

- Complement to BD440, BD442 respectively



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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		
	: BD439	60	V
	: BD441	80	V
V_{CES}	Collector-Emitter Voltage		
	: BD439	60	V
	: BD441	80	V
V_{CEO}	Collector-Emitter Voltage		
	: BD439	60	V
	: BD441	80	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current (DC)	4	A
I_{CP}	*Collector Current (Pulse)	7	A
I_B	Base Current	1	A
P_C	Collector Dissipation (T_C=25°C)	36	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					
	: BD439	I_C = 100mA, I_B = 0	60			V
	: BD441		80			V
I_{CBO}	Collector Cut-off Current : BD439	V_{CB} = 60V, I_E = 0			100	µA
	: BD441	V_{CB} = 80V, I_E = 0			100	µA
I_{CES}	Collector Cut-off Current : BD439	V_{CE} = 60V, V_{BE} = 0			100	µA
	: BD441	V_{CE} = 80V, V_{BE} = 0			100	µA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 5V, I_C = 0			1	mA
h_{FE}	* DC Current Gain : BD439	V_{CE} = 5V, I_C = 10mA	20	130		
	: BD441		15	130		
	: BD439	V_{CE} =1V, I_C = 500mA	40	140		
	: BD441		40	140		
	: BD439	V_{CE} = 1V, I_C = 2A	25			
	: BD441		15			
V_{CE}(sat)	* Collector-Emitter Saturation Voltage	I_C = 2A, I_B = 0.2A			0.8	V
V_{BE}(on)	* Base-Emitter ON Voltage	V_{CE} = 5V, I_C = 10mA		0.58		V
		V_{CE} = 1V, I_C = 2A			1.5	V
f_T	Current Gain Bandwidth Product	V_{CE} = 1V, I_C = 250mA	3			MHz

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

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Typical Characteristics

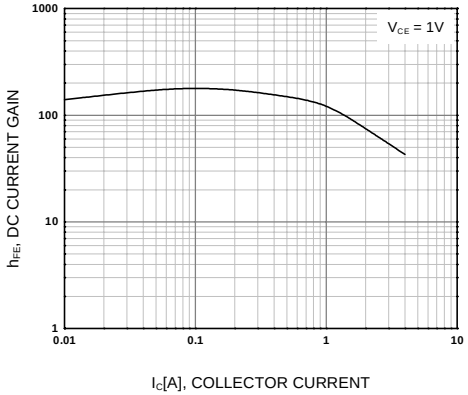

Figure 1. DC current Gain

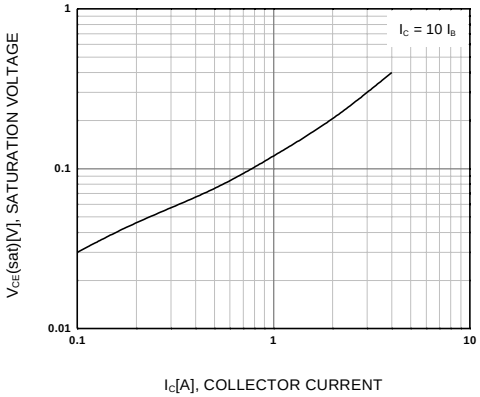

Figure 2. Collector-Emitter Saturation Voltage

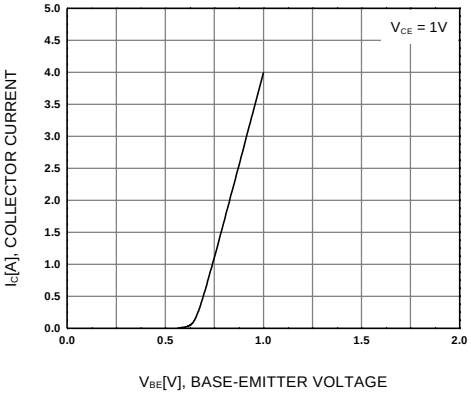

Figure 3. Base-Emitter On Voltage

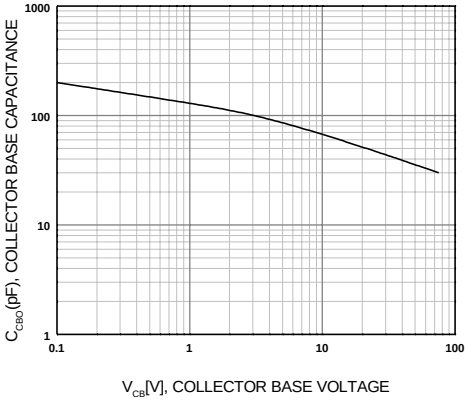

Figure 4. Collector-Base Capacitance

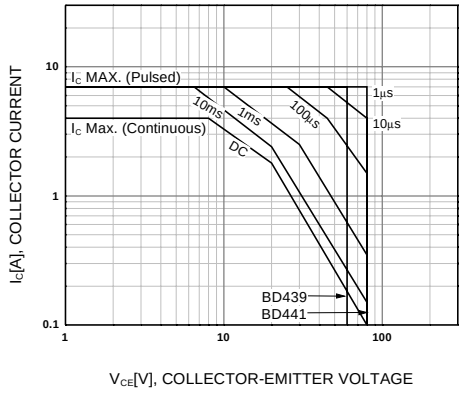

Figure 5. Safe Operating Area

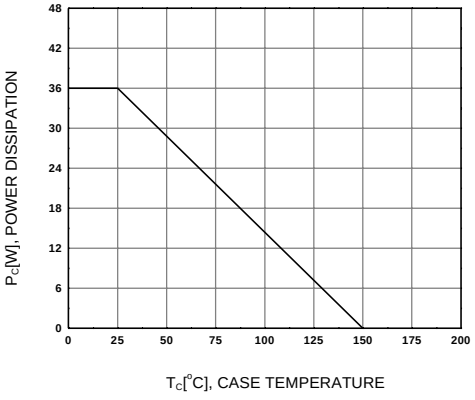

Figure 6. Power Derating

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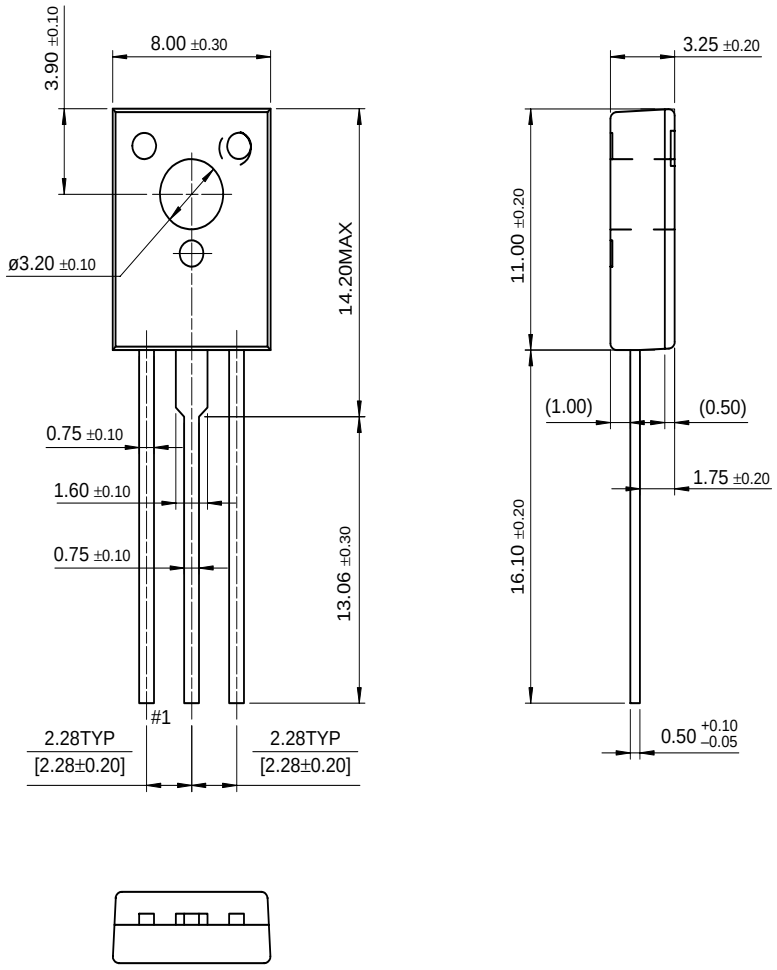
Package Demensions

TO-126



Dimensions in Millimeters

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