

## BD135/137/139

# Medium Power Linear and Switching Applications

• Complement to BD136, BD138 and BD140 respectively



## **NPN Epitaxial Silicon Transistor**

## Absolute Maximum Ratings $T_C=25^{\circ}C$ unless otherwise noted

Symbol	Para	meter	Value	Units
V <sub>CBO</sub>	Collector-Base Voltage	: BD135	45	V
		: BD137	60	V
		: BD139	80	V
V <sub>CEO</sub>	Collector-Emitter Voltage	: BD135	45	V
		: BD137	60	V
		: BD139	80	V
V <sub>EBO</sub>	Emitter-Base Voltage		5	V
I <sub>C</sub>	Collector Current (DC)		1.5	А
I <sub>CP</sub>	Collector Current (Pulse)		3.0	А
I <sub>B</sub>	Base Current		0.5	Α
P <sub>C</sub>	Collector Dissipation (T <sub>C</sub> =25°C	C)	12.5	W
P <sub>C</sub>	Collector Dissipation (T <sub>a</sub> =25°C	<del>(</del> )	1.25	W
TJ	Junction Temperature		150	°C
T <sub>STG</sub>	Storage Temperature		- 55 ~ 150	°C

## **Electrical Characteristics** $T_C=25$ °C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Units
V <sub>CEO</sub> (sus)	Collector-Emitter Sustaining Voltage : BD135 : BD137 : BD139	I <sub>C</sub> = 30mA, I <sub>B</sub> = 0	45 60 80			V V V
I <sub>CBO</sub>	Collector Cut-off Current	$V_{CB} = 30V, I_{E} = 0$			0.1	μΑ
I <sub>EBO</sub>	Emitter Cut-off Current	$V_{EB} = 5V, I_{C} = 0$			10	μΑ
h <sub>FE1</sub> h <sub>FE2</sub> h <sub>FE3</sub>	DC Current Gain : ALL DEVICE : ALL DEVICE : BD135 : BD137, BD139	$V_{CE} = 2V, I_{C} = 5mA$ $V_{CE} = 2V, I_{C} = 0.5A$ $V_{CE} = 2V, I_{C} = 150mA$	25 25 40 40		250 160	
V <sub>CE</sub> (sat)	Collector-Emitter Saturation Voltage	$I_C = 500 \text{mA}, I_B = 50 \text{mA}$			0.5	V
V <sub>BE</sub> (on)	Base-Emitter ON Voltage	$V_{CE} = 2V, I_{C} = 0.5A$			1	V

## **h**<sub>FE</sub> Classification

Classification	6	10	16
h <sub>FE3</sub>	40 ~ 100	63 ~ 160	100 ~ 250

## **Typical Characteristics**

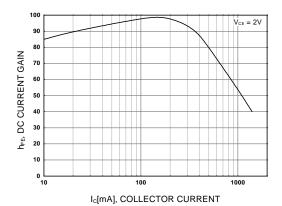


Figure 1. DC current Gain

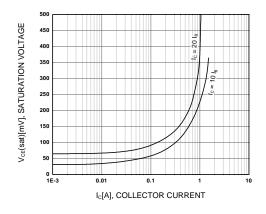


Figure 2. Collector-Emitter Saturation Voltage

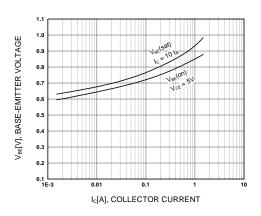


Figure 3. Base-Emitter Voltage

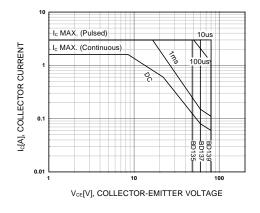


Figure 4. Safe Operating Area

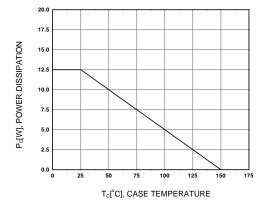
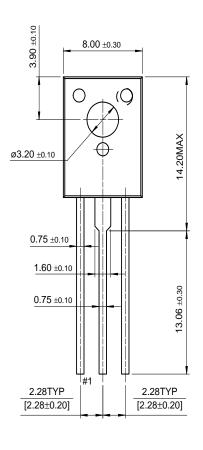
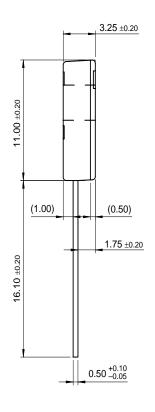


Figure 5. Power Derating

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Dimensions in Millimeters

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