

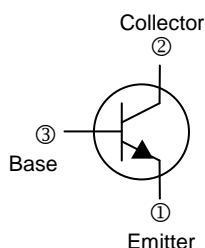
RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## FEATURES

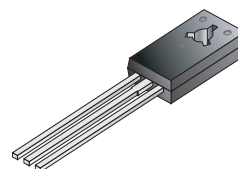
- High current
- Complement to BD136, BD138 and BD140

## CLASSIFICATION OF $h_{FE}$ (1)

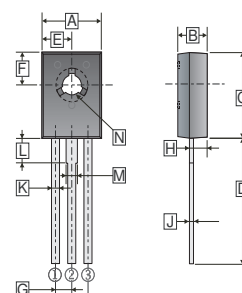
Product-Rank	BD135-6	BD135-10	BD135-16
Product-Rank	BD137-6	BD137-10	BD137-16
Product-Rank	BD139-6	BD139-10	BD139-16
Range	40~100	63~160	100~250



## TO-126



① Emitter  
② Collector  
③ Base



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	7.40	7.80	H	1.10	1.50
B	2.50	2.90	J	0.45	0.60
C	10.60	11.00	K	0.66	0.86
D	15.30	15.70	L	2.10	2.30
E	3.70	3.90	M	1.17	1.37
F	3.90	4.10	N	3.00	3.20
G	2.29 TYP.				

## ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	$V_{CBO}$	45	V
		60	
		80	
Collector to Emitter Voltage	$V_{CEO}$	45	V
		60	
		80	
Emitter to Base Voltage	$V_{EBO}$	5	V
Collector Current-Continuous	$I_C$	1.5	A
Collector Power Dissipation	$P_C$	1.25	W
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	100	$^\circ\text{C} / \text{W}$
Junction, Storage Temperature	$T_J, T_{STG}$	150, -55~150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector to Base Breakdown Voltage	BD135	45	-	-	V	$I_C=0.1\text{mA}, I_E=0$
	BD137	60	-	-		
	BD139	80	-	-		
Collector to Emitter Breakdown Voltage	BD135	45	-	-	V	$I_C=0.03\text{A}, I_B=0$
	BD137	60	-	-		
	BD139	80	-	-		
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	5	-	-	V	$I_E=0.1\text{mA}, I_C=0$
Collector Cut-Off Current	$I_{CBO}$	-	-	0.1	$\mu\text{A}$	$V_{CB}=30\text{V}, I_E=0$
Emitter Cut-Off Current	$I_{EBO}$	-	-	10	$\mu\text{A}$	$V_{EB}=5\text{V}, I_C=0$
DC Current Gain	$h_{FE(1)}$ *	40	-	250		$V_{CE}=2\text{V}, I_C=150\text{mA}$
	$h_{FE(2)}$ *	25	-	-		$V_{CE}=2\text{V}, I_C=5\text{mA}$
	$h_{FE(3)}$ *	25	-	-		$V_{CE}=2\text{V}, I_C=500\text{mA}$
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$ *	-	-	0.5	V	$I_C=500\text{mA}, I_B=50\text{mA}$
Collector Output Capacitance	$V_{BE}$ *	-	-	1	V	$V_{CE}=2\text{V}, I_C=500\text{mA}$

\*Pulse test : pulse width  $\leq 350\mu\text{s}$ , duty cycle  $\leq 2.0\%$