

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

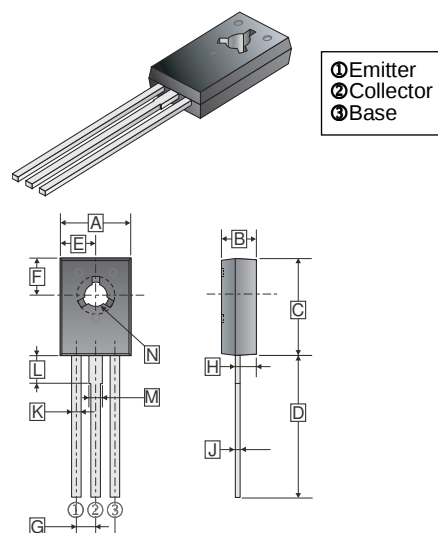
FEATURES

- High Current

CLASSIFICATION OF h_{FE}

Product-Rank	BD136-6	BD136-10	BD136-16
Product-Rank	BD138-6	BD138-10	BD138-16
Product-Rank	BD140-6	BD140-10	BD140-16
Range	40~100	63~160	100~250

TO-18



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	Ratings	Unit
Collector - Base Voltage	BD136	V_{CBO}	-45	V
	BD138		-60	
	BD140		-80	
Collector - Emitter Voltage	BD136	V_{CEO}	-45	V
	BD138		-60	
	BD140		-80	
Emitter - Base Voltage		V_{EBO}	-5	V
Collector Current -Continuous		I_C	-1.5	A
Collector Power Dissipation		P_C	1.25	W
Maximum 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 - Base Breakdown Voltage	BD136	$V_{(BR)CBO}$	-45	-	-	V	$I_C = -0.1\text{mA}$, $I_E = 0$
	BD138		-60	-	-		
	BD140		-80	-	-		
Collector-emitter sustaining voltage ¹	BD136	$V_{CEO(SUS)}$	-45	-	-	V	$I_C = -0.03\text{A}$, $I_B = 0$
	BD138		-60	-	-		
	BD140		-80	-	-		
Emitter - Base Breakdown Voltage		$V_{(BR)EBO}$	-5	-	-	V	$I_C = 0$, $I_E = -0.1\text{mA}$
Collector Cut - Off Current		I_{CBO}	-	-	-0.1	μA	$V_{CB} = -30\text{V}$, $I_E = 0$
Emitter Cut-Off Current		I_{EBO}	-	-	-10	μA	$V_{EB} = -5\text{V}$, $I_C = 0$
DC Current Gain ¹		h_{FE}	40	-	250		$V_{CE} = -2\text{V}$, $I_C = -150\text{mA}$
			25	-	-		$V_{CE} = -2\text{V}$, $I_C = -5\text{mA}$
			25	-	-		$V_{CE} = -2\text{V}$, $I_C = -500\text{mA}$
Collector - Emitter Saturation Voltage ¹		$V_{CE(sat)}$	-	-	-0.5	V	$I_C = -500\text{mA}$, $I_B = -50\text{mA}$
Base – Emitter Voltage ¹		V_{BE}	-	-	-1	V	$V_{CE} = -2\text{V}$, $I_C = -500\text{mA}$

Note:

1. Pulse test: pulse width $\leq 350\mu\text{s}$, duty cycles $\leq 2.0\%$.