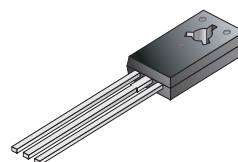


RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

FEATURES

- Low frequency power amplifier
- Low Collector-Emitter Saturation Voltage $V_{CE(sat)}$
- High Forward Current Transfer Ratio h_{FE} Which has Satisfactory Linearity.

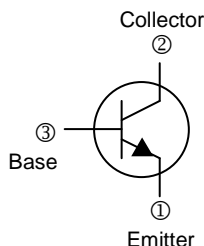
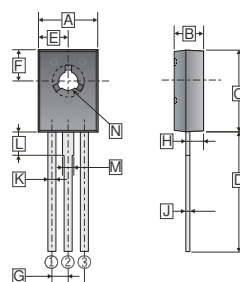
TO-18



① Emitter
② Collector
③ Base

CLASSIFICATION OF h_{FE} (1)

Product-Rank	2SD2136-P	2SD2136-Q	2SD2136-R
Range	40~90	70~150	120~250



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}	60	V
Collector to Emitter Voltage	V_{CEO}	60	V
Emitter to Base Voltage	V_{EBO}	6	V
Collector Current - Continuous	I_C	3	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	$V_{(BR)CBO}$	60	-	-	V	$I_C=0.1\text{mA}, I_E=0$
Collector to Emitter Breakdown Voltage ¹	$V_{(BR)CEO}$	60	-	-	V	$I_C=30\text{mA}, I_B=0$
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	6	-	-	V	$I_E=0.1\text{mA}, I_C=0$
Collector Cut - Off Current	I_{CBO}	-	-	200	μA	$V_{CB}=60\text{V}, I_E=0$
Collector Cut - Off Current	I_{CEO}	-	-	300	μA	$V_{CE}=60\text{V}, I_B=0$
Emitter Cut - Off Current	I_{EBO}	-	-	1	mA	$V_{EB}=6\text{V}, I_C=0$
DC Current Gain ¹	$h_{FE(1)}$	40	-	250		$V_{CE}=4\text{V}, I_C=1\text{A}$
	$h_{FE(2)}$	10	-	-		$V_{CE}=4\text{V}, I_C=3\text{A}$
Collector to Emitter Saturation Voltage ¹	$V_{CE(sat)}$	-	-	1.2	V	$I_C=3\text{A}, I_B=375\text{mA}$
Collector Output Capacitance ¹	V_{BE}	-	-	1.8	V	$V_{CE}=4\text{V}, I_C=3\text{A}$
Transition Frequency	f_T	-	30	-	MHz	$V_{CE}=5\text{V}, I_C=100\text{mA}, f=10\text{MHz}$

Note:

1. Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$.

RATINGS AND CHARACTERISTIC CURVES

