

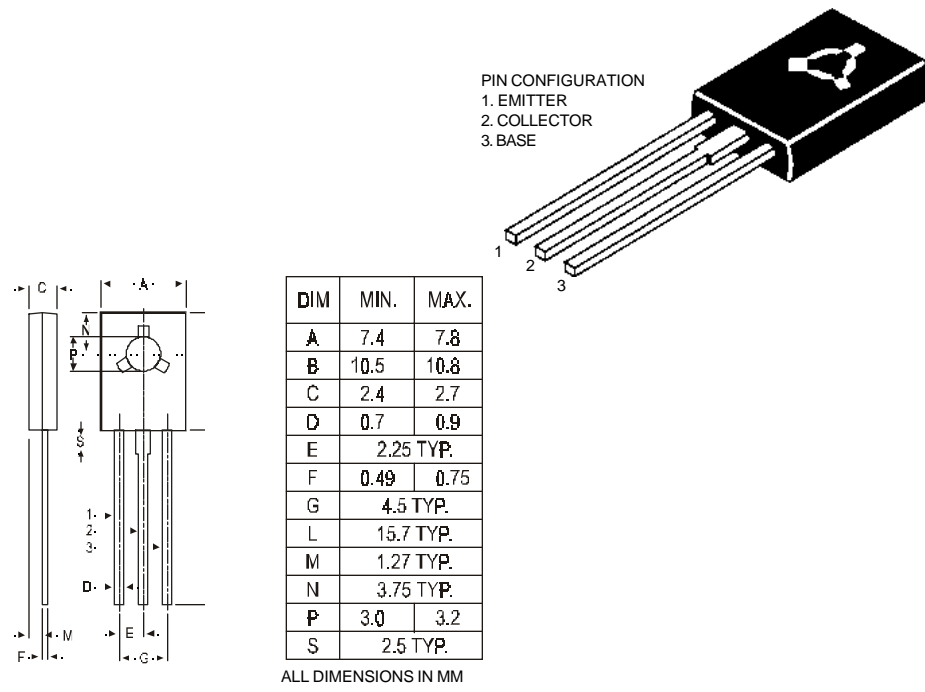
TO-126 (SOT-32) Plastic Package

BD165, BD167, BD169

BD165, 167, 169 NPN PLASTIC POWER TRANSISTORS

Complementary BD166, 168, 170

Audio Amplifier and Driver Circuit Applications



ABSOLUTE MAXIMUM RATINGS

		165	167	169	
Collector-base voltage (open emitter)	V_{CBO}	max. 45	60	80	V
Collector-emitter voltage (open base)	V_{CEO}	max. 45	60	80	V
Collector current	I_C	max.	1.5		A
Total power dissipation up to $T_C = 25^\circ C$	P_{tot}	max.	20		W
Junction temperature	T_j	max.	150		$^\circ C$
Collector-emitter saturation voltage $I_C = 0.5 A; I_B = 0.05 A$	V_{CEsat}	max.	0.5		V
D.C. current gain $I_C = 0.15 A; V_{CE} = 2 V$	h_{FE}	min.	40		

RATINGS (at $T_A=25^\circ C$ unless otherwise specified)

Limiting values		165	167	169	
Collector-base voltage (open emitter)	V_{CBO}	max. 45	60	80	V
Collector-emitter voltage (open base)	V_{CEO}	max. 45	60	80	V
Emitter-base voltage (open collector)	V_{EBO}	max.	5.0		V

BD165, BD167, BD169

Collector current	I_C	max.	1.5	A
Base current	I_B	max.	0.5	A
Total power dissipation up to $T_A = 25^\circ\text{C}$	P_{tot}	max.	1.25	W
Derate above 25°C		max	8	mW/°C
Total power dissipation up to $T_C = 25^\circ\text{C}$	P_{tot}	max.	20	W
Derate above 25°C		max	160	mW/°C
Junction temperature	T_j	max.	150	°C
Storage temperature	T_{stg}		-65 to +150	°C

THERMAL RESISTANCE

From junction to case	R_{thj-c}	6.25	°CW
From junction to ambient	R_{thj-a}	100	°CW

CHARACTERISTICS

$T_{amb} = 25^\circ\text{C}$ unless otherwise specified

			165	167	169	
Collector cutoff current						
$I_E = 0; V_{CB} = 45\text{ V}$	I_{CBO}	max.	0.1	-	-	mA
$I_E = 0; V_{CB} = 60\text{ V}$	I_{CBO}	max.	-	0.1	-	mA
$I_E = 0; V_{CB} = 80\text{ V}$	I_{CBO}	max.	-	-	0.1	mA
Emitter cut-off current						
$I_C = 0; V_{EB} = 5\text{ V}$	I_{EBO}	max.		1.0		mA
Breakdown voltages						
$I_C = 0.1\text{ A}; I_B = 0$	$V_{CEO(sus)}^*$	min.	45	60	80	V
$I_C = 1\text{ mA}; I_E = 0$	V_{CBO}	min.	45	60	80	V
$I_E = 1\text{ mA}; I_C = 0$	V_{EBO}	min.		5.0		V
DC current gain						
$I_C = 0.15\text{ A}; V_{CE} = 2\text{ V}$	h_{FE}^*	min		40		
$I_C = 0.5\text{ A}; V_{CE} = 2\text{ V}$	h_{FE}^*	min		15		
Saturation voltage						
$I_C = 0.5\text{ A}; I_B = 0.05\text{ A}$	$V_{CE(sat)}^*$	max.		0.5		V
Base-emitter on voltage						
$I_C = 0.5\text{ A}; V_{CE} = 2\text{ V}$	$V_{BE(on)}^*$	max.		0.95		V
Transition frequency $f = 1\text{ MHz}$						
$I_C = 500\text{ mA}; V_{CE} = 2\text{ V}$	f_T	min.		6.0		MHz

* Pulse test; pulse width $\leq 300\ \mu\text{s}$; duty cycle $\leq 2\%$.

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