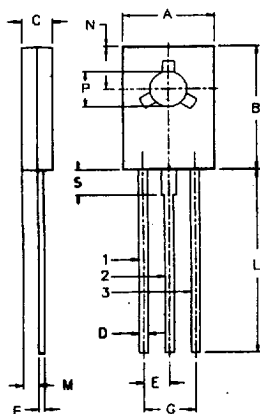
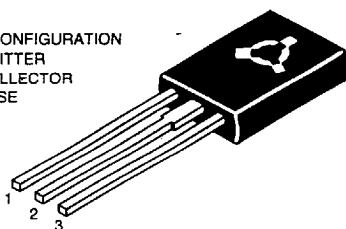


MJE170, 171, 172 PNP PLASTIC POWER TRANSISTORS MJE180, 181, 182 NPN PLASTIC POWER TRANSISTORS

Low Power Audio Amplifier and Low Current, High Speed Switching Applications

PIN CONFIGURATION
1. EMITTER
2. COLLECTOR
3. BASE



DIM	MIN.	MAX.
A	7.4	7.8
B	10.5	10.8
C	2.4	2.7
D	0.7	0.9
E	2.25 TYP.	
F	0.49	0.75
G	4.5 TYP.	
L	15.7 TYP.	
M	1.27 TYP.	
N	3.75 TYP.	
P	3.0	3.2
S	2.5 TYP.	

ALL DIMENSIONS IN MM

ABSOLUTE MAXIMUM RATINGS

			170	171	172	
			180	181	182	
Collector-base voltage (open emitter)	V_{CBO}	max.	60	80	100	V
Collector-emitter voltage (open base)	V_{CEO}	max.	40	60	80	V
Collector current	I_C	max.		3.0		A
Total power dissipation up to $T_C = 25^\circ\text{C}$	P_{tot}	max.		12.5		W
Junction temperature	T_j	max.		150		$^\circ\text{C}$
Collector-emitter saturation voltage						
$I_C = 500\text{ mA}; I_B = 50\text{ mA}$	V_{CEsat}	max.		0.3		V
D.C. current gain						
$I_C = 100\text{ mA}; V_{CE} = 1\text{ V}$	h_{FE}	min.		50		
		max.		250		

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

			170	171	172	
			180	181	182	
Collector-base voltage (open emitter)	V_{CBO}	max.	60	80	100	V
Collector-emitter voltage (open base)	V_{CEO}	max.	40	60	80	V
Emitter-base voltage (open collector)	V_{EBO}	max.		7.0		V

Collector current	I_C	max.	3.0	A
Collector current (Peak value)	I_C	max.	6.0	A
Base current	I_B	max.	1.0	A
Total power dissipation up to $T_A = 25^\circ\text{C}$	P_{tot}	max.	1.5	W
Derate above 25°C		max.	0.012	W/ $^\circ\text{C}$
Total power dissipation up to $T_C = 25^\circ\text{C}$	P_{tot}	max.	12.5	W
Derate above 25°C		max.	0.1	W/ $^\circ\text{C}$
Junction temperature	T_j	max.	150	$^\circ\text{C}$
Storage temperature	T_{stg}		-65 to +150	$^\circ\text{C}$

THERMAL RESISTANCE

From junction to case	$R_{th\ j-c}$	10	$^\circ\text{C/W}$
From junction to ambient	$R_{th\ j-a}$	83.4	$^\circ\text{C/W}$

CHARACTERISTICS

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

			170 180	171 181	172 182	
Collector cutoff current						
$I_E = 0; V_{CB} = 60\text{ V}$	I_{CBO}	max.	0.1	-	-	μA
$I_E = 0; V_{CB} = 80\text{ V}$	I_{CBO}	max.	-	0.1	-	μA
$I_E = 0; V_{CB} = 100\text{ V}$	I_{CBO}	max.	-	-	0.1	μA
$I_E = 0; V_{CB} = 60\text{ V}; T_C = 150^\circ\text{C}$	I_{CBO}	max.	0.1	-	-	mA
$I_E = 0; V_{CB} = 80\text{ V}; T_C = 150^\circ\text{C}$	I_{CBO}	max.	-	0.1	-	mA
$I_E = 0; V_{CB} = 100\text{ V}; T_C = 150^\circ\text{C}$	I_{CBO}	max.	-	-	0.1	mA
Emitter cut-off current						
$I_C = 0; V_{EB} = 7\text{ V}$	I_{EBO}	max.		1.0		μA
Breakdown voltages						
$I_C = 10\text{ mA}; I_B = 0$	$V_{CEO(sus)}$	min.	40	60	80	V
$I_C = 1\text{ mA}; I_E = 0$	V_{CBO}	min.	60	80	100	V
$I_E = 1\text{ mA}; I_C = 0$	V_{EBO}	min.		7.0		V
Saturation voltages						
$I_C = 500\text{ mA}; I_B = 50\text{ mA}$	V_{CEsat}	max.		0.3		V
$I_C = 1.5\text{ A}; I_B = 150\text{ mA}$	V_{CEsat}	max.		0.9		V
	V_{BEsat}	max.		1.5		V
$I_C = 3\text{ A}; I_B = 600\text{ mA}$	V_{CEsat}	max.		1.7		V
	V_{BEsat}	max.		2.0		V
Base-emitter on voltage						
$I_C = 500\text{ mA}; V_{CE} = 1\text{ V}$	$V_{BE(on)}$	max.		1.2		V
D.C. current gain						
$I_C = 100\text{ mA}; V_{CE} = 1\text{ V}$	h_{FE}	min.		50		
		max.		250		
$I_C = 500\text{ mA}; V_{CE} = 1\text{ V}$	h_{FE}	min.		30		
$I_C = 1.5\text{ A}; V_{CE} = 1\text{ V}$	h_{FE}	min.		12		
Output capacitance at $f = 0.1\text{ MHz}$						
$I_E = 0; V_{CB} = 10\text{ V NPN}$	C_o	max.		40		pF
PNP	C_o	max.		60		pF
Transition frequency at $f = 10\text{ MHz}$						
$I_C = 100\text{ mA}; V_{CE} = 10\text{ V}$	$f_T(2)$	min.		50		MHz

$$(2) f_T = |h_{FE}| \cdot f_{test}$$