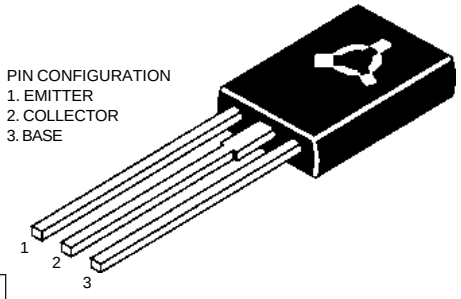
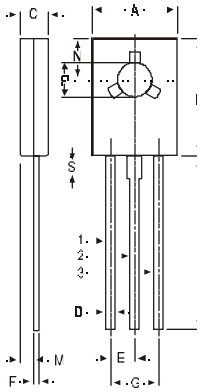
TO-126 (SOT-32) Plastic Package

MJE170, MJE171, MJE172
MJE180, MJE181, MJE182

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





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

			170 180	***171 181***	***172 182***	
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°C	P_{tot}	*max.*		*12.5*		*W*
Junction temperature	T_j	*max.*		*150*		*°C*
Collector-emitter saturation voltage						
I_C = 500 mA; I_B = 50 mA	V_{CEsat}	*max.*		*0.3*		*V*
D.C. current gain						
I_C = 100 mA; V_{CE} = 1 V	h_{FE}	*min.*		*50*		
		max.		*250*		

RATINGS *(at T_A=25°C unless otherwise specified)*

			170 180	***171 181***	***172 182***	
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°C	P_{tot}	*max.*		*1.5*		*W*
Derate above 25°C		*max.*		*0.012*		*W/°C*
Total power dissipation up to T_C = 25°C	P_{tot}	*max.*		*12.5*		*W*
Derate above 25°C		*max.*		*0.1*		*W/°C*
Junction temperature	T_j	*max.*		*150*		*°C*
Storage temperature	T_{stg}			*–65 to +150*		*°C*

THERMAL RESISTANCE

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

CHARACTERISTICS

T_{amb} = 25°C unless otherwise specified

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

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

Customer Notes

Disclaimer

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