

Advance Information

PNP Silicon Power Transistor

The MJE9780 is designed for vertical output of 14–inch to 17–inch televisions and CRT monitors, as well as other applications requiring a 150 volt PNP transistor.

Features:

- Standard TO–220AB Package
- Gain Range of 50 – 200 at 500 mAdc/10 volts

MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	MJE9780	Unit
Collector–Emitter Sustaining Voltage	V_{CEO}	150	Vdc
Collector–Base Voltage	V_{CBO}	200	Vdc
Emitter–Base Voltage	V_{EBO}	6.0	Vdc
Collector Current — Continuous	I_C	3.0	Adc
— Peak	I_{CM}	5.0	
Total Power Dissipation ($T_A = 25^\circ\text{C}$)	P_D	2.0	Watts
Derate above 25°C		0.016	W/ $^\circ\text{C}$
Total Power Dissipation	P_D	40	Watts
Derate above 25°C		0.32	W/ $^\circ\text{C}$
Operating and Storage Temperature	T_J, T_{stg}	– 55 to 150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Thermal Resistance — Junction to Case	$R_{\theta JC}$	3.12	$^\circ\text{C}/\text{W}$
— Junction to Ambient	$R_{\theta JA}$	62.5	
Maximum Lead Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds	T_L	260	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristics	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS*					
Collector–Emitter Sustaining Voltage ($I_C = 50\text{ mA}, I_B = 0$)	$V_{CEO(sus)}$	150	—	—	Vdc
Collector–Base Voltage ($I_C = 5.0\text{ mAdc}$)	V_{CBO}	200	—	—	Vdc
Emitter–Base Voltage ($I_B = 5.0\text{ mAdc}$)	V_{EBO}	6.0	—	—	Vdc
Emitter Cutoff Current ($V_{EB} = 5.0\text{ Vdc}, I_C = 0$)	I_{EBO}	—	—	10	μAdc
Collector Cutoff Current ($V_{CB} = 150\text{ Vdc}, I_E = 0$)	I_{CBO}	—	—	10	μAdc

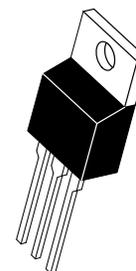
* Indicates Pulse Test: P.W. = 300 μsec max, Duty Cycle = 2%.

(continued)

MJE9780*

*Motorola Preferred Device

**PNP SILICON POWER
TRANSISTOR
3.0 AMPERES
150 VOLTS**



**CASE 221A–06
TO–220AB**

This document contains information on a new product. Specifications and information herein are subject to change without notice.

Preferred devices are Motorola recommended choices for future use and best overall value.

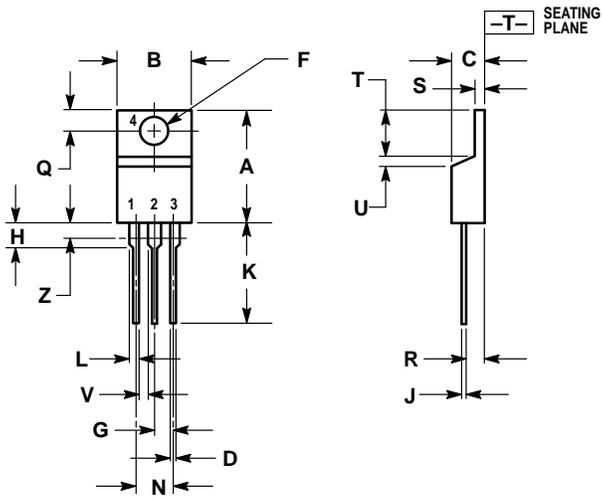
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MJE9780**ELECTRICAL CHARACTERISTICS — continued** ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristics	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS*					
Collector–Emitter Saturation Voltage ($I_C = 500\text{ mAdc}$, $I_B = 50\text{ mAdc}$)	$V_{CE(\text{sat})}$	—	—	0.8	Vdc
Base–Emitter On Voltage ($I_C = 500\text{ mAdc}$, $V_{CE} = 4.0\text{ Vdc}$)	$V_{BE(\text{on})}$	—	—	1.5	Vdc
DC Current Gain ($I_C = 50\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$) ($I_C = 500\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$)	h_{FE}	60 50	— —	— 200	—
DYNAMIC CHARACTERISTICS					
Current Gain Bandwidth Product ($I_C = 500\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $f = 1.0\text{ MHz}$)	f_T	—	5.0	—	MHz

* Indicates Pulse Test: P.W. = 300 μsec max, Duty Cycle = 2%.

PACKAGE DIMENSIONS



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.018	0.025	0.46	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	—	1.15	—
Z	—	0.080	—	2.04

- STYLE 1:
 PIN 1. BASE
 2. COLLECTOR
 3. EMITTER
 4. COLLECTOR

CASE 221A-06
 TO-220AB
 ISSUE Y

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