

**MJE9780\***

\*Motorola Preferred Device

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

*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:

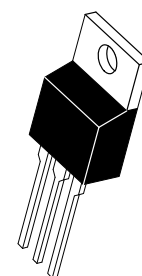
- Standard TO-220AB Package
- Gain Range of 50 – 200 at 500 mAdc/10 volts

**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 $25^\circ\text{C}$		0.016	W/ $^\circ\text{C}$
Total Power Dissipation	$P_D$	40	Watts
Derate above $25^\circ\text{C}$		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	$^\circ\text{C/W}$
— Junction to Ambient	$R_{\theta JA}$	62.5	
Maximum Lead Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds	$T_L$	260	$^\circ\text{C}$



**CASE 221A-06  
TO-220AB**

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

Characteristics	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS*</b>					
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	$\mu\text{Adc}$
Collector Cutoff Current ( $V_{CB} = 150\text{ Vdc}, I_E = 0$ )	$I_{CBO}$	—	—	10	$\mu\text{Adc}$

\* Indicates Pulse Test: P.W. = 300  $\mu\text{sec}$  max, Duty Cycle = 2%.

(continued)

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.

## MJE9780

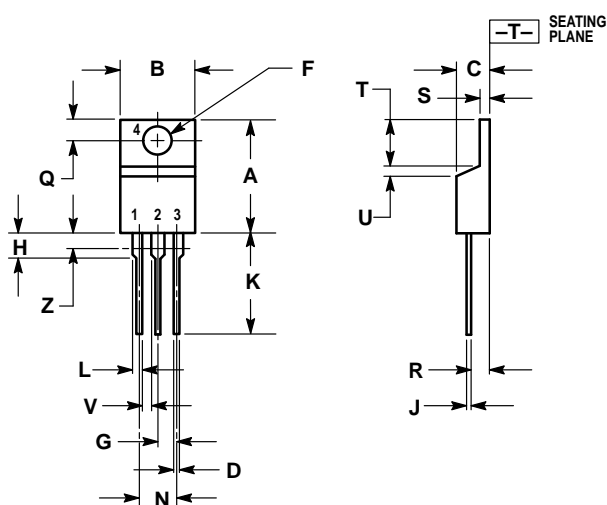
### ELECTRICAL CHARACTERISTICS — continued ( $T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristics	Symbol	Min	Typ	Max	Unit
<b>ON CHARACTERISTICS*</b>					
Collector–Emitter Saturation Voltage ( $I_C = 500\text{ mAdc}$ , $I_B = 50\text{ mAdc}$ )	$V_{CE(sat)}$	—	—	0.8	Vdc
Base–Emitter On Voltage ( $I_C = 500\text{ mAdc}$ , $V_{CE} = 4.0\text{ Vdc}$ )	$V_{BE(on)}$	—	—	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	—
<b>DYNAMIC CHARACTERISTICS</b>					
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  $\mu\text{sec}$  max, Duty Cycle = 2%.

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PACKAGE DIMENSIONS

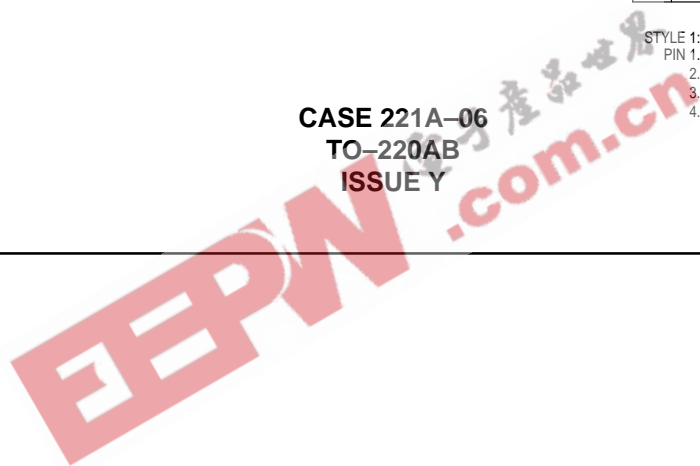


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

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


CASE 221A-06  
TO-220AB  
ISSUE Y

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



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MJE9780/D

