MJE9780*

*ON Semiconductor Preferred Device

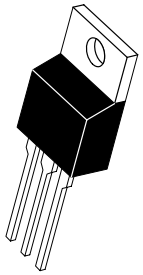
PNP Silicon Power Transistor

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

PNP SILICON POWER TRANSISTOR 3.0 AMPERES 150 VOLTS



CASE 221A–09 TO–220AB

MAXIMUM RATINGS (T_C = 25°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 — Peak	I_C I_{CM}	3.0 5.0	Adc
Total Power Dissipation (T_A = 25°C) Derate above 25°C	P_D	2.0 0.016	Watts W/°C
Total Power Dissipation Derate above 25°C	P_D	40 0.32	Watts W/°C
Operating and Storage Temperature	T_J, T_{stg}	– 55 to 150	°C

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

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

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

(continued)

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

April, 2001 – Rev. 9
Publication Order Number:
MJE9780/D

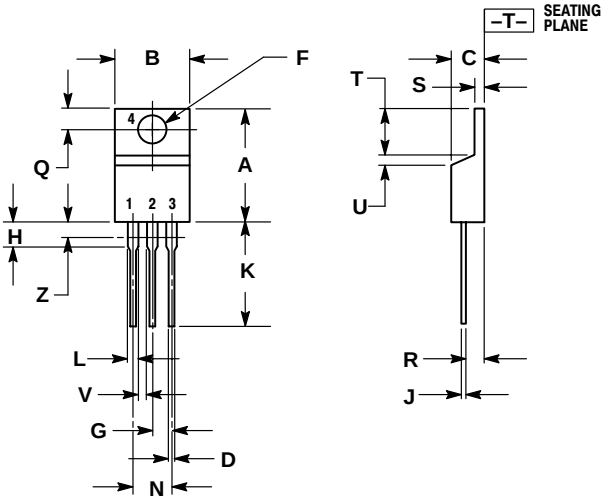
ELECTRICAL CHARACTERISTICS — continued (T_C = 25°C unless otherwise noted)

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

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

PACKAGE DIMENSIONS

TO−220AA
CASE 221A−09
ISSUE AA



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.

	INCHES		MILLIMETERS	
DIM	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

PUBLICATION ORDERING INFORMATION

NORTH AMERICA Literature Fulfillment:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303–675–2175 or 800–344–3860 Toll Free USA/Canada
Fax: 303–675–2176 or 800–344–3867 Toll Free USA/Canada
Email: ONlit@hibbertco.com
Fax Response Line: 303–675–2167 or 800–344–3810 Toll Free USA/Canada

N. American Technical Support: 800–282–9855 Toll Free USA/Canada

EUROPE: LDC for ON Semiconductor – European Support
German Phone: (+1) 303–308–7140 (Mon–Fri 2:30pm to 7:00pm CET)
Email: ONlit–german@hibbertco.com
French Phone: (+1) 303–308–7141 (Mon–Fri 2:00pm to 7:00pm CET)
Email: ONlit–french@hibbertco.com
English Phone: (+1) 303–308–7142 (Mon–Fri 12:00pm to 5:00pm GMT)
Email: ONlit@hibbertco.com

EUROPEAN TOLL–FREE ACCESS*: 00–800–4422–3781
*Available from Germany, France, Italy, UK, Ireland

CENTRAL/SOUTH AMERICA:
Spanish Phone: 303–308–7143 (Mon–Fri 8:00am to 5:00pm MST)
Email: ONlit–spanish@hibbertco.com
Toll–Free from Mexico: Dial 01–800–288–2872 for Access –
then Dial 866–297–9322

ASIA/PACIFIC: LDC for ON Semiconductor – Asia Support
Phone: 1–303–675–2121 (Tue–Fri 9:00am to 1:00pm, Hong Kong Time)
Toll Free from Hong Kong & Singapore:
001–800–4422–3781
Email: ONlit–asia@hibbertco.com

JAPAN: ON Semiconductor, Japan Customer Focus Center
4–32–1 Nishi–Gotanda, Shinagawa–ku, Tokyo, Japan 141–0031
Phone: 81–3–5740–2700
Email: r14525@onsemi.com

ON Semiconductor Website: http://onsemi.com

For additional information, please contact your local
Sales Representative.