

MPS6507

Amplifier Transistor NPN Silicon



ON Semiconductor®

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MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	20	Vdc
Collector–Base Voltage	V_{CBO}	30	Vdc
Emitter–Base Voltage	V_{EBO}	3.0	Vdc
Collector Current — Continuous	I_C	50	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625 5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5 12	W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction–to–Ambient	$R_{\theta JA}^{(1)}$	200	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction–to–Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{W}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ⁽²⁾ ($I_C = 1.0 \text{ mAdc}, I_E = 0$)	$V_{(BR)CEO}$	20	—	—	Vdc
Collector–Base Breakdown Voltage ($I_C = 100 \mu\text{Adc}, I_E = 0$)	$V_{(BR)CBO}$	30	—	—	Vdc
Emitter–Base Breakdown Voltage ($I_E = 100 \mu\text{Adc}, I_C = 0$)	$V_{(BR)EBO}$	3.0	—	—	Vdc
Collector Cutoff Current ($V_{CB} = 15 \text{ Vdc}, I_E = 0$) ($V_{CB} = 15 \text{ Vdc}, I_E = 0, T_A = 60^\circ\text{C}$)	I_{CBO}	— —	— —	50 1.0	nAdc μAdc

ON CHARACTERISTICS

DC Current Gain ⁽²⁾ ($I_C = 2.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$)	h_{FE}	25	75	—	—
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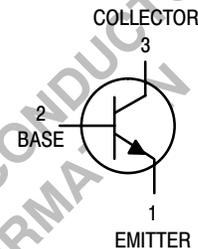
SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product ($I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 100 \text{ MHz}$)	f_T	700	800	—	MHz
Output Capacitance ($V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 1.0 \text{ MHz}$)	C_{obo}	—	1.25	2.5	pF
Small–Signal Current Gain ($I_C = 2.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 20 \text{ MHz}$)	h_{fe}	20	—	—	—

- $R_{\theta JA}$ is measured with the device soldered into a typical printed circuit board.
- Pulse Test: Pulse Width $\leq 300 \mu\text{s}$; Duty Cycle $\leq 2.0\%$.



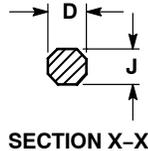
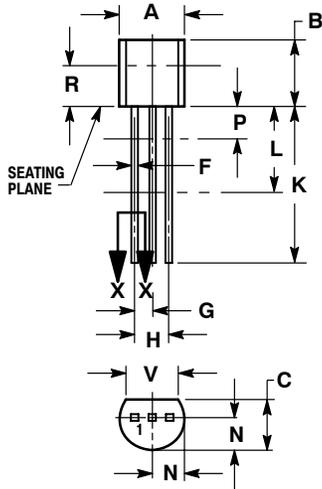
TO-92 (TO-226AA)
CASE 29-04
STYLE 1



MPS6507

PACKAGE DIMENSIONS

CASE 029-04 (TO-226AA) ISSUE AD



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN P AND L. DIMENSION D AND J APPLY BETWEEN L AND K MINIMUM. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.022	0.41	0.55
F	0.016	0.019	0.41	0.48
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.115	---	2.93	---
V	0.135	---	3.43	---

STYLE 1:

1. PIN 1. EMITTER
2. BASE
3. COLLECTOR

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