

# Audio Transistor

## NPN Silicon

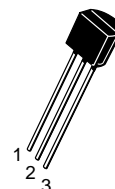
# MPS6560

### MAXIMUM RATINGS

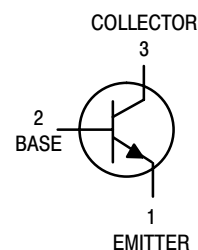
Rating	Symbol	Value	Unit
Collector–Emitter Voltage	$V_{CEO}$	25	Vdc
Collector–Base Voltage	$V_{CBO}$	25	Vdc
Emitter–Base Voltage	$V_{EBO}$	5.0	Vdc
Collector Current — Continuous	$I_C$	500	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	625 5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.5 12	Watts 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	$^\circ\text{C}/\text{mW}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{mW}$



CASE 29-11, STYLE 1  
TO-92 (TO-226AA)



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

Characteristic	Symbol	Min	Max	Unit
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### OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage <sup>(2)</sup> ( $I_C = 10$ mAdc, $I_B = 0$ )	$V_{(BR)CEO}$	25	—	Vdc
Collector–Base Breakdown Voltage ( $I_C = 100$ $\mu$ Adc, $I_E = 0$ )	$V_{(BR)CBO}$	25	—	Vdc
Emitter–Base Breakdown Voltage ( $I_E = 100$ $\mu$ Adc, $I_C = 0$ )	$V_{(BR)EBO}$	5.0	—	Vdc
Collector Cutoff Current ( $V_{CE} = 25$ Vdc, $I_B = 0$ )	$I_{CES}$	—	100	nAdc
Collector Cutoff Current ( $V_{CB} = 20$ Vdc, $I_E = 0$ )	$I_{CBO}$	—	100	nAdc
Emitter Cutoff Current ( $V_{EB(off)} = 4.0$ Vdc, $I_C = 0$ )	$I_{EBO}$	—	100	nAdc

1.  $R_{\theta JA}$  is measured with the device soldered into a typical printed circuit board.

2. Pulse Test: Pulse Width  $\leq 300$   $\mu$ s; Duty Cycle  $\leq 2.0\%$ .

# MPS6560

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

Characteristic	Symbol	Min	Max	Unit
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### ON CHARACTERISTICS<sup>(2)</sup>

DC Current Gain ( $I_C = 10\text{ mA}$ , $V_{CE} = 1.0\text{ Vdc}$ ) ( $I_C = 100\text{ mA}$ , $V_{CE} = 1.0\text{ Vdc}$ ) ( $I_C = 500\text{ mA}$ , $V_{CE} = 1.0\text{ Vdc}$ )	$h_{FE}$	35 50 50	— — 200	—
Collector–Emitter Saturation Voltage ( $I_C = 500\text{ mA}$ , $I_B = 50\text{ mA}$ )	$V_{CE(sat)}$	—	0.5	Vdc
Base–Emitter On Voltage ( $I_C = 500\text{ mA}$ , $V_{CE} = 1.0\text{ Vdc}$ )	$V_{BE(on)}$	—	1.2	Vdc

### SMALL–SIGNAL CHARACTERISTICS

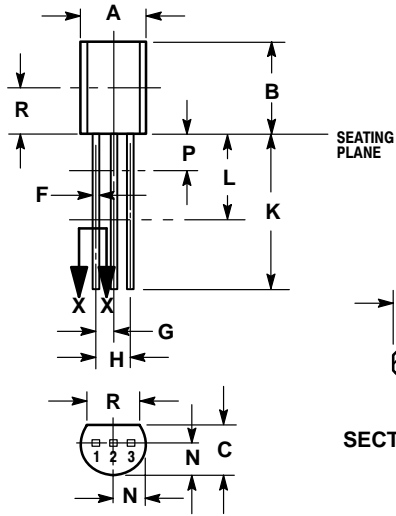
Current–Gain — Bandwidth Product ( $I_C = 10\text{ mA}$ , $V_{CE} = 10\text{ Vdc}$ , $f = 20\text{ MHz}$ )	$f_T$	60	—	MHz
Output Capacitance ( $V_{CB} = 10\text{ Vdc}$ , $I_E = 0$ , $f = 1.0\text{ MHz}$ )	$C_{obo}$	—	30	pF

2. Pulse Test: Pulse Width  $\leq 300\text{ }\mu\text{s}$ ; Duty Cycle  $\leq 2.0\%$ .

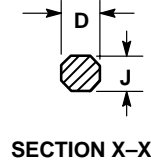
# MPS6560

## PACKAGE DIMENSIONS

CASE 029-11  
(TO-226AA)  
ISSUE AD



SEATING  
PLANE



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

### 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. DIMENSIONS 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	4.44	5.21
B	0.290	0.310	7.37	7.87
C	0.125	0.165	3.18	4.19
D	0.018	0.021	0.457	0.533
F	0.016	0.019	0.407	0.482
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.018	0.024	0.46	0.61
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	0.135	---	3.43	---

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