

# MPS6560

## Audio Transistor

### NPN Silicon



ON Semiconductor®

<http://onsemi.com>

#### Features

- Pb-Free Package is Available\*

#### MAXIMUM RATINGS

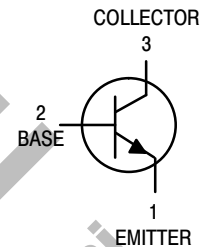
Rating	Symbol	Value	Unit
Collector - Emitter Voltage	$V_{CEO}$	25	Vdc
Collector - Base Voltage	$V_{CBO}$	25	Vdc
Emitter - Base Voltage	$V_{EBO}$	5.0	Vdc
Collector Current - Continuous	$I_C$	500	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	625 5.0	W mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	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

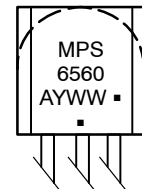
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{W}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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



#### MARKING DIAGRAM



TO-92  
CASE 29-11  
STYLE 1

MPS6560 = Device Code  
A = Assembly Location  
Y = Year  
WW = Work Week  
▪ = Pb-Free Package

(Note: Microdot may be in either location)

#### ORDERING INFORMATION

Device	Package	Shipping†
MPS6560	TO-92	5,000 Units/Box
MPS6560G	TO-92 (Pb-Free)	5,000 Units/Box

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

# MPS6560

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

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector – Emitter Breakdown Voltage (Note 2) ( $I_C = 10\text{ mA}_{dc}$ , $I_B = 0$ )	$V_{(BR)CEO}$	25	–	Vdc
Collector – Base Breakdown Voltage ( $I_C = 100\ \mu\text{A}_{dc}$ , $I_E = 0$ )	$V_{(BR)CBO}$	25	–	Vdc
Emitter – Base Breakdown Voltage ( $I_E = 100\ \mu\text{A}_{dc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	5.0	–	Vdc
Collector Cutoff Current ( $V_{CE} = 25\text{ Vdc}$ , $I_B = 0$ )	$I_{CES}$	–	100	nAdc
Collector Cutoff Current ( $V_{CB} = 20\text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	–	100	nAdc
Emitter Cutoff Current ( $V_{EB(off)} = 4.0\text{ Vdc}$ , $I_C = 0$ )	$I_{EBO}$	–	100	nAdc
<b>ON CHARACTERISTICS (Note 2)</b>				
DC Current Gain ( $I_C = 10\text{ mA}_{dc}$ , $V_{CE} = 1.0\text{ Vdc}$ ) ( $I_C = 100\text{ mA}_{dc}$ , $V_{CE} = 1.0\text{ Vdc}$ ) ( $I_C = 500\text{ mA}_{dc}$ , $V_{CE} = 1.0\text{ Vdc}$ )	$h_{FE}$	35 50 50	– – 200	–
Collector – Emitter Saturation Voltage ( $I_C = 500\text{ mA}_{dc}$ , $I_B = 50\text{ mA}_{dc}$ )	$V_{CE(sat)}$	–	0.5	Vdc
Base – Emitter On Voltage ( $I_C = 500\text{ mA}_{dc}$ , $V_{CE} = 1.0\text{ Vdc}$ )	$V_{BE(on)}$	–	1.2	Vdc
<b>SMALL – SIGNAL CHARACTERISTICS</b>				
Current – Gain — Bandwidth Product ( $I_C = 10\text{ mA}_{dc}$ , $V_{CE} = 10\text{ Vdc}$ , $f = 20\text{ MHz}$ )	$f_T$	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  $\leq 300\ \mu\text{s}$ ; Duty Cycle  $\leq 2.0\%$ .

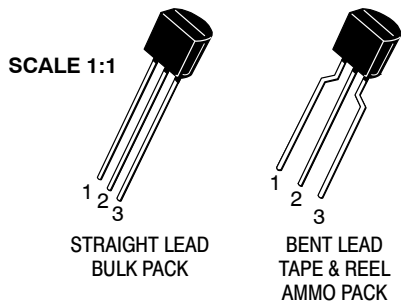
# MPS6560

## REVISION HISTORY

Revision	Description of Changes	Date
4	Document Discontinued.	3/24/2026

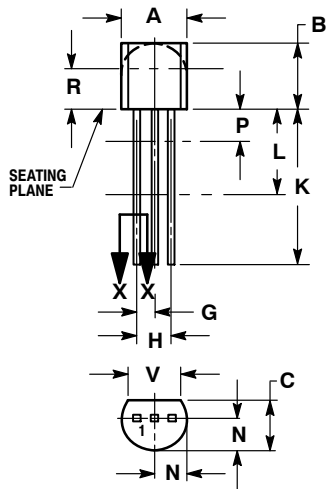
This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

**OBSOLETE**  
THIS DEVICE IS OBSOLETE  
PLEASE CONTACT YOUR onsemi  
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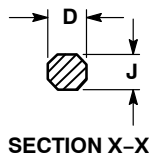


TO-92 (TO-226)  
CASE 29-11  
ISSUE AM

DATE 09 MAR 2007



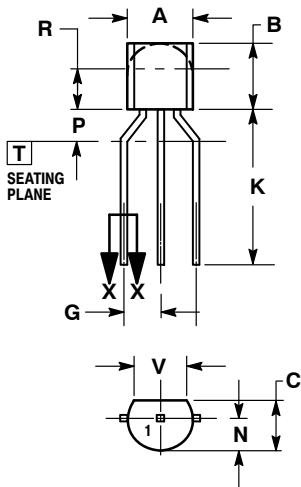
STRAIGHT LEAD  
BULK PACK



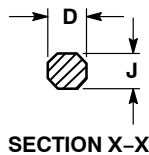
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. 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	0.021	0.407	0.533
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	---



BENT LEAD  
TAPE & REEL  
AMMO PACK



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

DIM	MILLIMETERS	
	MIN	MAX
A	4.45	5.20
B	4.32	5.33
C	3.18	4.19
D	0.40	0.54
G	2.40	2.80
J	0.39	0.50
K	12.70	---
N	2.04	2.66
P	1.50	4.00
R	2.93	---
V	3.43	---

STYLES ON PAGE 2

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**TO-92 (TO-226)**  
**CASE 29-11**  
**ISSUE AM**

DATE 09 MAR 2007

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

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

STYLE 3:  
 PIN 1. ANODE  
 2. ANODE  
 3. CATHODE

STYLE 4:  
 PIN 1. CATHODE  
 2. CATHODE  
 3. ANODE

STYLE 5:  
 PIN 1. DRAIN  
 2. SOURCE  
 3. GATE

STYLE 6:  
 PIN 1. GATE  
 2. SOURCE & SUBSTRATE  
 3. DRAIN

STYLE 7:  
 PIN 1. SOURCE  
 2. DRAIN  
 3. GATE

STYLE 8:  
 PIN 1. DRAIN  
 2. GATE  
 3. SOURCE & SUBSTRATE

STYLE 9:  
 PIN 1. BASE 1  
 2. EMITTER  
 3. BASE 2

STYLE 10:  
 PIN 1. CATHODE  
 2. GATE  
 3. ANODE

STYLE 11:  
 PIN 1. ANODE  
 2. CATHODE & ANODE  
 3. CATHODE

STYLE 12:  
 PIN 1. MAIN TERMINAL 1  
 2. GATE  
 3. MAIN TERMINAL 2

STYLE 13:  
 PIN 1. ANODE 1  
 2. GATE  
 3. CATHODE 2

STYLE 14:  
 PIN 1. EMITTER  
 2. COLLECTOR  
 3. BASE

STYLE 15:  
 PIN 1. ANODE 1  
 2. CATHODE  
 3. ANODE 2

STYLE 16:  
 PIN 1. ANODE  
 2. GATE  
 3. CATHODE

STYLE 17:  
 PIN 1. COLLECTOR  
 2. BASE  
 3. EMITTER

STYLE 18:  
 PIN 1. ANODE  
 2. CATHODE  
 3. NOT CONNECTED

STYLE 19:  
 PIN 1. GATE  
 2. ANODE  
 3. CATHODE

STYLE 20:  
 PIN 1. NOT CONNECTED  
 2. CATHODE  
 3. ANODE

STYLE 21:  
 PIN 1. COLLECTOR  
 2. EMITTER  
 3. BASE

STYLE 22:  
 PIN 1. SOURCE  
 2. GATE  
 3. DRAIN

STYLE 23:  
 PIN 1. GATE  
 2. SOURCE  
 3. DRAIN

STYLE 24:  
 PIN 1. EMITTER  
 2. COLLECTOR/ANODE  
 3. CATHODE

STYLE 25:  
 PIN 1. MT 1  
 2. GATE  
 3. MT 2

STYLE 26:  
 PIN 1. V<sub>CC</sub>  
 2. GROUND 2  
 3. OUTPUT

STYLE 27:  
 PIN 1. MT  
 2. SUBSTRATE  
 3. MT

STYLE 28:  
 PIN 1. CATHODE  
 2. ANODE  
 3. GATE

STYLE 29:  
 PIN 1. NOT CONNECTED  
 2. ANODE  
 3. CATHODE

STYLE 30:  
 PIN 1. DRAIN  
 2. GATE  
 3. SOURCE

STYLE 31:  
 PIN 1. GATE  
 2. DRAIN  
 3. SOURCE

STYLE 32:  
 PIN 1. BASE  
 2. COLLECTOR  
 3. EMITTER

STYLE 33:  
 PIN 1. RETURN  
 2. INPUT  
 3. OUTPUT

STYLE 34:  
 PIN 1. INPUT  
 2. GROUND  
 3. LOGIC

STYLE 35:  
 PIN 1. GATE  
 2. COLLECTOR  
 3. EMITTER

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