

MPS6560

Audio Transistor

NPN Silicon

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°C | P_D | 625 5.0 | W 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 (Note 1) | $R_{\theta JA}$ | 200 | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance, Junction–to–Case | $R_{\theta JC}$ | 83.3 | $^\circ\text{C}/\text{W}$ |

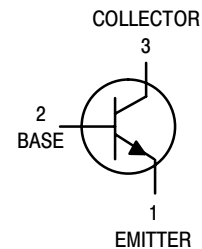
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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

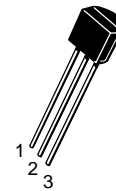


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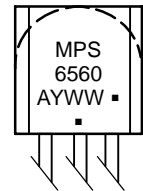
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MARKING DIAGRAM



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°C unless otherwise noted)

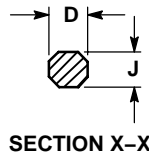
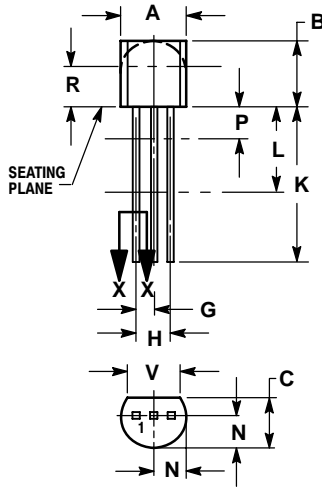
| Characteristic | Symbol | Min | Max | Unit |
|---|----------------------|----------------|---------------|------------------|
| OFF CHARACTERISTICS | | | | |
| Collector–Emitter Breakdown Voltage (Note 2) (I _C = 10 mA _{dc} , I _B = 0) | V _{(BR)CEO} | 25 | – | Vdc |
| Collector–Base Breakdown Voltage (I _C = 100 μA _{dc} , I _E = 0) | V _{(BR)CBO} | 25 | – | Vdc |
| Emitter–Base Breakdown Voltage (I _E = 100 μA _{dc} , I _C = 0) | V _{(BR)EBO} | 5.0 | – | Vdc |
| Collector Cutoff Current (V _{CE} = 25 Vdc, I _B = 0) | I _{CES} | – | 100 | nA _{dc} |
| Collector Cutoff Current (V _{CB} = 20 Vdc, I _E = 0) | I _{CBO} | – | 100 | nA _{dc} |
| Emitter Cutoff Current (V _{EB(off)} = 4.0 Vdc, I _C = 0) | I _{EBO} | – | 100 | nA _{dc} |
| ON CHARACTERISTICS (Note 2) | | | | |
| DC Current Gain (I _C = 10 mA _{dc} , V _{CE} = 1.0 Vdc) (I _C = 100 mA _{dc} , V _{CE} = 1.0 Vdc) (I _C = 500 mA _{dc} , V _{CE} = 1.0 Vdc) | h _{FE} | 35 50 50 | – – 200 | – |
| Collector–Emitter Saturation Voltage (I _C = 500 mA _{dc} , I _B = 50 mA _{dc}) | V _{CE(sat)} | – | 0.5 | Vdc |
| Base–Emitter On Voltage (I _C = 500 mA _{dc} , V _{CE} = 1.0 Vdc) | V _{BE(on)} | – | 1.2 | Vdc |
| SMALL–SIGNAL CHARACTERISTICS | | | | |
| Current–Gain — Bandwidth Product (I _C = 10 mA _{dc} , V _{CE} = 10 Vdc, f = 20 MHz) | f _T | 60 | – | MHz |
| Output Capacitance (V _{CB} = 10 Vdc, I _E = 0, f = 1.0 MHz) | C _{obo} | – | 30 | pF |

2. Pulse Test: Pulse Width ≤ 300 μs; Duty Cycle ≤ 2.0%.

MPS6560

PACKAGE DIMENSIONS

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



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 | --- |

STYLE 1:

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

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