

# MPS5179

Preferred Device

## High Frequency Transistor

### NPN Silicon

#### Features

- Pb-Free Packages are Available\*

#### MAXIMUM RATINGS

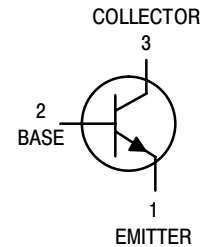
| Rating   | Symbol    | Value       | Unit                      |
|--|-----------|-------------|---------------------------|
| Collector-Emitter Voltage  | $V_{CEO}$ | 12          | Vdc                       |
| Collector-Base Voltage   | $V_{CBO}$ | 20          | Vdc                       |
| Emitter-Base Voltage   | $V_{EBO}$ | 2.5         | Vdc                       |
| Collector Current - Continuous   | $I_C$     | 50          | mAdc                      |
| Total Device Dissipation @ $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$     | 200<br>1.14 | W<br>mW/ $^\circ\text{C}$ |
| Total Device Dissipation @ $T_C = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$     | 300<br>1.71 | W<br>mW/ $^\circ\text{C}$ |
| Storage Temperature Range  | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$          |

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.

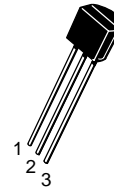


ON Semiconductor®

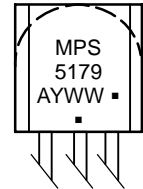
<http://onsemi.com>



#### MARKING DIAGRAM



TO-92  
CASE 29-11  
STYLE 1



MPS5179 = 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†        |
|--------------|--------------------|------------------|
| MPS5179      | TO-92              | 5000 Units/Box   |
| MPS5179G     | TO-92<br>(Pb-Free) | 5000 Units/Box   |
| MPS5179RLRA  | TO-92              | 2000/Tape & Reel |
| MPS5179RLRAG | TO-92<br>(Pb-Free) | 2000/Tape & Reel |
| MPS5179RLRP  | TO-92              | 2000/Tape & Ammo |
| MPS5179RLRPG | TO-92<br>(Pb-Free) | 2000/Tape & Ammo |

†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.

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

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

# MPS5179

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

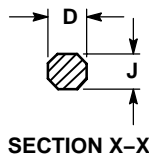
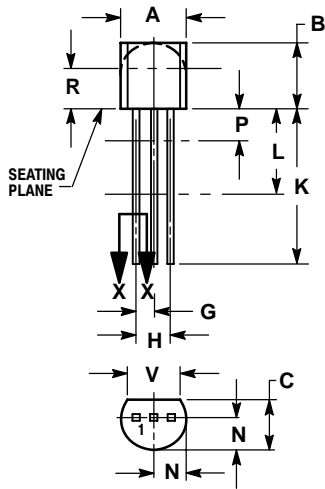
| Characteristic   | Symbol         | Min    | Max         | Unit             |
|--|----------------|--------|-------------|------------------|
| <b>OFF CHARACTERISTICS</b>   |                |        |             |                  |
| Collector–Emitter Sustaining Voltage<br>( $I_C = 3.0\text{ mAdc}$ , $I_B = 0$ )  | $V_{CEO(sus)}$ | 12     | –           | Vdc              |
| Collector–Base Breakdown Voltage<br>( $I_C = 0.001\text{ mAdc}$ , $I_E = 0$ )  | $V_{(BR)CBO}$  | 20     | –           | Vdc              |
| Emitter–Base Breakdown Voltage<br>( $I_E = 0.01\text{ mAdc}$ , $I_C = 0$ )   | $V_{(BR)EBO}$  | 2.5    | –           | Vdc              |
| Collector Cutoff Current<br>( $V_{CB} = 15\text{ Vdc}$ , $I_E = 0$ )<br>( $V_{CB} = 15\text{ Vdc}$ , $I_E = 0$ , $T_A = 150^\circ\text{C}$ ) | $I_{CBO}$      | –<br>– | 0.02<br>1.0 | $\mu\text{A}$ dc |
| <b>ON CHARACTERISTICS</b>  |                |        |             |                  |
| DC Current Gain<br>( $I_C = 3.0\text{ mAdc}$ , $V_{CE} = 1.0\text{ Vdc}$ )   | $h_{FE}$       | 25     | 250         | –                |
| Collector–Emitter Saturation Voltage<br>( $I_C = 10\text{ mAdc}$ , $I_B = 1.0\text{ mAdc}$ )   | $V_{CE(sat)}$  | –      | 0.4         | Vdc              |
| Base–Emitter Saturation Voltage<br>( $I_C = 10\text{ mAdc}$ , $I_B = 1.0\text{ mAdc}$ )  | $V_{BE(sat)}$  | –      | 1.0         | Vdc              |
| <b>SMALL–SIGNAL CHARACTERISTICS</b>  |                |        |             |                  |
| Current–Gain – Bandwidth Product (Note 1)<br>( $I_C = 5.0\text{ mAdc}$ , $V_{CE} = 6.0\text{ Vdc}$ , $f = 100\text{ MHz}$ )                  | $f_T$          | 900    | 2000        | MHz              |
| Collector–Base Capacitance<br>( $V_{CB} = 10\text{ Vdc}$ , $I_E = 0$ , $f = 0.1\text{ to }1.0\text{ MHz}$ )                                  | $C_{cb}$       | –      | 1.0         | pF               |
| Small Signal Current Gain<br>( $I_C = 2.0\text{ mAdc}$ , $V_{CE} = 6.0\text{ Vdc}$ , $f = 1.0\text{ kHz}$ )                                  | $h_{fe}$       | 25     | 300         | –                |

1.  $f_T$  is defined as the frequency at which  $|h_{fe}|$  extrapolates to unity.

# MPS5179

## 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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