

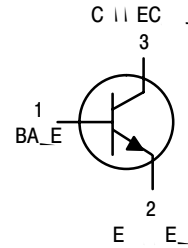


|  |                |             |                           |
|--|----------------|-------------|---------------------------|
| - Base Voltage   | $V_{CBO}$      | 30          | Vdc                       |
| Emitter-Base Voltage   | $V_{EBO}$      | 3.0         | Vdc                       |
| Total Device Dissipation @ $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$          | 350<br>2.8  | W<br>mW/ $^\circ\text{C}$ |
| Total Device Dissipation @ $T_C = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$          | 1.0<br>8.0  | W<br>mW/ $^\circ\text{C}$ |
| Operating and Storage Junction<br>Temperature Range                                    | $T_J, T_{stg}$ | -55 to +150 | $^\circ\text{C}$          |

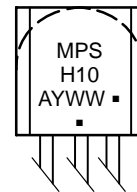
**THERMAL CHARACTERISTICS**

| Characteristic                          | Symbol          | Max    | Unit               |
|---|-----------------|--------|--------------------|
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 200357 | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction-to-Case    | $R_{\theta JC}$ | 125    | $^\circ\text{C/W}$ |

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.



**MARKING DIAGRAM**



- A = Assembly Location
- Y = Year
- WW = Work Week
- 

**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.

# MPSH10

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

| Characteristic   | Symbol               | Min  | Max  | Unit             |
|--|----------------------|------|------|------------------|
| <b>OFF CHARACTERISTICS</b>   |                      |      |      |                  |
| Collector–Emitter Breakdown Voltage<br>(I <sub>C</sub> = 1.0 mA <sub>dc</sub> , I <sub>B</sub> = 0)                              | V <sub>(BR)CEO</sub> | 25   | –    | V <sub>dc</sub>  |
| Collector–Base Breakdown Voltage<br>(I <sub>C</sub> = 100 μA <sub>dc</sub> , I <sub>E</sub> = 0)                                 | V <sub>(BR)CBO</sub> | 30   | –    | V <sub>dc</sub>  |
| Emitter–Base Breakdown Voltage<br>(I <sub>E</sub> = 10 μA <sub>dc</sub> , I <sub>C</sub> = 0)                                    | V <sub>(BR)EBO</sub> | 3.0  | –    | V <sub>dc</sub>  |
| Collector Cutoff Current<br>(V <sub>CB</sub> = 25 V <sub>dc</sub> , I <sub>E</sub> = 0)  | I <sub>CBO</sub>     | –    | 100  | nA <sub>dc</sub> |
| Emitter Cutoff Current<br>(V <sub>EB</sub> = 2.0 V <sub>dc</sub> , I <sub>C</sub> = 0)   | I <sub>EBO</sub>     | –    | 100  | nA <sub>dc</sub> |
| <b>ON CHARACTERISTICS</b>  |                      |      |      |                  |
| DC Current Gain<br>(I <sub>C</sub> = 4.0 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> )                               | h <sub>FE</sub>      | 60   | –    | –                |
| Collector–Emitter Saturation Voltage<br>(I <sub>C</sub> = 4.0 mA <sub>dc</sub> , I <sub>B</sub> = 0.4 mA <sub>dc</sub> )         | V <sub>CE(sat)</sub> | –    | 0.5  | V <sub>dc</sub>  |
| Base–Emitter On Voltage<br>(I <sub>C</sub> = 4.0 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> )                       | V <sub>BE(on)</sub>  | –    | 0.95 | V <sub>dc</sub>  |
| <b>SMALL–SIGNAL CHARACTERISTICS</b>  |                      |      |      |                  |
| Current–Gain – Bandwidth Product<br>(I <sub>C</sub> = 4.0 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> , f = 100 MHz) | f <sub>T</sub>       | 650  | –    | MHz              |
| Collector–Base Capacitance<br>(V <sub>CB</sub> = 10 V <sub>dc</sub> , I <sub>E</sub> = 0, f = 1.0 MHz)                           | C <sub>cb</sub>      | –    | 0.7  | pF               |
| Common–Base Feedback Capacitance<br>(V <sub>CB</sub> = 10 V <sub>dc</sub> , I <sub>E</sub> = 0, f = 1.0 MHz)                     | C <sub>rb</sub>      | 0.35 | 0.65 | pF               |
| Collector Base Time Constant<br>(I <sub>C</sub> = 4.0 mA <sub>dc</sub> , V <sub>CB</sub> = 10 V <sub>dc</sub> , f = 31.8 MHz)    | rb'C <sub>c</sub>    | –    | 9.0  | ps               |

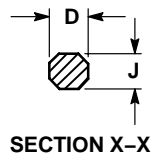
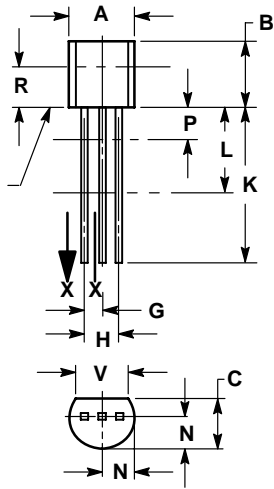
## ORDERING INFORMATION

| Device      | Package            | Shipping <sup>†</sup> |
|-------------|--------------------|-----------------------|
| MPSH10      | TO–92              | 5000 Units / Box      |
| MPSH10G     | TO–92<br>(Pb–Free) | 5000 Units / Box      |
| MPSH10RLRA  | TO–92              | 2000 / Tape & Reel    |
| MPSH10RLRAG | TO–92<br>(Pb–Free) | 2000 / Tape & Reel    |
| MPSH10RLRP  | TO–92              | 2000 / Ammo Pack      |
| MPSH10RLRPG | TO–92<br>(Pb–Free) | 2000 / Ammo Pack      |

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

# MPSH10

## PACKAGE DIMENSIONS



- E:
1. D E A D I E A C E A
  2. C 14.5, 1982. D E : C.
  3. C A C A E B E D D E
  4. I E A D D E C I I E D A D B E D D E