MPSH10

Preferred Device

VHF/UHF Transistors

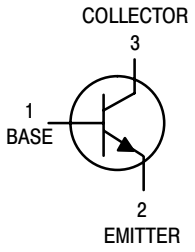
NPN Silicon

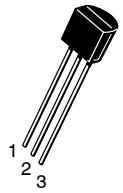
Features

- Pb−Free Packages are Available*

ON Semiconductor®

http://onsemi.com





TO−92
CASE 29−11
STYLE 2

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector − Emitter Voltage	V_{CEO}	25	Vdc
Collector − Base Voltage	V_{CBO}	30	Vdc
Emitter − Base Voltage	V_{EBO}	3.0	Vdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	350 2.8	W mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.0 8.0	W mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150	°C

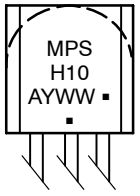
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	200357	°C/W
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	125	°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.

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

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

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

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector – Emitter Breakdown Voltage (I_C = 1.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	25	–	Vdc
Collector – Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	$V_{(BR)CBO}$	30	–	Vdc
Emitter – Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)	$V_{(BR)EBO}$	3.0	–	Vdc
Collector Cutoff Current (V_{CB} = 25 Vdc, I_E = 0)	I_{CBO}	–	100	nAdc
Emitter Cutoff Current (V_{EB} = 2.0 Vdc, I_C = 0)	I_{EBO}	–	100	nAdc
ON CHARACTERISTICS				
DC Current Gain (I_C = 4.0 mAdc, V_{CE} = 10 Vdc)	h_{FE}	60	–	–
Collector – Emitter Saturation Voltage (I_C = 4.0 mAdc, I_B = 0.4 mAdc)	$V_{CE(sat)}$	–	0.5	Vdc
Base – Emitter On Voltage (I_C = 4.0 mAdc, V_{CE} = 10 Vdc)	$V_{BE(on)}$	–	0.95	Vdc
SMALL–SIGNAL CHARACTERISTICS				
Current – Gain – Bandwidth Product (I_C = 4.0 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	f_T	650	–	MHz
Collector–Base Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)	C_{cb}	–	0.7	pF
Common–Base Feedback Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)	C_{rb}	0.35	0.65	pF
Collector Base Time Constant (I_C = 4.0 mAdc, V_{CB} = 10 Vdc, f = 31.8 MHz)	$rb'C_c$	–	9.0	ps

ORDERING INFORMATION

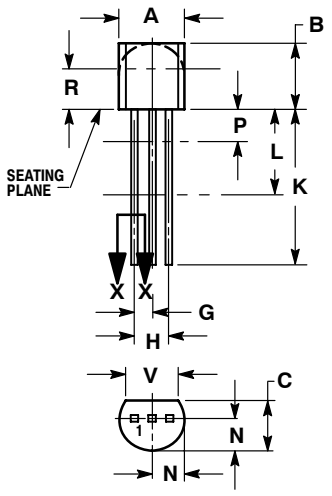
Device	Package	Shipping†
MPSH10	TO–92	5000 Units / Box
MPSH10G	TO–92 (Pb–Free)	5000 Units / Box
MPSH10RLRA	TO–92	2000 / Tape & Reel
MPSH10RLRAG	TO–92 (Pb–Free)	2000 / Tape & Reel
MPSH10RLRP	TO–92	2000 / Ammo Pack
MPSH10RLRPG	TO–92 (Pb–Free)	2000 / Ammo Pack

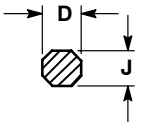
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

MPSH10

PACKAGE DIMENSIONS

TO−92 (TO−226)
CASE 29−11
ISSUE AL





SECTION X−X

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.

	INCHES		MILLIMETERS	
DIM	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 2:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

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MPSH10/D