

# CATV Transistor

## NPN Silicon

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	15	Vdc
Collector-Base Voltage	$V_{CBO}$	20	Vdc
Emitter-Base Voltage	$V_{EBO}$	3.0	Vdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	350 2.81	mW 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 (Printed Circuit Board Mounting)	$R_{\theta JA}$	357	$^\circ\text{C/W}$

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

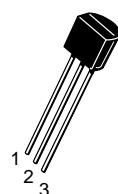
Characteristic	Symbol	Min	Typ	Max	Unit

### OFF CHARACTERISTICS

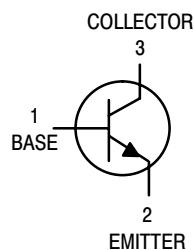
Collector-Emitter Breakdown Voltage ( $I_C = 1.0 \text{ mA}_\text{dc}$ , $I_B = 0$ )	$V_{(BR)C EO}$	15	—	—	Vdc
Collector-Base Breakdown Voltage ( $I_C = 100 \text{ }\mu\text{A}_\text{dc}$ , $I_E = 0$ )	$V_{(BR)C BO}$	20	—	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 10 \text{ }\mu\text{A}_\text{dc}$ , $I_C = 0$ )	$V_{(BR)E BO}$	3.0	—	—	Vdc
Collector Cutoff Current ( $V_{CB} = 15 \text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	—	—	100	nA $\text{dc}$

# MPSH17

ON Semiconductor Preferred Device



CASE 29-11, STYLE 2  
TO-92 (TO-226AA)



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

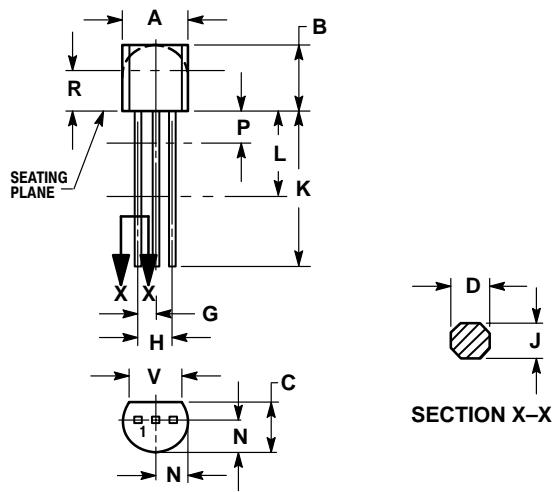
# MPSH17

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

Characteristic	Symbol	Min	Typ	Max	Unit
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 5.0 \text{ mA}_{\text{dc}}$ , $V_{\text{CE}} = 10 \text{ V}_{\text{dc}}$ )	$h_{\text{FE}}$	25	—	250	—
Collector-Emitter Saturation Voltage ( $I_C = 10 \text{ mA}_{\text{dc}}$ , $I_B = 1.0 \text{ mA}_{\text{dc}}$ )	$V_{\text{CE}(\text{sat})}$	—	—	0.5	—
<b>SMALL-SIGNAL CHARACTERISTICS</b>					
Current-Gain — Bandwidth Product ( $I_C = 5.0 \text{ mA}_{\text{dc}}$ , $V_{\text{CE}} = 10 \text{ V}_{\text{dc}}$ , $f = 100 \text{ MHz}$ )	$f_T$	800	—	—	MHz
Collector-Base Capacitance ( $V_{\text{CB}} = 10 \text{ V}_{\text{dc}}$ , $f = 1.0 \text{ MHz}$ )	$C_{\text{cb}}$	0.3	—	0.9	pF
Small-Signal Current Gain ( $I_C = 5.0 \text{ mA}_{\text{dc}}$ , $V_{\text{CE}} = 10 \text{ V}_{\text{dc}}$ , $f = 1.0 \text{ kHz}$ )	$h_{\text{fe}}$	30	—	—	—
Noise Figure ( $I_C = 5.0 \text{ mA}_{\text{dc}}$ , $V_{\text{CC}} = 12 \text{ V}_{\text{dc}}$ , $R_S = 50 \text{ ohms}$ , $f = 200 \text{ MHz}$ )	NF	—	—	6.0	dB
<b>FUNCTIONAL TEST</b>					
Amplifier Power Gain ( $I_C = 5.0 \text{ mA}_{\text{dc}}$ , $V_{\text{CC}} = 12 \text{ V}_{\text{dc}}$ , $R_S = 50 \text{ ohms}$ , $f = 200 \text{ MHz}$ )	$G_{\text{pe}}$	—	24	—	dB

## 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 2:  
PIN 1. BASE  
2. Emitter  
3. Collector

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