

# 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)

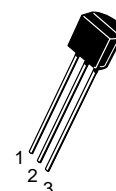
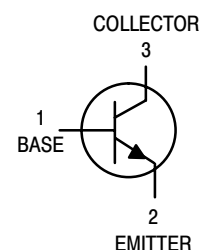
Characteristic	Symbol	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ( $I_C = 1.0\text{ mA}$ , $I_E = 0$ )	$V_{(BR)CEO}$	15	—	—	Vdc
Collector–Base Breakdown Voltage ( $I_C = 100\text{ }\mu\text{A}$ , $I_E = 0$ )	$V_{(BR)CBO}$	20	—	—	Vdc
Emitter–Base Breakdown Voltage ( $I_E = 10\text{ }\mu\text{A}$ , $I_C = 0$ )	$V_{(BR)EBO}$	3.0	—	—	Vdc
Collector Cutoff Current ( $V_{CB} = 15\text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	—	—	100	nA

## 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
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### ON CHARACTERISTICS

DC Current Gain ( $I_C = 5.0\text{ mA}$ , $V_{CE} = 10\text{ Vdc}$ )	$h_{FE}$	25	—	250	—
Collector–Emitter Saturation Voltage ( $I_C = 10\text{ mA}$ , $I_B = 1.0\text{ mA}$ )	$V_{CE(sat)}$	—	—	0.5	—

### SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product ( $I_C = 5.0\text{ mA}$ , $V_{CE} = 10\text{ Vdc}$ , $f = 100\text{ MHz}$ )	$f_T$	800	—	—	MHz
Collector–Base Capacitance ( $V_{CB} = 10\text{ Vdc}$ , $f = 1.0\text{ MHz}$ )	$C_{cb}$	0.3	—	0.9	pF
Small–Signal Current Gain ( $I_C = 5.0\text{ mA}$ , $V_{CE} = 10\text{ Vdc}$ , $f = 1.0\text{ kHz}$ )	$h_{fe}$	30	—	—	—
Noise Figure ( $I_C = 5.0\text{ mA}$ , $V_{CC} = 12\text{ Vdc}$ , $R_S = 50\text{ ohms}$ , $f = 200\text{ MHz}$ )	NF	—	—	6.0	dB

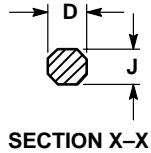
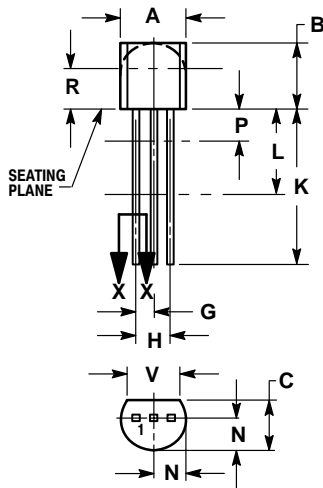
### FUNCTIONAL TEST

Amplifier Power Gain ( $I_C = 5.0\text{ mA}$ , $V_{CC} = 12\text{ Vdc}$ , $R_S = 50\text{ ohms}$ , $f = 200\text{ MHz}$ )	$G_{pe}$	—	24	—	dB
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# MPSH17

## PACKAGE DIMENSIONS

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



SECTION X-X

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

### 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	---

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