

## TO-92 Plastic-Encapsulate Transistors

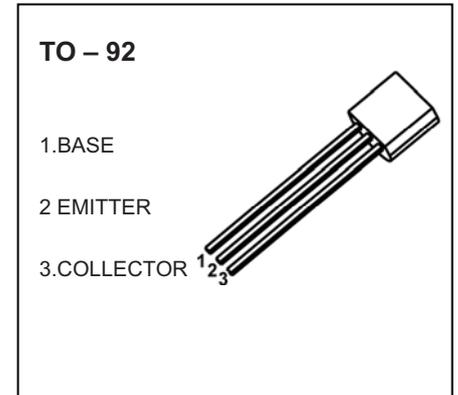
### MPSH10 TRANSISTOR (NPN)

#### FEATURES

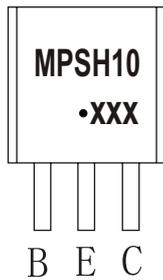
- General Purpose Amplifier

#### APPLICATIONS

- In Low Noise UHF/VHF Amplifiers
- In Low Frequency Drift, High Output UHF Oscillators

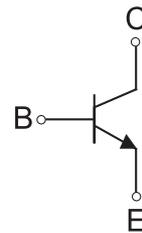


#### MARKING



MPSH10=Device code  
Solid dot=Green molding compound device,  
if none,the normal device  
XXX=Code

#### Equivalent Circuit



#### ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
MPSH10	TO-92	Bulk	1000pcs/Bag
MPSH10-TA	TO-92	Tape	2000pcs/Box

#### MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	30	V
V <sub>CEO</sub>	Collector-Emitter Voltage	25	V
V <sub>EBO</sub>	Emitter-Base Voltage	3	V
I <sub>c</sub>	Collector Current -Continuous	40	mA
P <sub>D</sub>	Collector Power Dissipation	350	mW
R <sub>θJA</sub>	Thermal Resistance rom Junction to Ambient	357	°C /W
T <sub>J</sub> ,T <sub>stg</sub>	Junction Temperature	-55~+150	°C

---

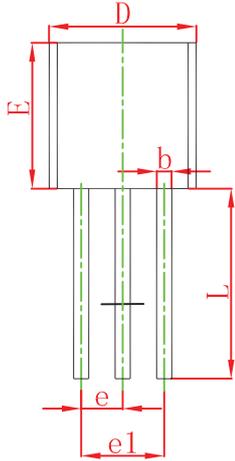
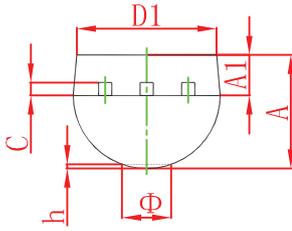
## ELECTRICAL CHARACTERISTICS

---

$T_a=25\text{ }^\circ\text{C}$  unless otherwise specified

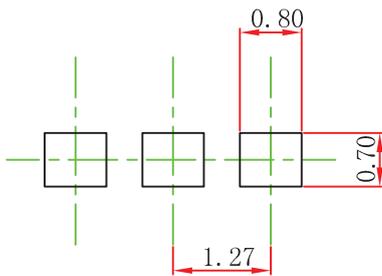
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=0.1\text{mA}, I_E=0$	30			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	25			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=0.01\text{mA}, I_C=0$	3			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=25\text{V}, I_E=0$			0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=2\text{V}, I_C=0$			0.1	$\mu\text{A}$
DC current gain	$h_{FE(1)}$	$V_{CE}=10\text{V}, I_C=4\text{mA}$	60			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=4\text{mA}, I_B=0.4\text{mA}$			0.5	V
Base-emitter voltage	$V_{BE}$	$I_C=4\text{mA}, V_{CE}=10\text{V}$			0.95	V
Transition frequency	$f_T$	$V_{CE}=10\text{V}, I_C=4\text{mA}, f=100\text{MHz}$	650			MHz
Collector output capacitance	$C_{cb}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$			0.7	pF

## TO-92 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

## TO-92 Suggested Pad Layout



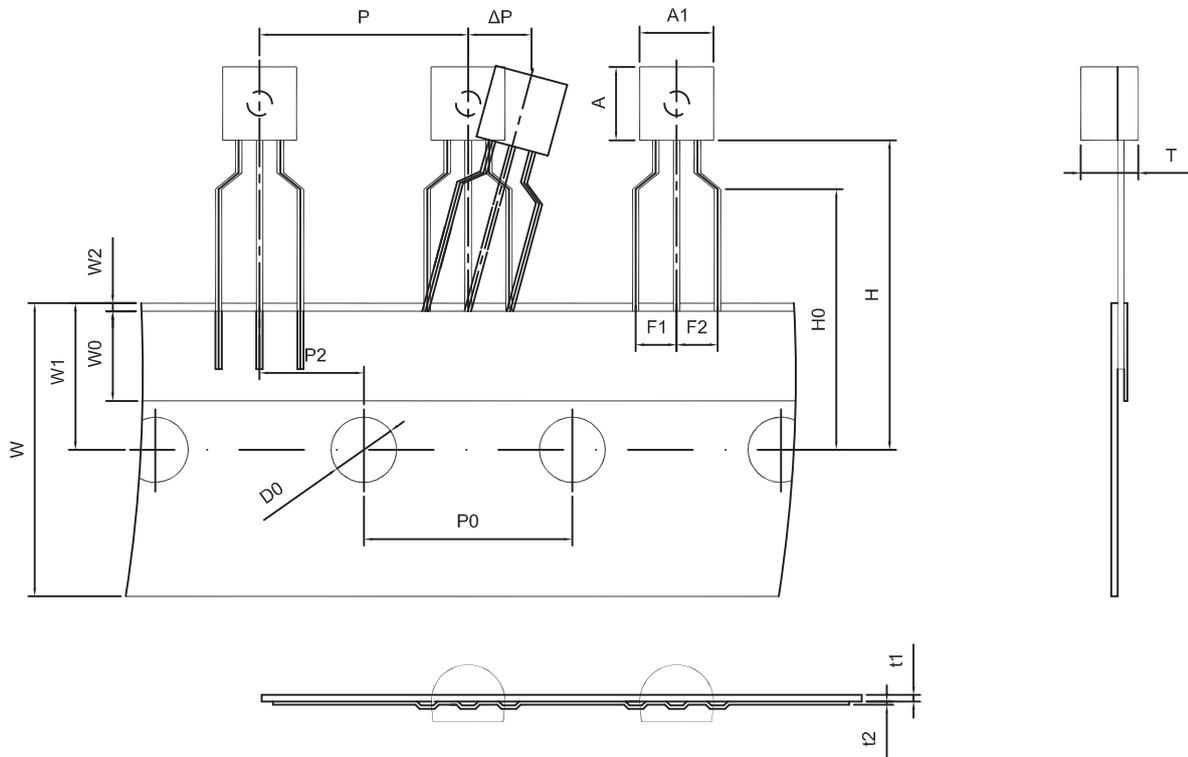
### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

### NOTICE

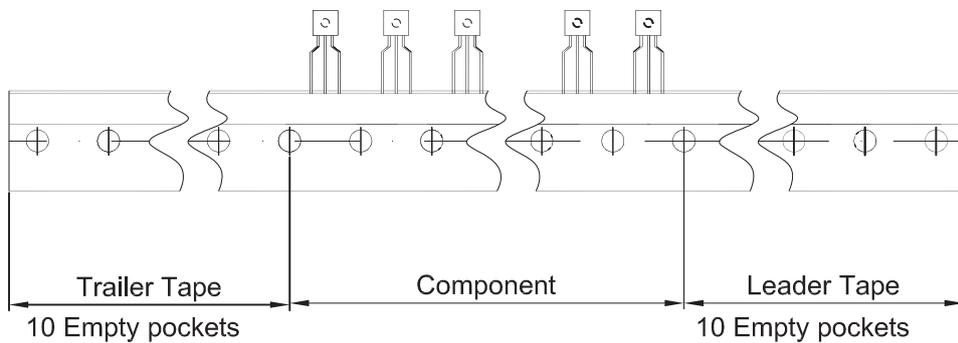
JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

# TO-92 Tape and Reel



Dimiensions are in millimeter

A1	A	T	P	P0	P2	F1	F2	W
4.5	4.5	3.5	12.7	12.7	6.35	2.5	2.5	18.0
W0	W1	W2	H	H0	D0	t1	t2	$\Delta P$
6.0	9.0	1.0 MAX.	19.0	16.0	4.0	0.4	0.2	0



Package	Box	Box Size(mm)	Carton	Carton Size(mm)
TO-92	2000 pcs	333×162×43	20,000 pcs	350×340×250