

TO-92 Plastic-Encapsulate Transistors

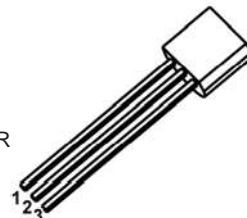
TRANSISTOR (PNP)

TO - 92

Features:

- Low Frequency Amplifier
- Complementary Pair with 2SC1213A

1. EMITTER
2. COLLECTOR
3. BASE



MAXIMUM RATINGS (T_a=25 °C unless otherwise noted)

Symbol	Parameter	value	Unit
V _{CB0}	Collector-Base Voltage	-50	V
V _{CEO}	Collector-Emitter Voltage	-50	V
V _{EBO}	Emitter-Base Voltage	-4	V
I _c	Collector Current -Continuous	-0.5	A
P _c	Collector Power Dissipation	400	mW
R _{θJA}	Thermal Resistance from Junction to Ambient	312	°C / W
T _J	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55 --+150	°C

ELECTRICAL CHARACTERISTICS(T_a=25 °C unless otherwise specified)

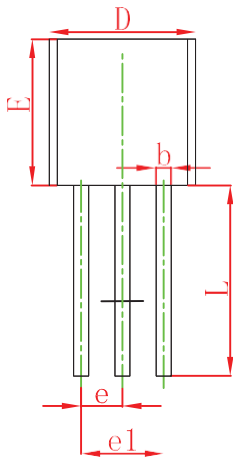
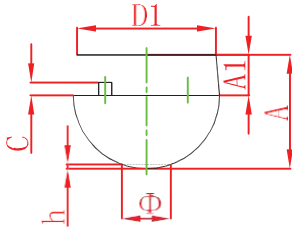
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V _{(BR)CBO}	I _C =-0.01mA, I _E =0	-50			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =-1mA, I _B =0	-50			V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =-0.01mA, I _C =0	-4			V
Collector cut-off current	I _{CBO}	V _{CB} =-20V, I _E =0			-0.5	μA
Emitter cut-off current	I _{EBO}	V _{EB} =-3V, I _C =0			-0.5	μA
DC current gain	h _{FE(1)}	V _{CE} =-3V, I _C =-10mA	60		320	
	h _{FE(2)} *	V _{CE} =-3V, I _C =-500mA	10			
Collector-emitter saturation voltage	V _{CE(sat)} *	I _C =-150mA, I _B =-15mA			-0.6	V
Base-emitter voltage	V _{BE}	V _{CE} =-3V, I _C =-10mA			-0.75	V

*Pulse test: pulse width ≤300μs, duty cycle ≤ 2.0%.

CLASSIFICATION OF h_{FE(1)}

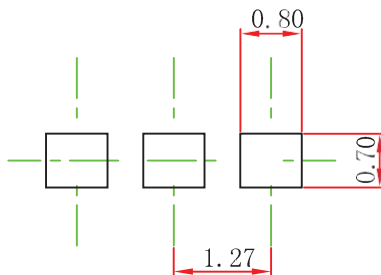
RANK	B	C	D
RANGE	60-120	100-200	160-320

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
-		1.600		0.063
h	0.000	0.380	0.000	0.015

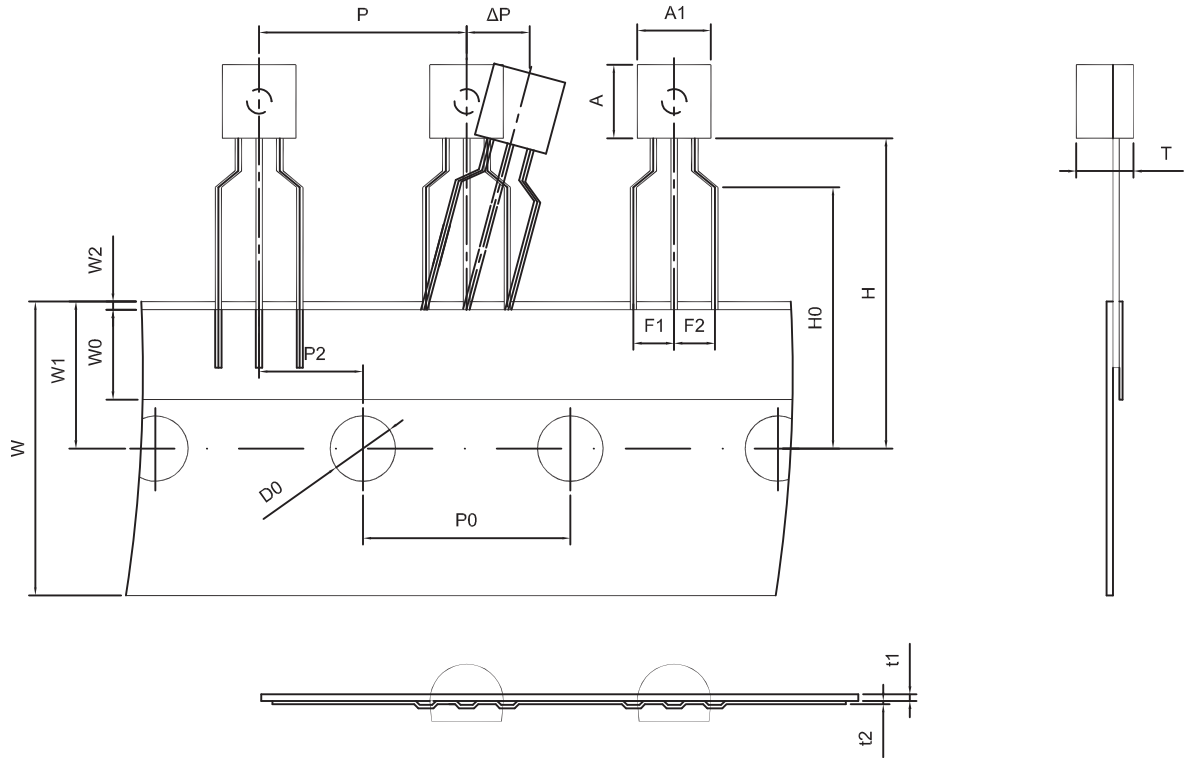
TO-92 Suggested Pad Layout



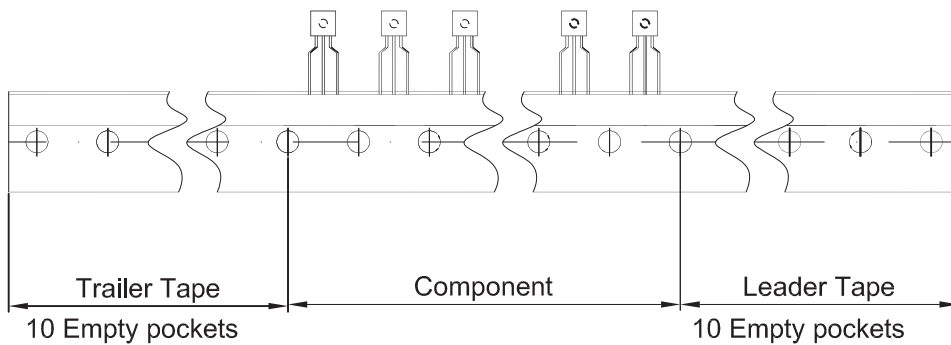
Note:

1. Controlling dimension: In millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

TO-92 Tape and Reel



Dimensions 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	ΔP
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