

## TO-92 Plastic-Encapsulate Transistors

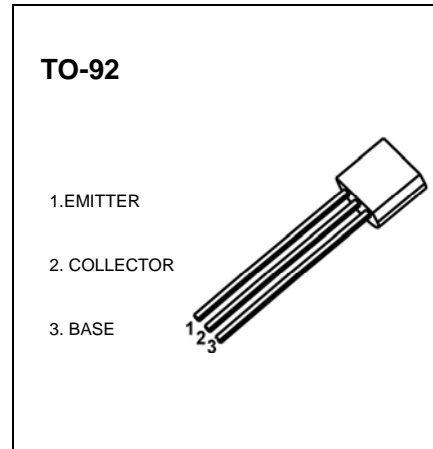
### 2SA950 TRANSISTOR (PNP)

#### FEATURES

- 1W Output Applications
- Complementary to 2SC2120

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

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	-35	V
V <sub>CE0</sub>	Collector-Emitter Voltage	-30	V
V <sub>EB0</sub>	Emitter-Base Voltage	-5	V
I <sub>C</sub>	Collector Current -Continuous	-0.8	A
P <sub>C</sub>	Collector Power Dissipation	0.6	W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55 to +150	°C



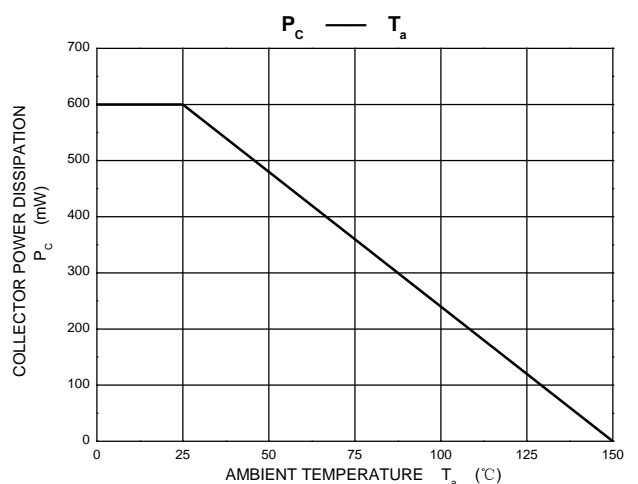
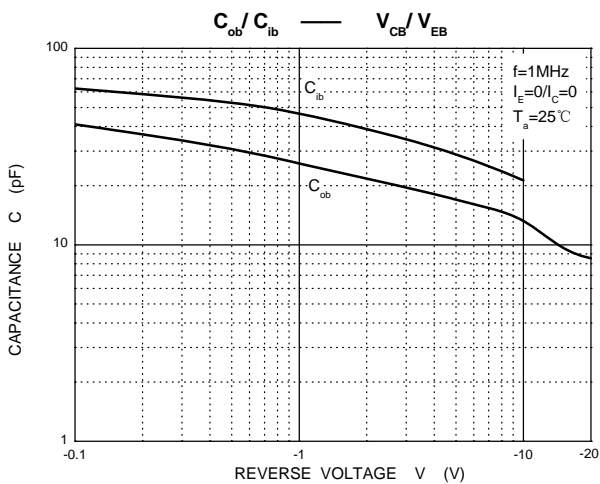
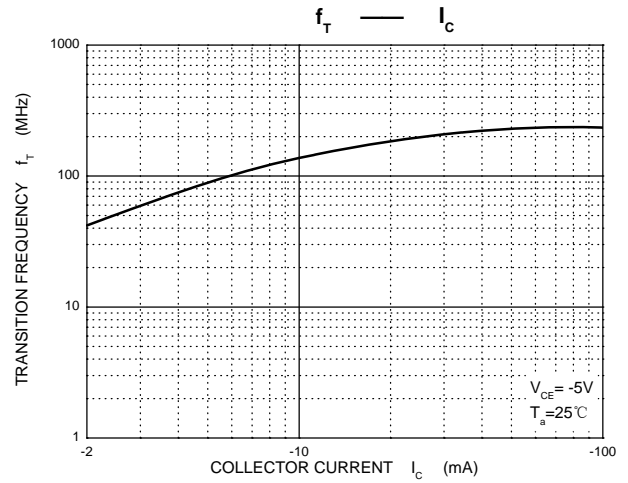
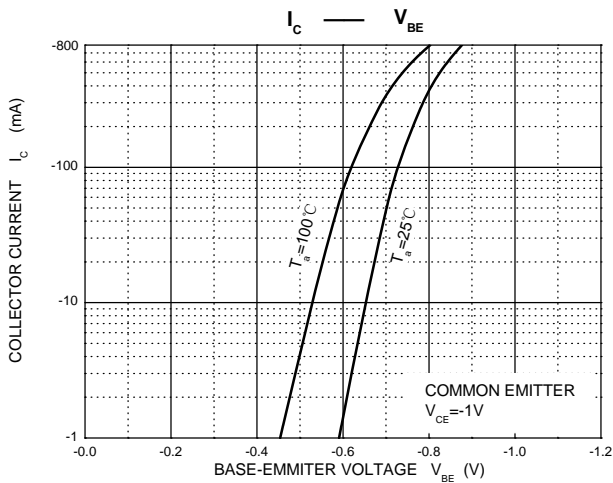
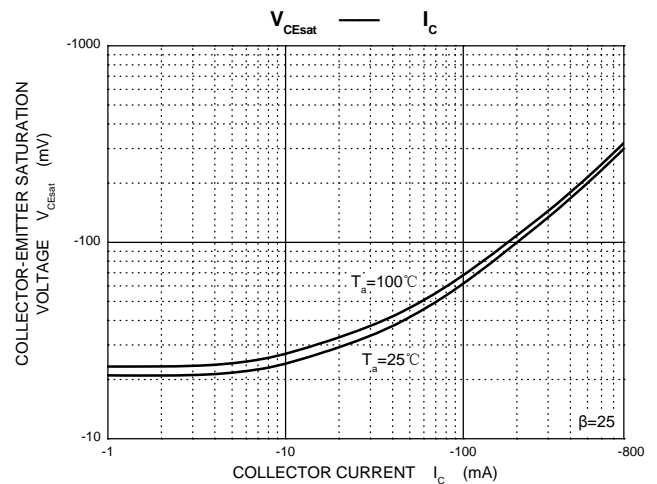
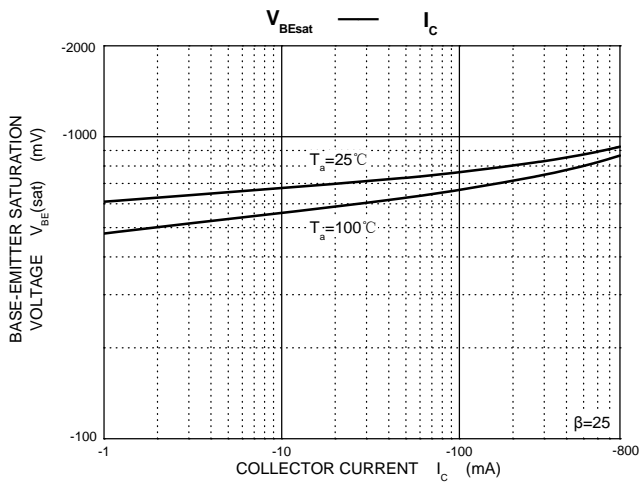
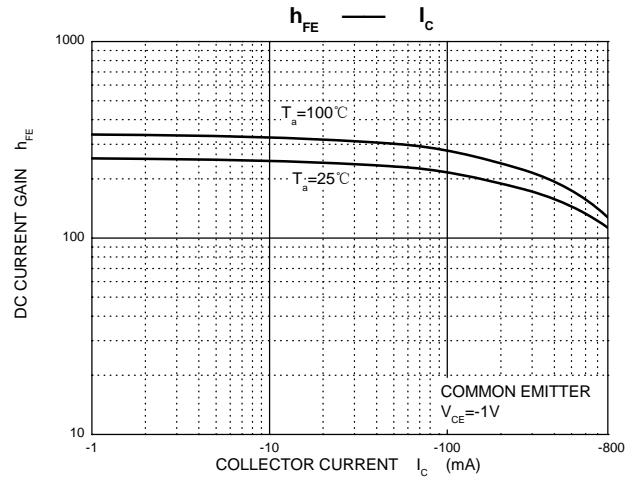
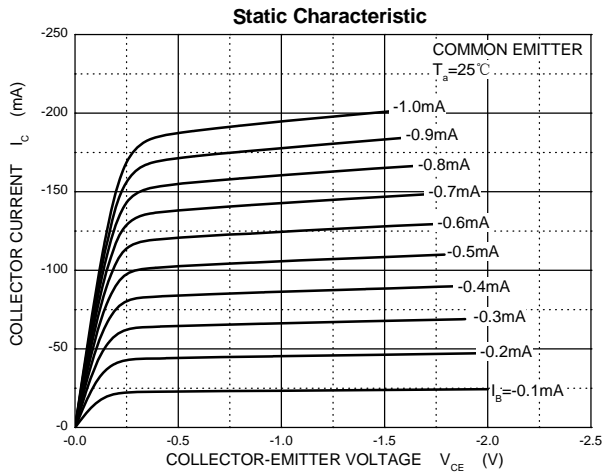
#### ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = -0.1mA , I <sub>E</sub> =0	-35			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = -10mA , I <sub>B</sub> =0	-30			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = -0.1mA, I <sub>C</sub> =0	-5			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = -35V, I <sub>E</sub> =0			-0.1	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = -5V, I <sub>C</sub> =0			-0.1	μA
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =-1V, I <sub>C</sub> =-100mA	100		320	
	h <sub>FE(2)</sub>	V <sub>CE</sub> =-1V, I <sub>C</sub> = -700mA	35			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = -500mA, I <sub>B</sub> = -20mA			-0.7	V
Emitter-base voltage	V <sub>BE</sub>	V <sub>CE</sub> =-1V, I <sub>C</sub> =-10mA	-0.5		-0.8	V
Collector Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =-10V, I <sub>E</sub> =0 f=1MHz		19		pF
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =-5V, I <sub>C</sub> =-10mA		120		MHz

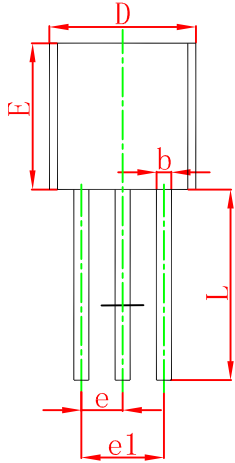
#### CLASSIFICATION OF h<sub>FE(1)</sub>

Rank	O	Y
Range	100-200	160-320

# Typical Characteristics

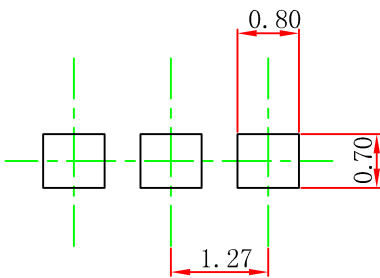


## TO-92 Package Outline Dimensions



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



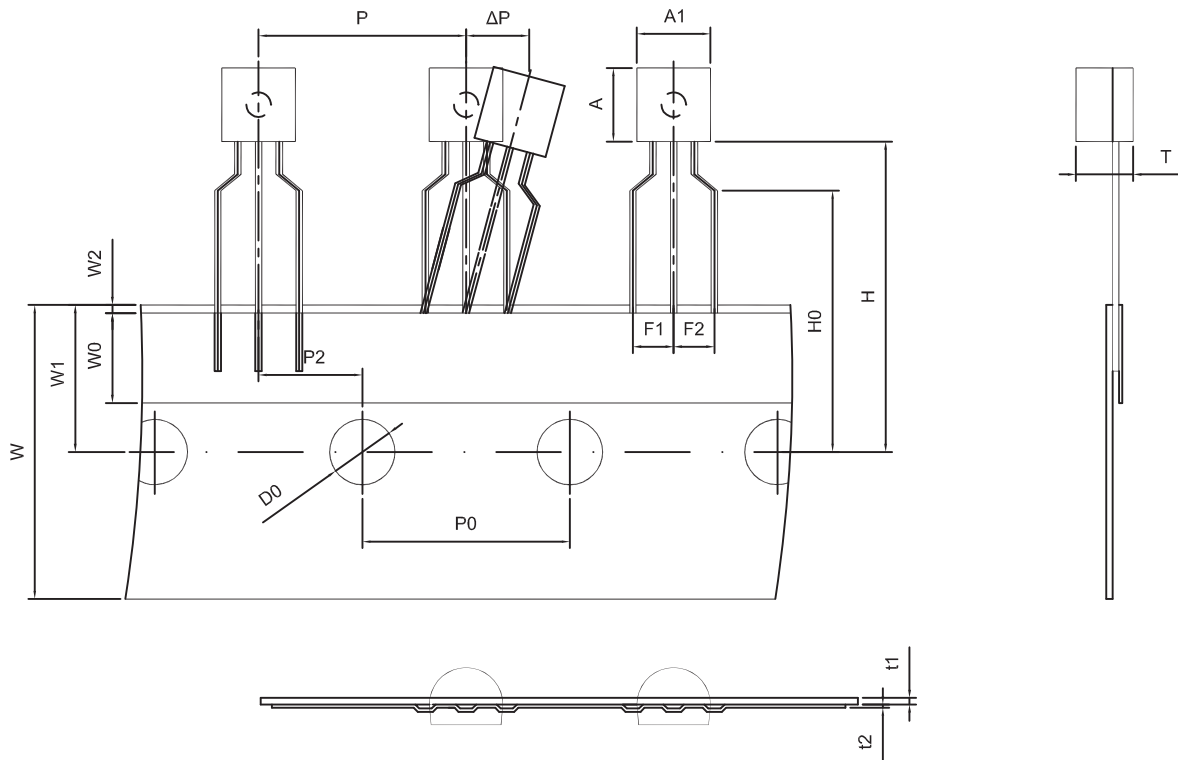
### Note:

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

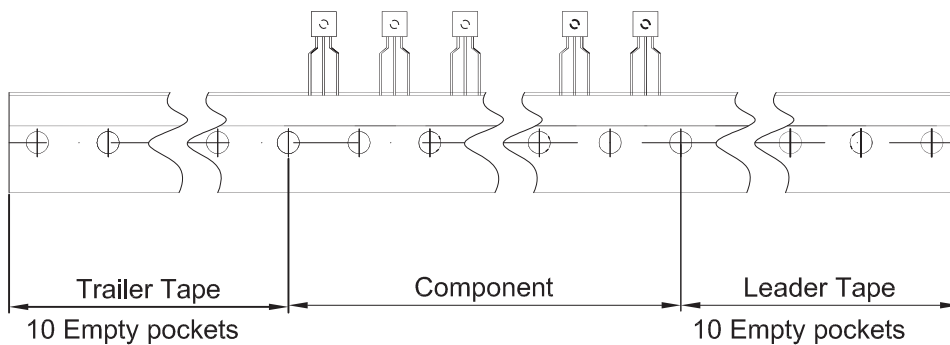
### NOTICE

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TO-92 PACKAGE TAPEING DIMENSION



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	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