

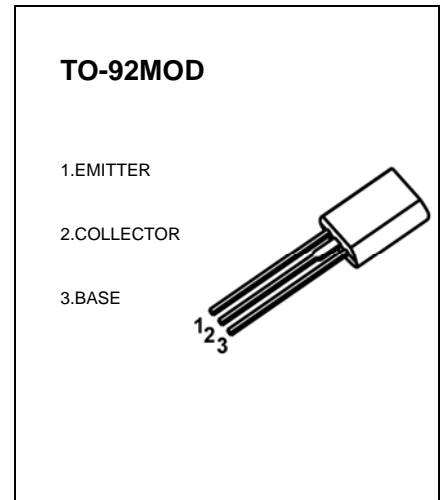


**TO-92MOD Plastic-Encapsulate Transistors**

**KSA931** TRANSISTOR (PNP)

**FEATURE**

- Low Frequency Amplifier
- Medium Speed Switching



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

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	-80	V
V <sub>CE0</sub>	Collector-Emitter Voltage	-60	V
V <sub>EBO</sub>	Emitter-Base Voltage	-8	V
I <sub>c</sub>	Collector Current -Continuous	-0.7	A
P <sub>c</sub>	Collector Power Dissipation	1	W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55 to +150	°C

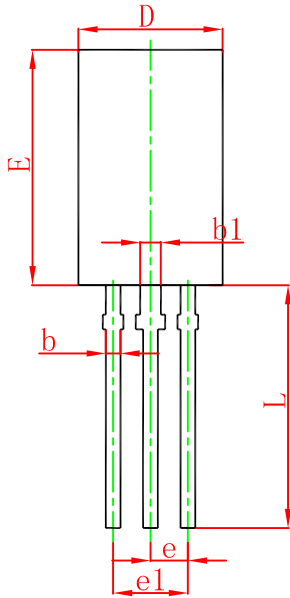
**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = -100μA, I <sub>E</sub> =0	-80			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = -10mA, I <sub>B</sub> =0	-60			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = -100μA, I <sub>C</sub> =0	-8			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = -60 V, 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</sub>	V <sub>CE</sub> =-2 V, I <sub>C</sub> = -50mA	40		320	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = -500mA, I <sub>B</sub> = -50mA			-0.7	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = -500mA, I <sub>B</sub> = -50mA			-1.2	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = -10 V, I <sub>C</sub> =-50mA		100		MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =-10V, I <sub>E</sub> =0, f=1MHz		13		pF

**CLASSIFICATION OF h<sub>FE</sub>**

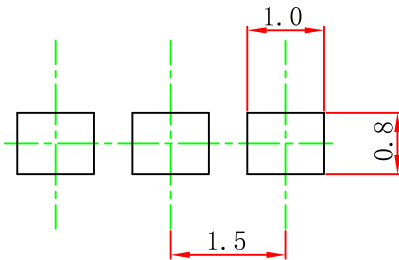
Rank	R	O	Y	GR
Range	40-80	70-140	120-240	160-320

## TO-92MOD Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.800	5.000	0.189	0.197
A1	1.730	2.030	0.068	0.080
b	0.440	0.600	0.017	0.024
b1	0.940	1.100	0.037	0.043
c	0.350	0.450	0.014	0.018
D	5.900	6.100	0.232	0.240
D1	4.000		0.157	
E	8.500	8.700	0.335	0.343
e	1.500 TYP.		0.059 TYP.	
e1	2.900	3.100	0.114	0.122
L	13.800	14.200	0.543	0.559
$\Phi$		1.600		0.063
h	0.000	0.380	0.000	0.015

## TO-92MOD Suggested Pad Layout



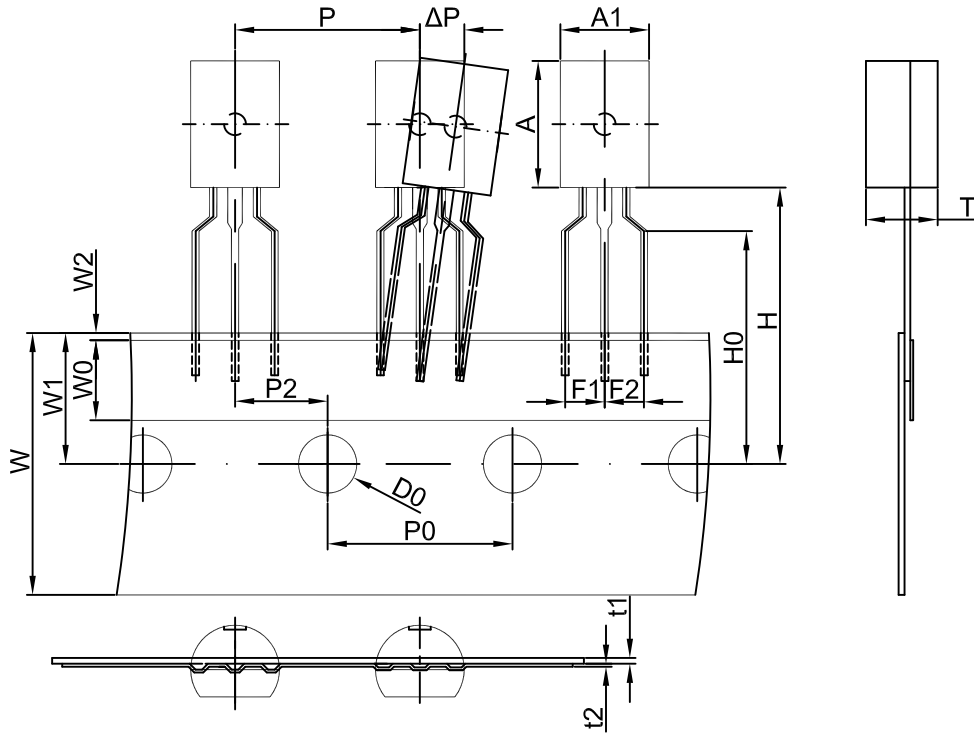
Note:

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

### NOTICE

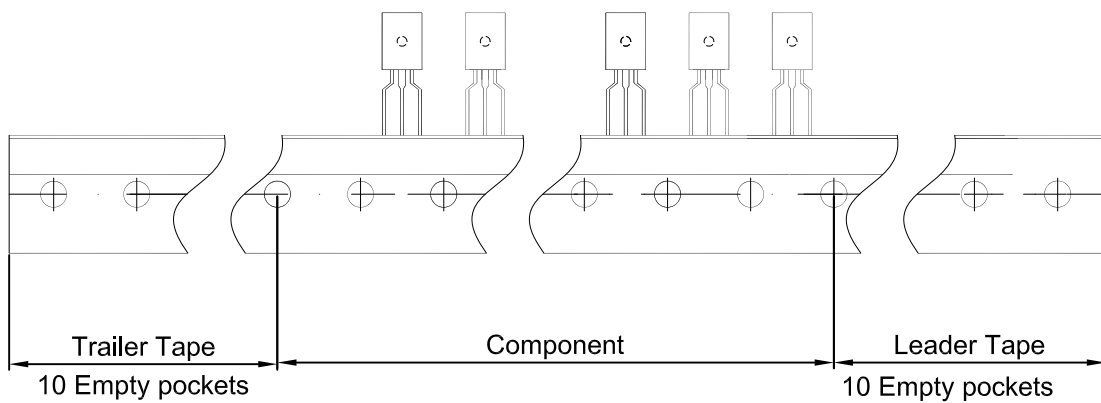
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# TO-92MOD PACKAGE TAPEING DIMENSION



Dimensions are in millimeter

A1	A	T	P	P0	P2	F1	F2	W
6.0	8.6	4.9	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	19.0	16.0	4.0	0.4	0.2	0



Package	Box	Box Size(mm)	Carton	Carton Size(mm)
TO-92MOD	2000 pcs	333×245×43	20,000 pcs	573×404×266