



TO-92L Plastic-Encapsulate Transistors

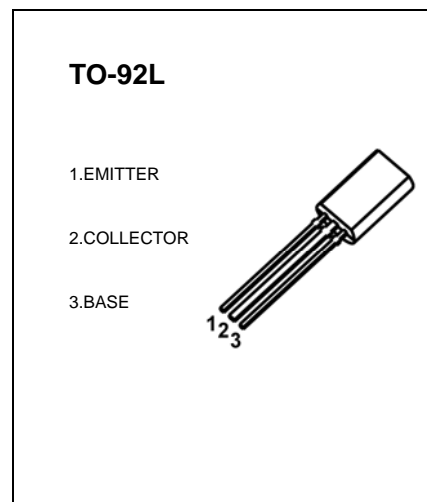
KSA931 TRANSISTOR (PNP)

FEATURES

- Low Frequency Amplifier
- Medium Speed Switching

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

Symbol	Parameter	Value	Unit
V _{CB0}	Collector-Base Voltage	-80	V
V _{CEO}	Collector-Emitter Voltage	-60	V
V _{EBO}	Emitter-Base Voltage	-8	V
I _C	Collector Current -Continuous	-0.7	A
P _C	Collector Power Dissipation	1	W
T _J	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55 to +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 = -100μA, I _E =0	-80			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C = -10mA, I _B =0	-60			V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E = -100μA, I _C =0	-8			V
Collector cut-off current	I _{CBO}	V _{CB} = -60 V, I _E =0			-0.1	μA
Emitter cut-off current	I _{EBO}	V _{EB} = -5V, I _C =0			-0.1	μA
DC current gain	h _{FE}	V _{CE} =-2 V, I _C = -50mA	40		320	
Collector-emitter saturation voltage	V _{CE(sat)}	I _C = -500mA, I _B = -50mA			-0.7	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C = -500mA, I _B = -50mA			-1.2	V
Transition frequency	f _T	V _{CE} = -10 V, I _C = -50mA		100		MHz
Collector output capacitance	C _{ob}	V _{CB} =-10V, I _E =0, f=1MHz		13		pF

CLASSIFICATION OF h_{FE}

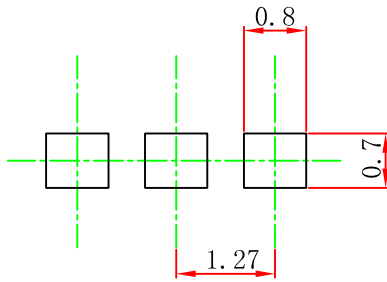
Rank	R	O	Y	GR
Range	40-80	70-140	120-240	160-320

TO-92L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	3.750	4.050	0.148	0.159
A1	1.280	1.580	0.050	0.062
b	0.380	0.550	0.015	0.022
b1	0.620	0.780	0.024	0.031
c	0.350	0.450	0.014	0.018
D	4.750	5.050	0.187	0.199
D1	4.000		0.157	
E	7.850	8.150	0.309	0.321
e	1.270 TYP.		0.050 TYP.	
e1	2.440	2.640	0.096	0.104
L	13.800	14.200	0.543	0.559
Φ		1.600		0.063
h	0.000	0.300	0.000	0.012

TO-92L Suggested Pad Layout



Note:

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

NOTICE

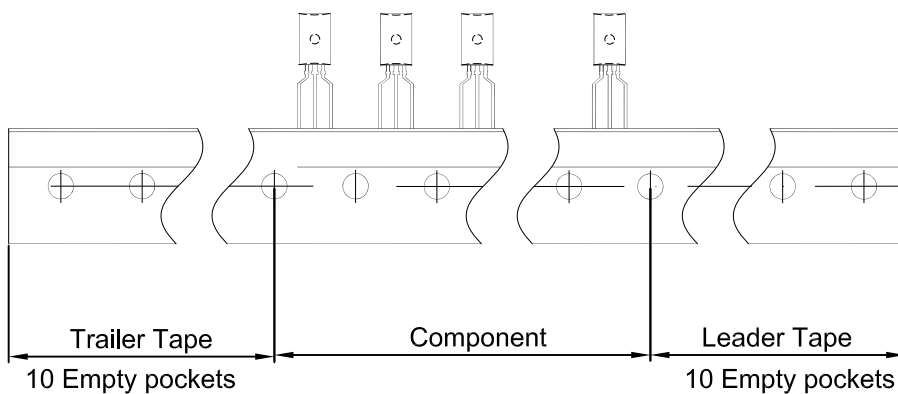
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TO-92L PACKAGE TAPEING DIMENSION



Dimensions are in millimeter

A1	A	T	P	P0	P2	F1	F2	W
4.9	8.0	3.9	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-92L	2000 pcs	333×203×42	20,000 pcs	493×400×264