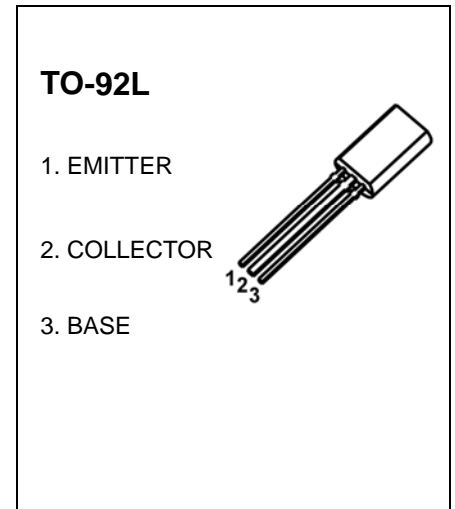


## TO-92L Plastic-Encapsulate Transistors

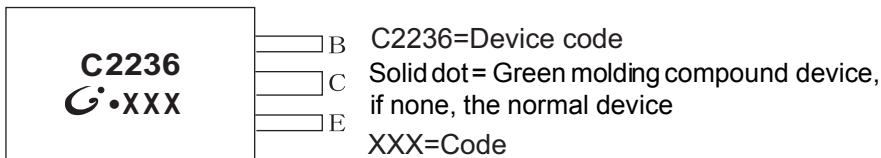
### 2SC2236 TRANSISTOR (NPN)

#### FEATURE

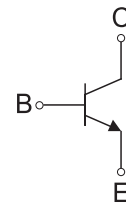
Complementary to 2SA966 and 3 Watts Output Applications.



#### MARKING



#### Equivalent Circuit



#### ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
2SC2236	TO-92L	Bulk	500pcs/Bag
2SC2236-TA	TO-92L	Tape	2000pcs/Box

#### MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	30	V
$V_{CEO}$	Collector-Emitter Voltage	30	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current -Continuous	1.5	A
$P_C$	Collector Power Dissipation	0.9	W
$T_J$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature	-55~+150	$^{\circ}\text{C}$

## ELECTRICAL CHARACTERISTICS

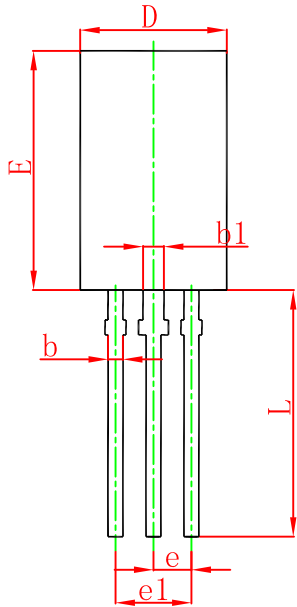
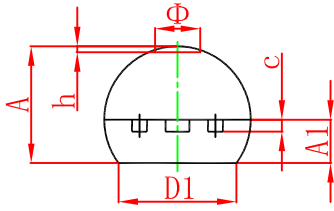
$T_a=25^\circ\text{C}$  unless otherwise specified

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V(\text{BR})_{\text{CBO}}$	$I_{\text{C}}=1\text{mA}, I_{\text{E}}=0$	30			V
Collector-emitter breakdown voltage	$V(\text{BR})_{\text{CEO}}$	$I_{\text{C}}=10\text{mA}, I_{\text{B}}=0$	30			V
Emitter-base breakdown voltage	$V(\text{BR})_{\text{EBO}}$	$I_{\text{E}}=1\text{mA}, I_{\text{C}}=0$	5			V
Collector cut-off current	$I_{\text{CBO}}$	$V_{\text{CB}}=30\text{V}, I_{\text{E}}=0$			0.1	$\mu\text{A}$
Emitter cut-off current	$I_{\text{EBO}}$	$V_{\text{EB}}=5\text{V}, I_{\text{C}}=0$			0.1	$\mu\text{A}$
DC current gain	$h_{\text{FE}}$	$V_{\text{CE}}=2\text{V}, I_{\text{C}}=500\text{mA}$	100		320	
Collector-emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}}=1.5\text{A}, I_{\text{B}}=0.03\text{A}$			2	V
Base-emitter voltage	$V_{\text{BE}}$	$I_{\text{C}}=500\text{mA}, V_{\text{CE}}=2\text{V}$			1	V
Transition frequency	$f_{\text{T}}$	$V_{\text{CE}}=2\text{V}, I_{\text{C}}=500\text{mA}$		120		MHz
Collector output Capacitance	$C_{\text{ob}}$	$V_{\text{CB}}=10\text{V}, I_{\text{E}}=0, f=1\text{MHz}$			30	pF

### CLASSIFICATION OF $h_{\text{FE}}$

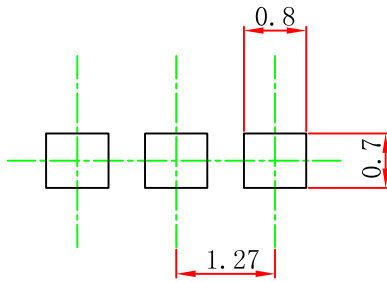
Rank	O	Y
Range	100-200	160-320

## 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



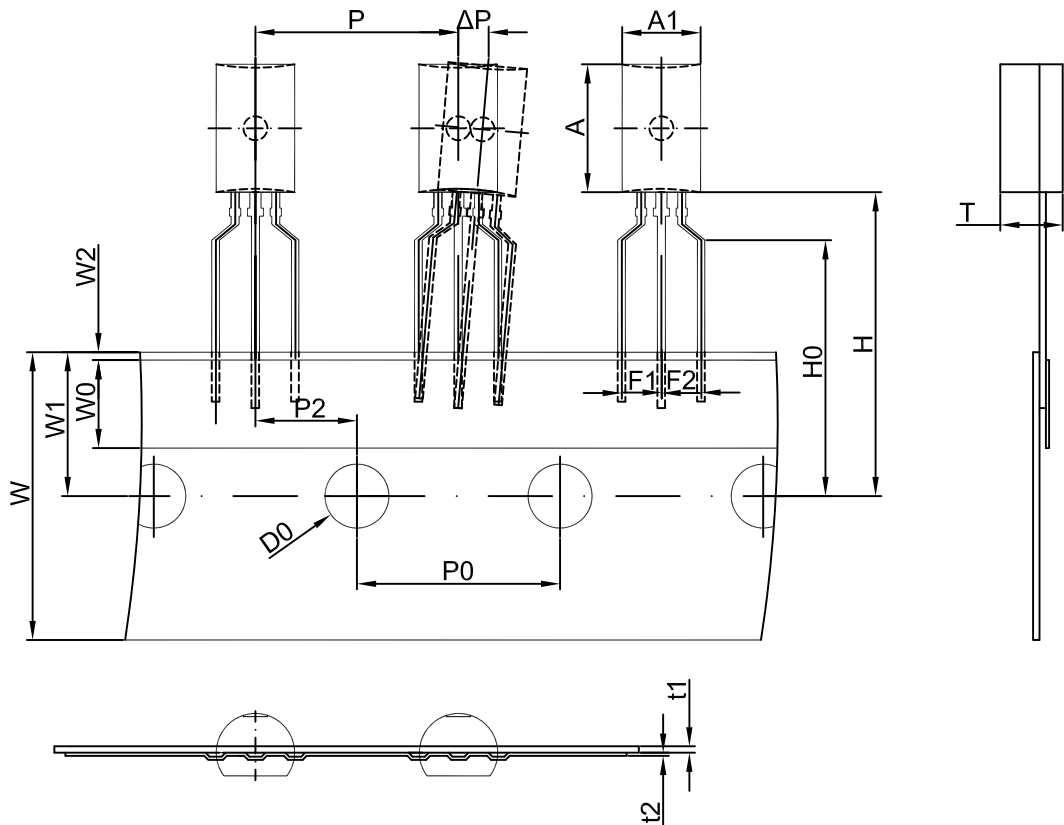
### Note:

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

### NOTICE

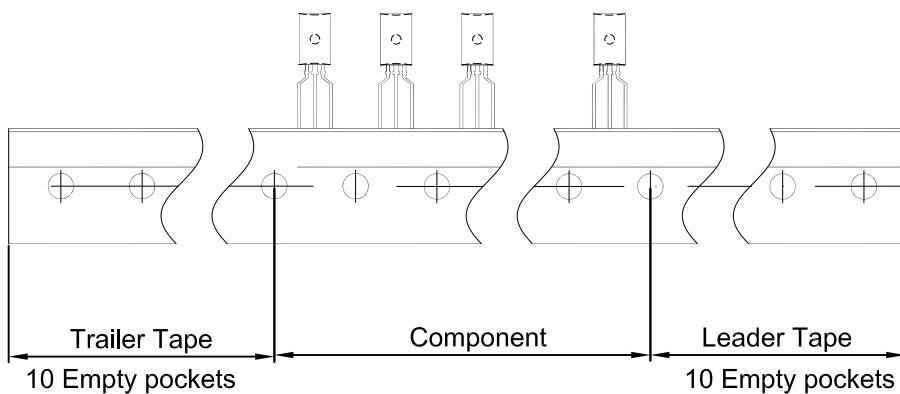
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# TO-92L PACKAGE TAPEING DIMENSION



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