

## TO-92L Plastic-Encapsulate Transistors

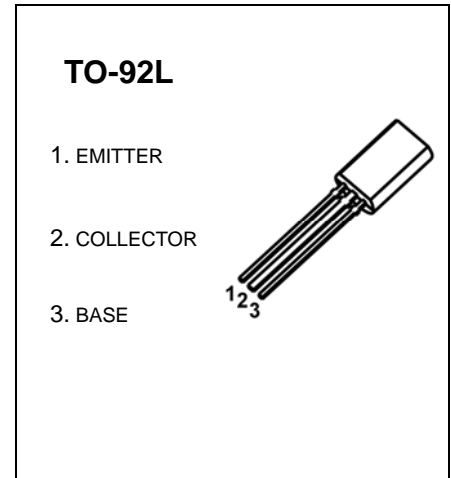
### 2SD400 TRANSISTOR (NPN)

#### FEATURES

- Low-Frequency power Amp, Electronic Governor Applications

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

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	25	V
$V_{CEO}$	Collector-Emitter Voltage	25	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current -Continuous	1	A
$P_C$	Collector Power Dissipation	0.75	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	$V_{(BR)CBO}$	$I_C=10\mu\text{A}$ , $I_E=0$	25			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}$ , $I_B=0$	25			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}$ , $I_C=0$	5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=20\text{V}$ , $I_E=0$			1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=4\text{V}$ , $I_C=0$			1	$\mu\text{A}$
DC current gain	$h_{FE(1)}$	$V_{CE}=2\text{V}$ , $I_C=50\text{mA}$	60		560	
	$h_{FE(2)}$	$V_{CE}=2\text{V}$ , $I_C=1\text{A}$	30			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=500\text{mA}$ , $I_B=50\text{mA}$			0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=500\text{mA}$ , $I_B=50\text{mA}$			1.2	V
Transition frequency	$f_T$	$V_{CE}=10\text{V}$ , $I_C=50\text{mA}$		180		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}$ , $f=1\text{MHz}$		15		pF

#### CLASSIFICATION OF $h_{FE(1)}$

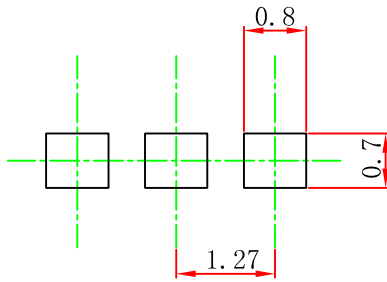
Rank	D	E	F	G
Range	60-120	100-200	160-320	280-560

## 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:  $\pm 0.05$  mm.
3. The pad layout is for reference purposes only.

### NOTICE

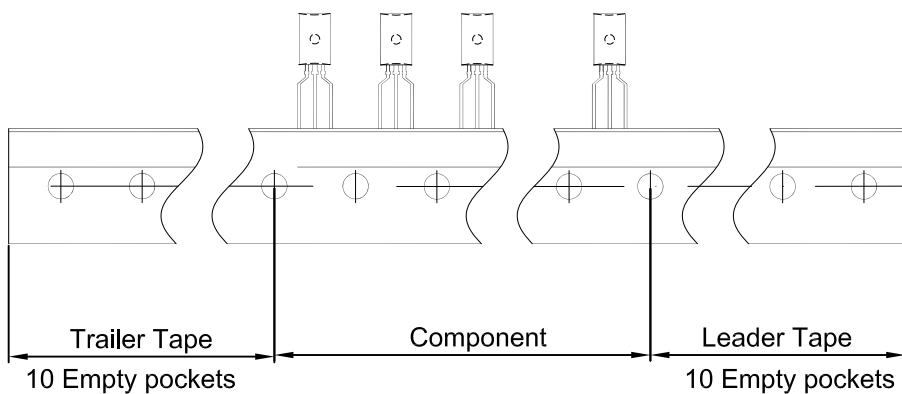
JCET reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JCET does not assume any liability arising out of the application or use of any product described herein.

# TO-92L PACKAGE TAPING 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