

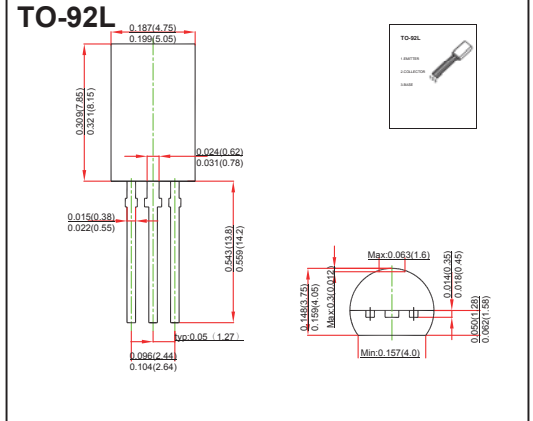
## TO-92L Plastic-Encapsulate Transistors

### FEATURES

- Power Amplifier Applications
- TRANSISTOR (PNP)

### MECHANICAL DATA

- Case style: TO-92L molded plastic
- Mounting position: any



### MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	-50	V
V <sub>CEO</sub>	Collector-Emitter Voltage	-50	V
V <sub>EBO</sub>	Emitter-Base Voltage	-5	V
I <sub>C</sub>	Collector Current –Continuous	-2	A
P <sub>C</sub>	Collector Power Dissipation	900	mW
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55-150	°C

#### ORDERING INFORMATION

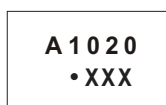
Part Number	Package	Packing Method	Pack Quantity
2SA1020	TO-92L	Bulk	500pcs/Bag
2SA1020-TA	TO-92L	Tape	2000pcs/Box

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	-50			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = -10mA, I <sub>B</sub> = 0	-50			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = -100μA, I <sub>C</sub> = 0	-5			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = -50V, I <sub>E</sub> = 0			-1	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = -5V, I <sub>C</sub> = 0			-1	μA
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> = -2V, I <sub>C</sub> = -0.5A	70		240	
	h <sub>FE(2)</sub>	V <sub>CE</sub> = -2V, I <sub>C</sub> = -1.5A	40			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = -1A, I <sub>B</sub> = -50mA			-0.5	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = -1A, I <sub>B</sub> = -50mA			-1.2	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = -2V, I <sub>C</sub> = -500mA		100		MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = -10V, I <sub>E</sub> = 0, f = 1MHz		40		pF
Turn-on time	t <sub>on</sub>	V <sub>CC</sub> = -30V, I <sub>B1</sub> = -I <sub>B2</sub> = -0.05A, I <sub>C</sub> = -1A		0.1		μs
Storage time	t <sub>s</sub>			1		μs
Fall time	t <sub>f</sub>			0.1		μs

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

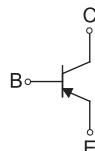
Rank	O	Y
Range	70-140	120-240

#### MARKING

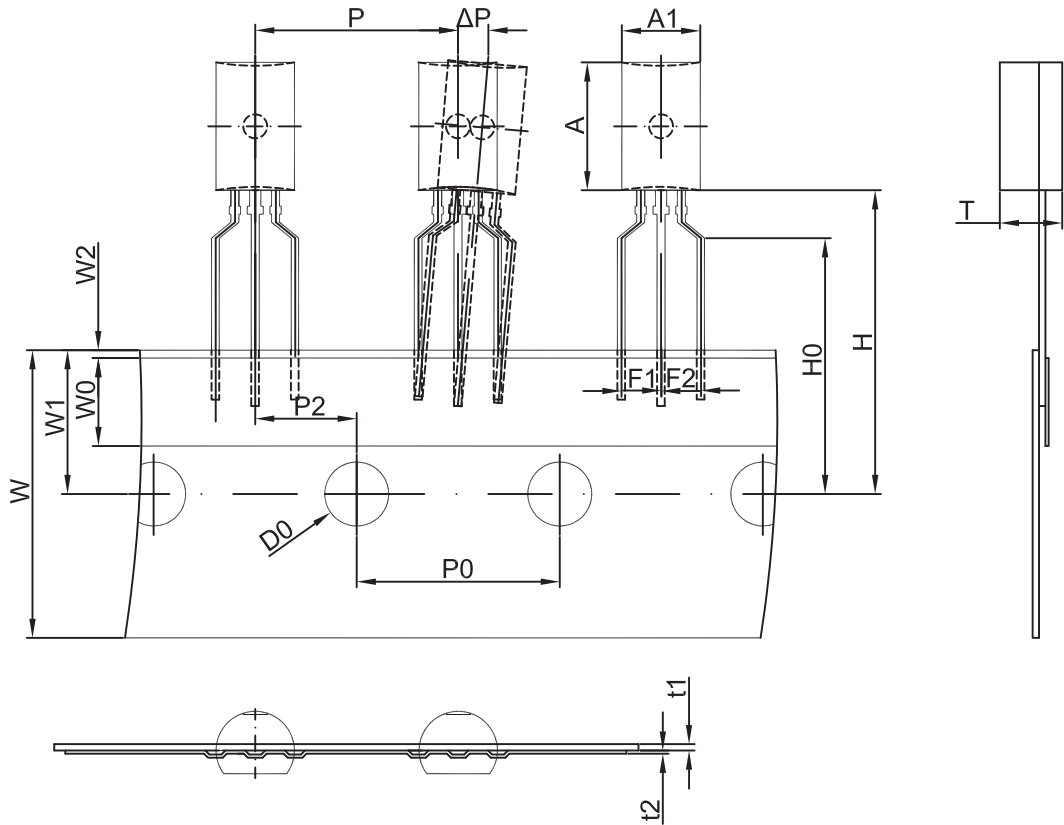


A1020=Device code  
 Solid dot = Green molding compound device,  
 if none, the normal device  
 XXX=Code

#### Equivalent Circuit

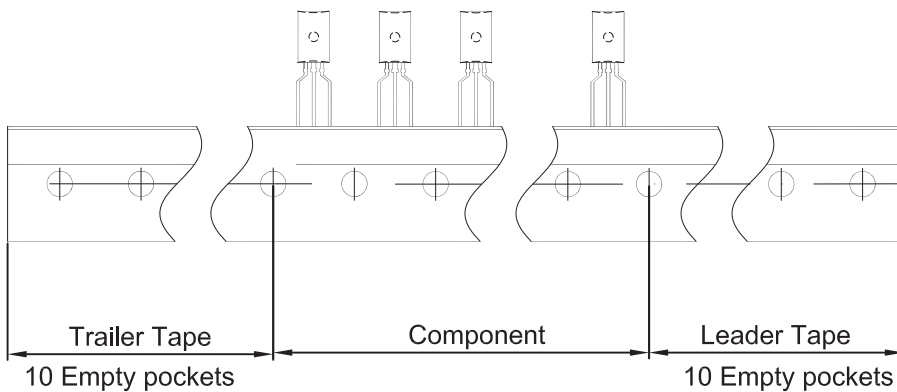


# TO-92L PACKAGE TAPING DIMENSION



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