

## TO-92 Plastic-Encapsulate Transistors

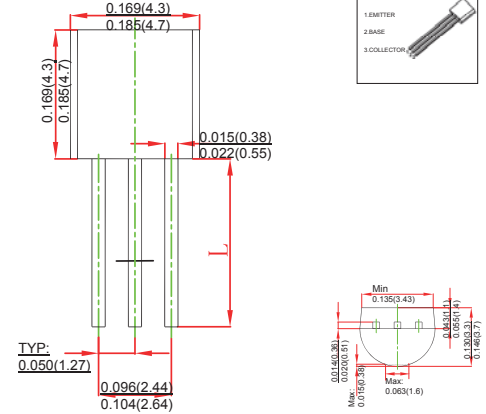
### FEATURES

- General Purpose Amplifier Transistor
- TRANSISTOR(PNP)

### MECHANICAL DATA

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

### TO-92



## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	-40	V
$V_{CEO}$	Collector-Emitter Voltage	-40	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current -Continuous	-0.6	A
$P_D$	Collector Power Dissipation	625	mW
$R_{KJA}$	Thermal Resistance from Junction to Ambient	200	°C / W
$T_j$	Junction Temperature	150	°C
$T_{stg}$	Storage Temperature	-55~+150	°C

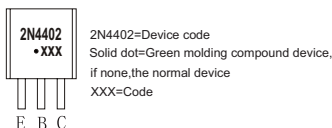
### ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
2N4402	TO-92	Bulk	1000pcs/Bag
2N4402-TA	TO-92	Tape	2000pcs/Box

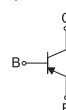
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -0.1mA, I_E = 0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1mA, I_B = 0$	-40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -0.1mA, I_C = 0$	-5			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = -40V, I_E = 0$			-0.1	μA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -4V, I_C = 0$			-0.1	μA
DC current gain	$h_{FE}$	$V_{CE} = -1V, I_C = -1mA$	30			
		$V_{CE} = -1V, I_C = -10mA$	50			
		$V_{CE} = -2V, I_C = -150mA$	50		150	
		$V_{CE} = -2V, I_C = -500mA$	20			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -150mA, I_B = -15mA$			-0.4	V
		$I_C = -500mA, I_B = -50mA$			-0.75	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -150mA, I_B = -15mA$	-0.75		-0.95	V
		$I_C = -500mA, I_B = -50mA$			-1.3	V
Collector output capacitance	$C_{ob}$	$V_{CB} = -10V, I_E = 0, f = 1MHz$			8.5	pF
Emitter input capacitance	$C_{ib}$	$V_{EB} = -0.5V, I_C = 0, f = 1MHz$			30	pF
Transition frequency	$f_T$	$V_{CE} = -10V, I_C = -20mA, f = 100MHz$	150			MHz

\*Pulse test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2.0\%$ .

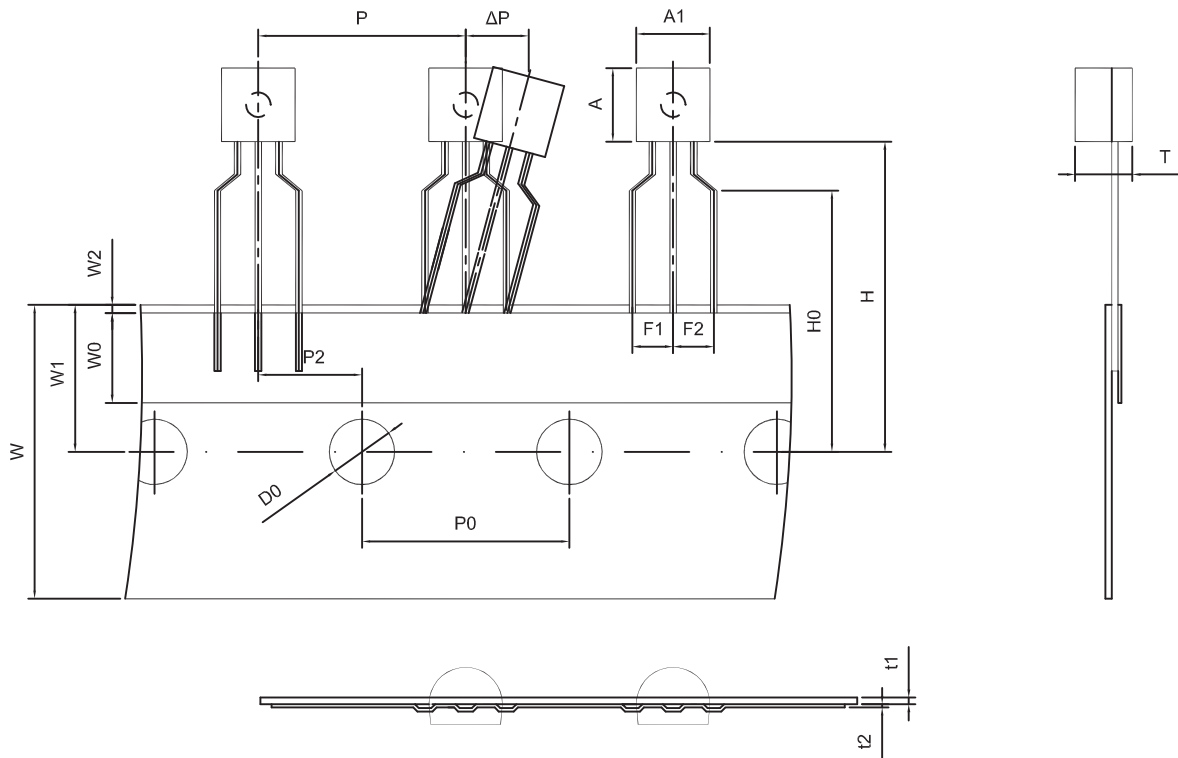
### MARKING



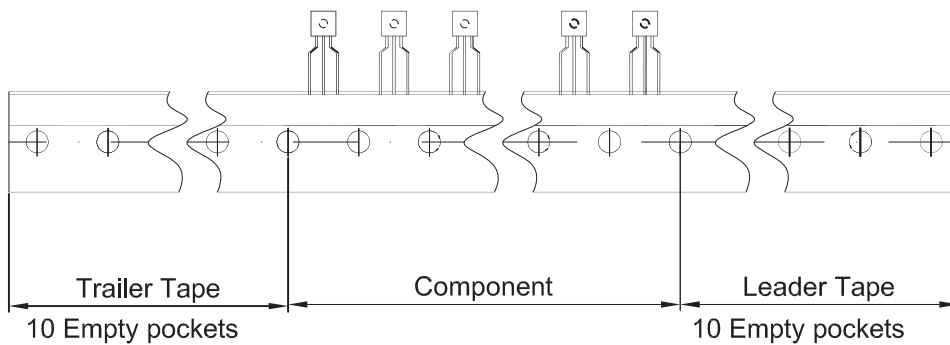
### Equivalent Circuit



TO-92 PACKAGE TAPEING DIMENSION



Dimensions are in millimeter								
A1	A	T	P	P0	P2	F1	F2	W
4.5	4.5	3.5	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 MAX.	19.0	16.0	4.0	0.4	0.2	0



Package	Box	Box Size(mm)	Carton	Carton Size(mm)
TO-92	2000 pcs	333×162×43	20,000 pcs	350×340×250