

TO-92 Plastic-Encapsulate Transistors

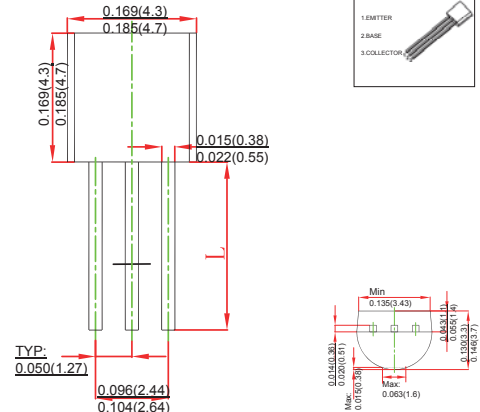
FEATURES

- General Purpose Amplifier Transistor
- TRANSISTOR (NPN)

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	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	3	V
I_C	Collector Current -Continuous	0.6	A
P_D	Collector Power Dissipation	625	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	200	°C/W
T_J	Junction Temperature	150	°C
T_{stg}	Storage Temperature	-55 to +150	°C

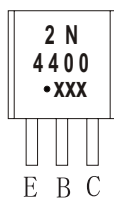
ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
2N4400	TO-92	Bulk	1000pcs/Bag
2N4400-TA	TO-92	Tape	2000pcs/Box

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 0.1mA, I_E = 0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1mA, I_B = 0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 0.1mA, I_C = 0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB} = 60V, I_E = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 6V, I_C = 0$			0.1	μA
DC current gain	h_{FE}^*	$V_{CE} = 1V, I_C = 1mA$	20			
		$V_{CE} = 1V, I_C = 10mA$	40			
		$V_{CE} = 1V, I_C = 150mA$	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	
Base-emitter saturation voltage	$V_{BE(sat)}^*$	$I_C = 150mA, I_B = 15mA$	0.75		0.95	
		$I_C = 500mA, I_B = 50mA$			1.2	V
Collector output capacitance	C_{ob}	$V_{CB} = 5V, I_E = 0, f = 1MHz$			6.5	pF
Emitter input capacitance	C_{ib}	$V_{EB} = 5V, I_C = 0, f = 1MHz$			30	p
Transition frequency	f_T	$V_{CE} = 10V, I_C = 20mA, f = 100MHz$	200			MHz

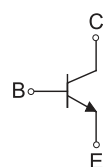
*Pulse test: pulse width $\leq 300\mu s$, duty cycles $\leq 2.0\%$.

MARKING

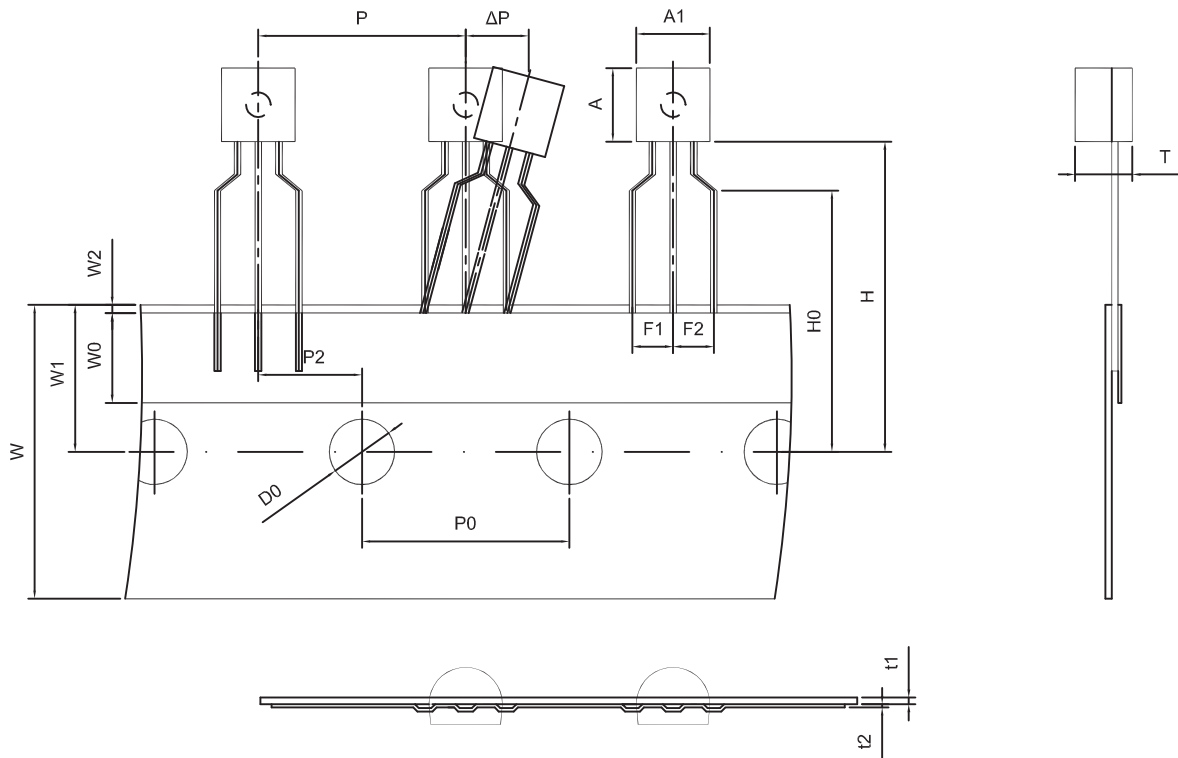


2N4400=Device code
 Solid dot=Green molding compound device,
 if none, the normal device
 XXX=Code

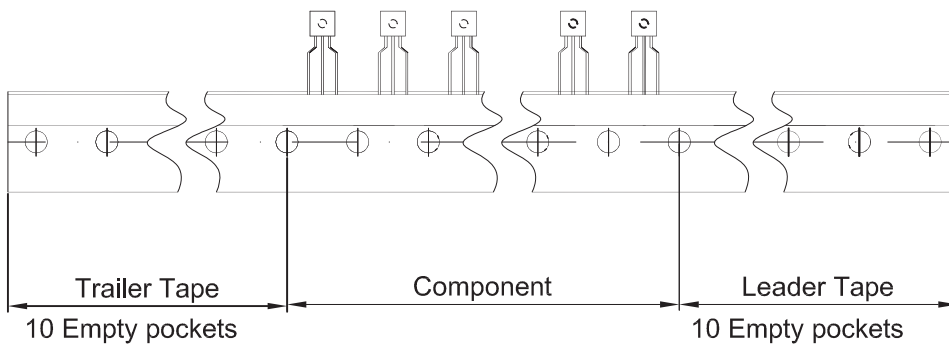
Equivalent Circuit



TO-92 PACKAGE TAPEING DIMENSION



Dimiensions 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