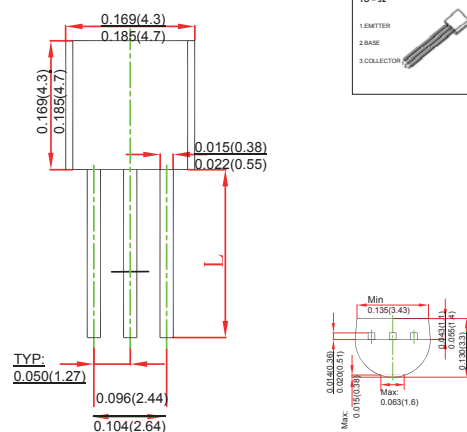


## TO-92 Plastic-Encapsulate Transistors

### FEATURES

- Power dissipation
- TRANSISTOR (NPN)

### TO-92



### MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

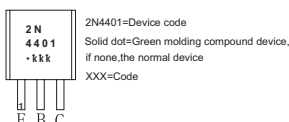
Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{CEO}$	Collector-Emitter Voltage	40	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current -Continuous	600	mA
$P_C$	Collector Power dissipation	0.625	W
$T_J$	Junction Temperature	150	°C
$T_{stg}$	Storage Temperature	-55 ~ +150	°C
$R_{\theta JA}$	Thermal Resistance, junction to Ambient	357	°C/mW

### ORDERING INFORMATION

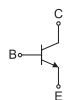
Part Number	Package	Packing Method	Pack Quantity
2N4401	TO-92	Bulk	1000pcs/Bag
2N4401-TA	TO-92	Tape	2000pcs/Box

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	60		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	6		V
Collector cut-off current	$I_{CBO}$	$V_{CB}=35V, I_E=0$		0.1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5V, I_C=0$		0.1	$\mu A$
DC current gain	$h_{FE(1)}$	$V_{CE}=1V, I_C=0.1mA$	20		
	$h_{FE(2)}$	$V_{CE}=1V, I_C=1mA$	40		
	$h_{FE(3)}$	$V_{CE}=1V, I_C=10mA$	80		
	$h_{FE(4)}$	$V_{CE}=1V, I_C=150mA$	100	300	
	$h_{FE(5)}$	$V_{CE}=2V, I_C=500mA$	40		
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=150mA, I_B=15mA$		0.4	V
	$V_{CE(sat)2}$	$I_C=500mA, I_B=50mA$		0.75	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C=150mA, I_B=15mA$		0.95	V
	$V_{BE(sat)2}$	$I_C=500mA, I_B=50mA$		1.2	V
Transition frequency	$f_T$	$V_{CE}=10V, I_C=20mA, f=100MHz$	250		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0, f=100KHz$		6.5	pF
Delay time	$t_d$	$V_{CC}=30V, V_{BE(OFF)}=2V$		15	ns
Rise time	$t_r$	$I_C=150mA, I_{B1}=15mA$		20	ns
Storage time	$t_s$	$V_{CC}=30V, I_C=150mA$		225	ns
Fall time	$t_f$	$I_{B1}=-I_{B2}=15mA$		30	ns

### MARKING

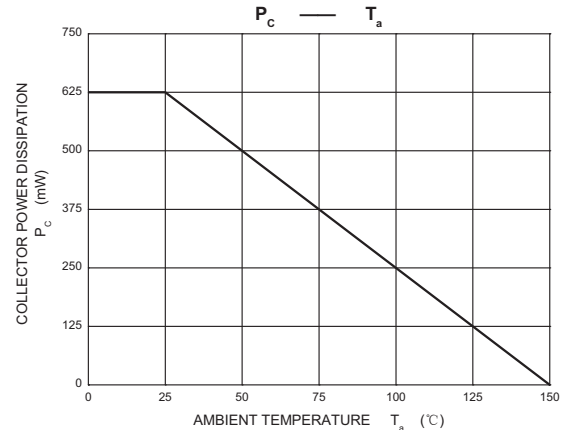
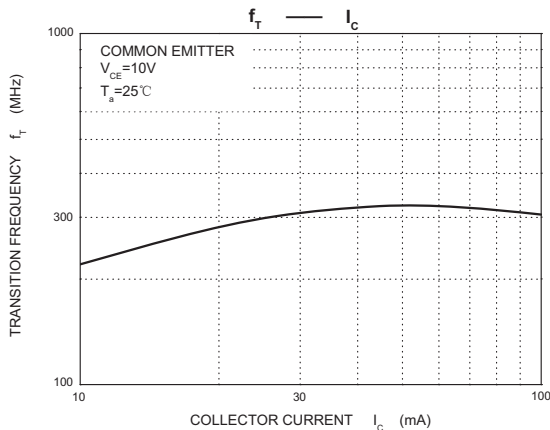
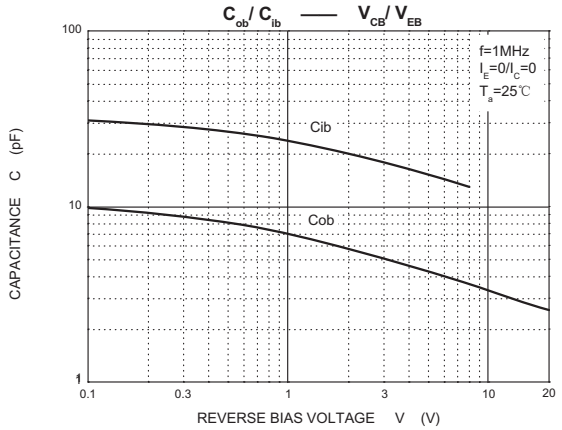
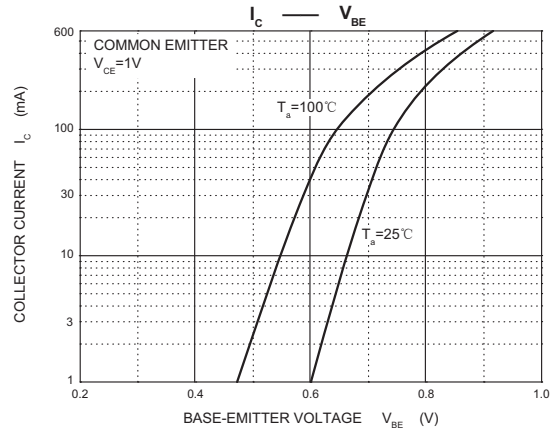
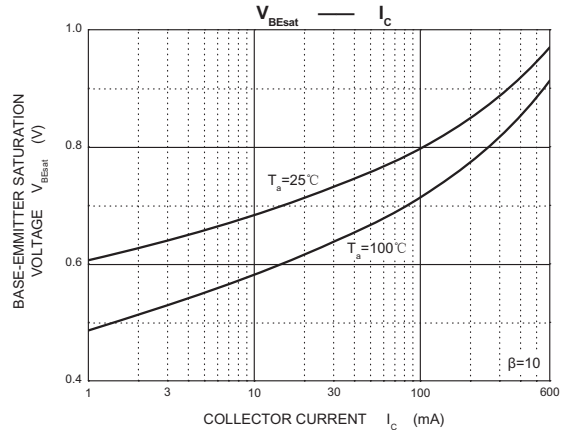
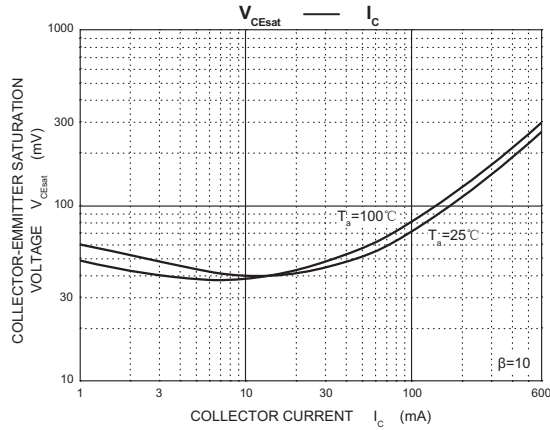
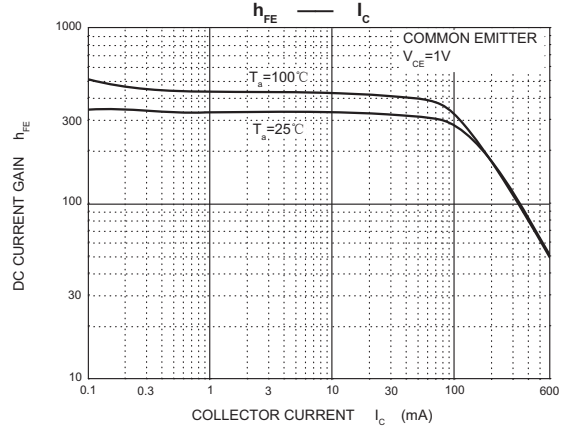
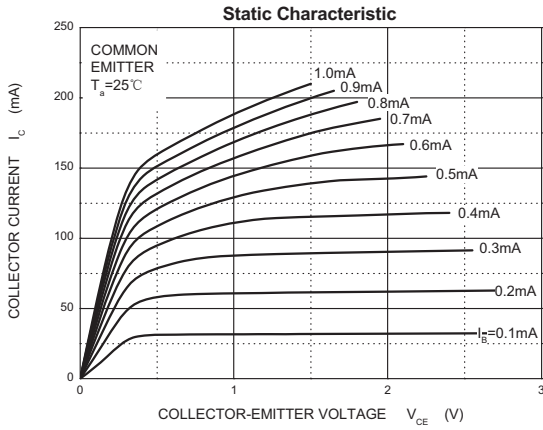


### Equivalent Circuit

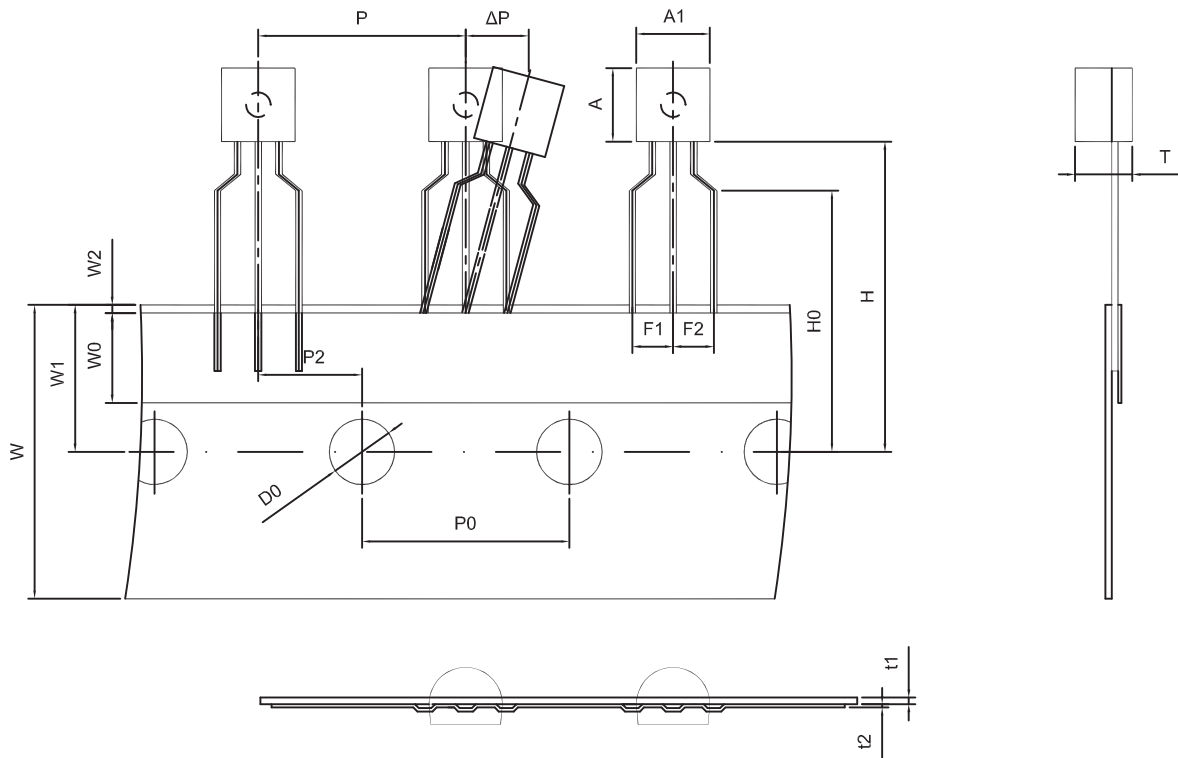


# RATINGS AND CHARACTERISTIC CURVES

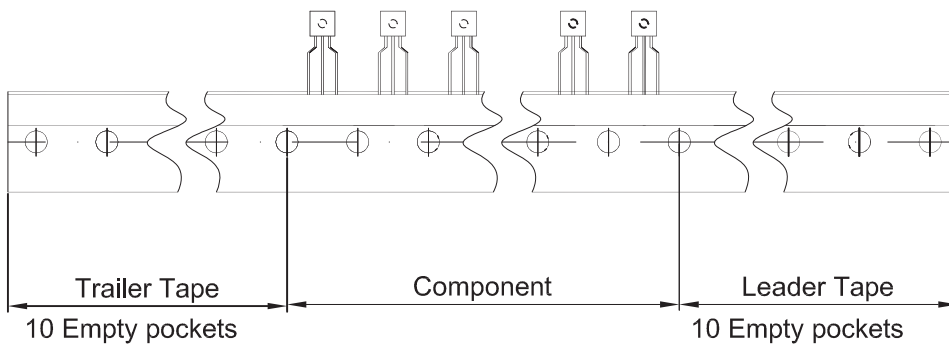
Typical Characteristics



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