REPLACEMENT TYPE :2N4401

FEATURES

- Power Dissipation

TO-92

1:EMITTER 2:BASE 3:COLLECTOR

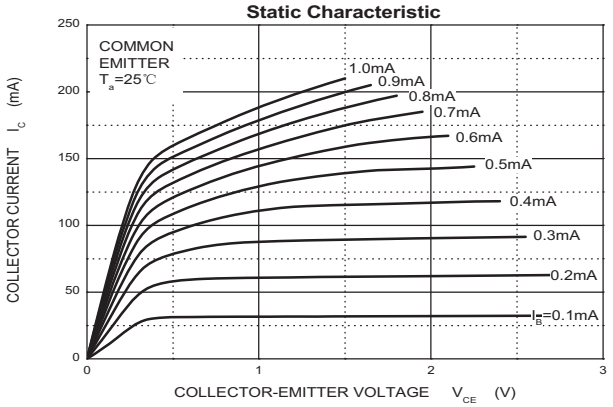
MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

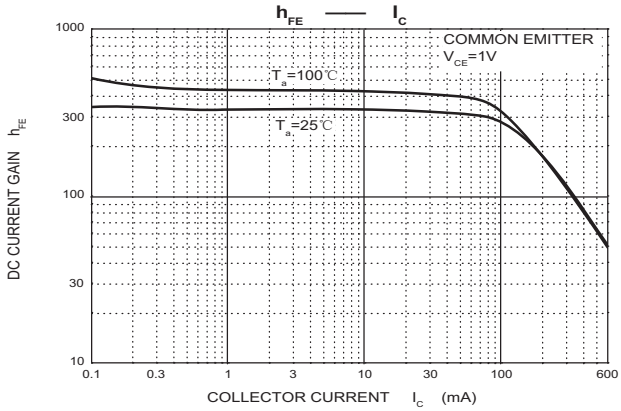
Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current-Continuous	I_C	600	mA
Collector Power Dissipation	P_C	0.625	W
Junction Temperature	T_J	150	°C/
Thermal Resistance From Junction to Ambient	$R_{\theta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

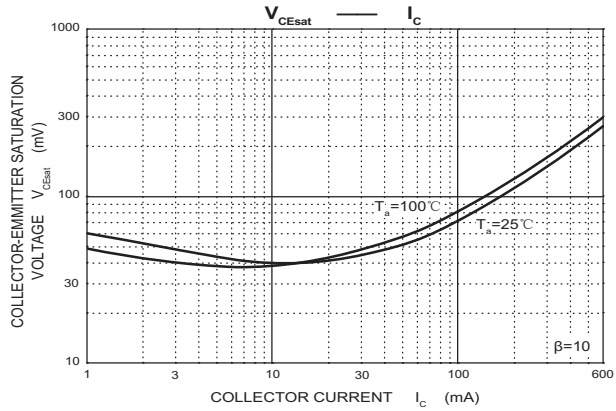
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

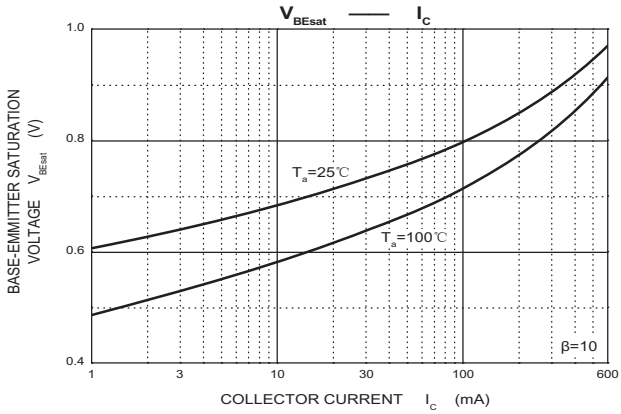
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	V_{CBO}	I_C=100μA, I_E=0	60			V
Collector-Emitter Breakdown Voltage	V_{CEO}	I_C=1mA, I_B=0	40			V
Emitter-Base Breakdown Voltage	V_{EBO}	I_E=100μA , I_C=0	6			V
Collector Cut-off Current	I_{CBO}	V_{CB}=35V , I_E=0			0.1	uA
Emitter Cut-off Current	I_{EBO}	V_{EB}=5V , I_C=0			0.1	uA
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
Collector Output Capacitance	C_{OB}	V_{CB}=10V,I_E=0, f=100MHz			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

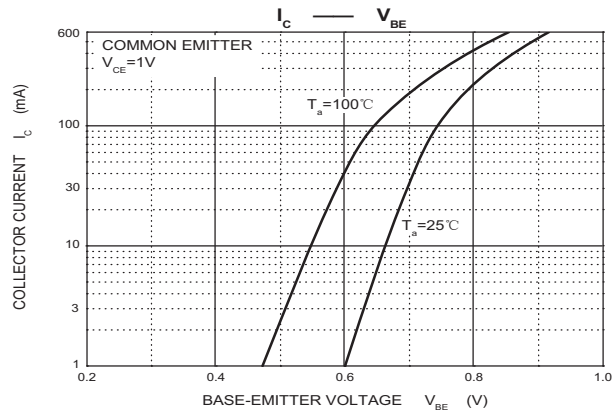
Typical Characteristics

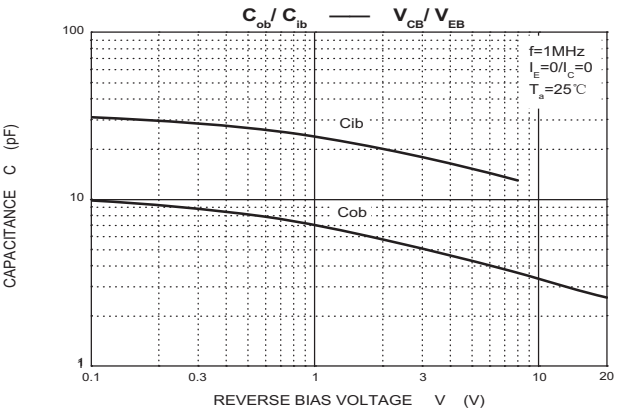


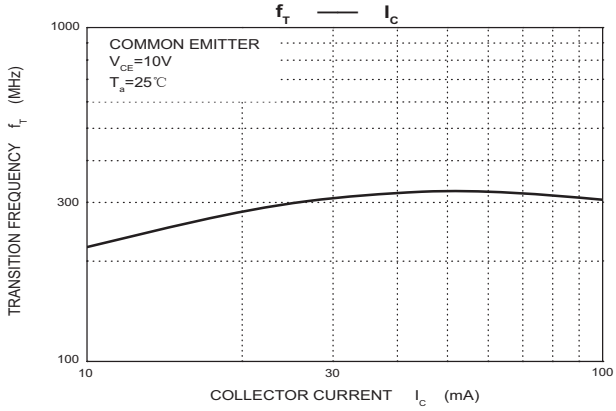


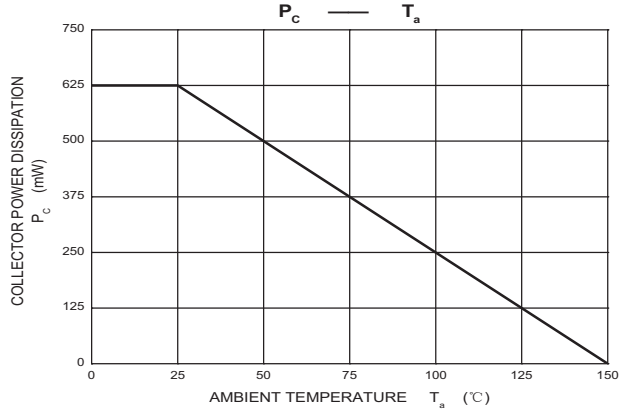




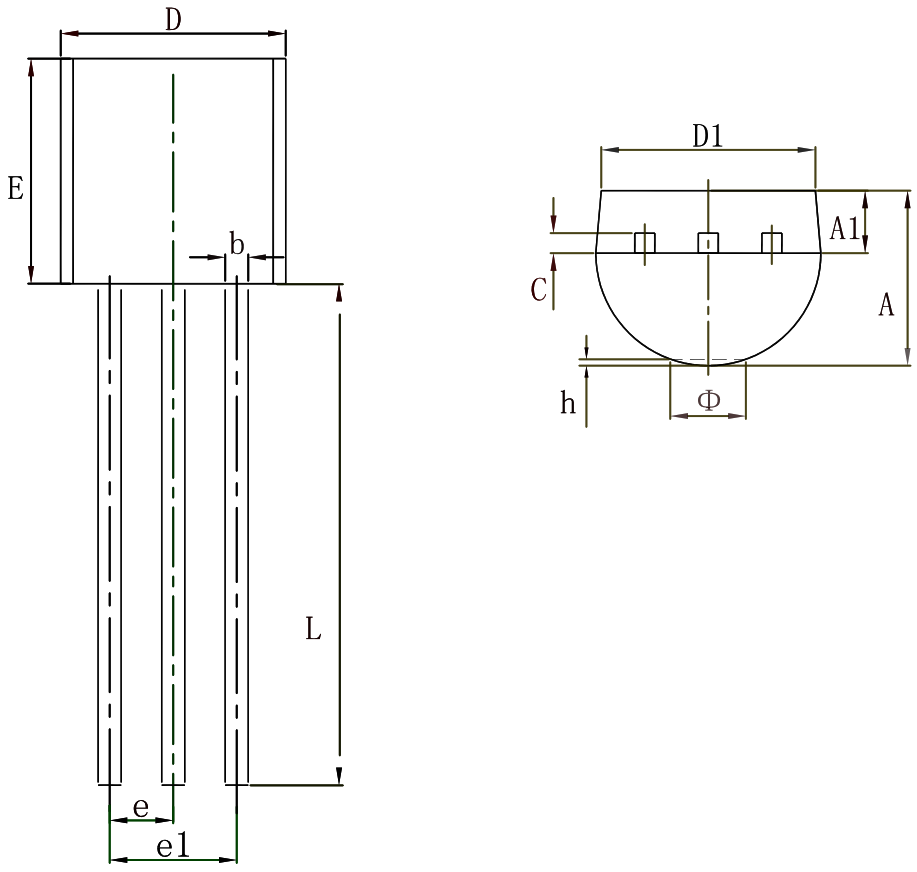






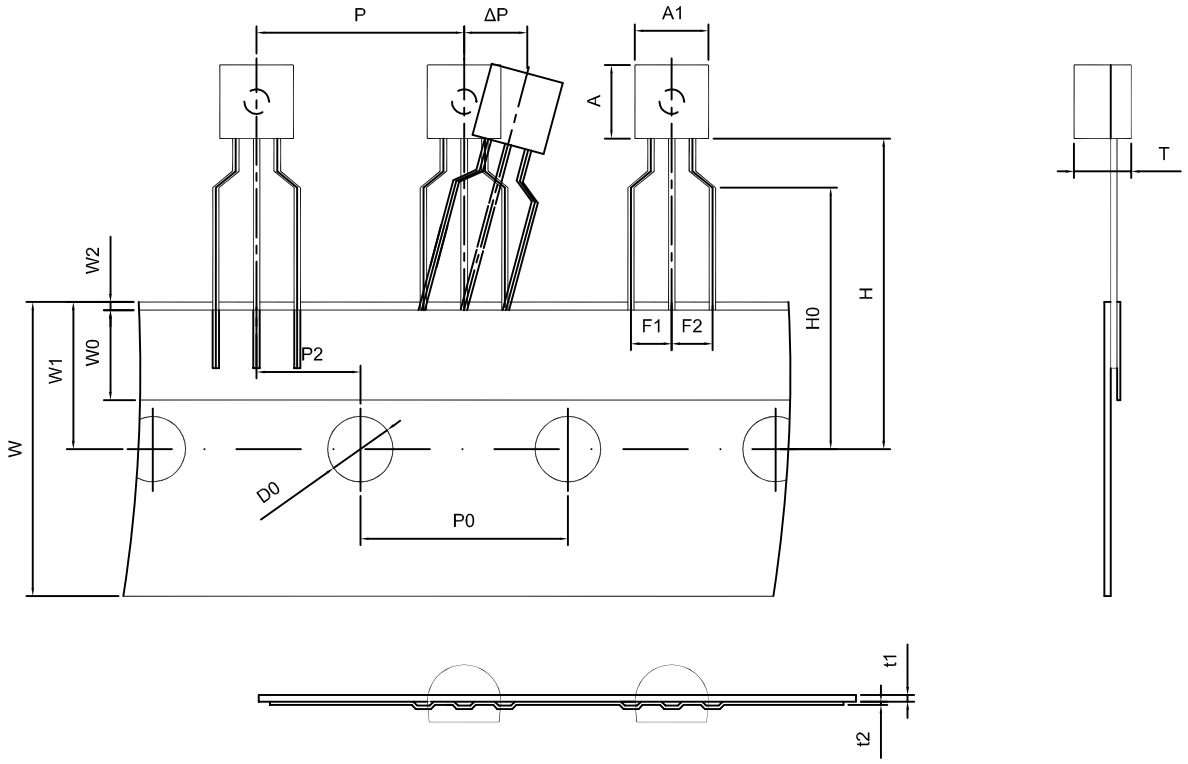


TO-92 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP.		0.050 TYP.	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

TO-92 Package Tapeing Dimension



Dimiensions are in millimeter								
A1	A	T	P	P0	P2	F1	F2	W
4.5±0.2	4.5±0.2	3.5±0.2	12.7±0.3	12.7±0.2	6.35±0.3	2.5±0.3	2.5±0.3	18.0+1.0/-0.5
W0	W1	W2	H	H0	D0	t1	t2	ΔP
6.0±0.5	9.0±0.5	1.0 MAX.	19.0±1.0	16.0±0.5	4.0±0.5	0.4±0.05	0.2±0.05	0 ± 1.0