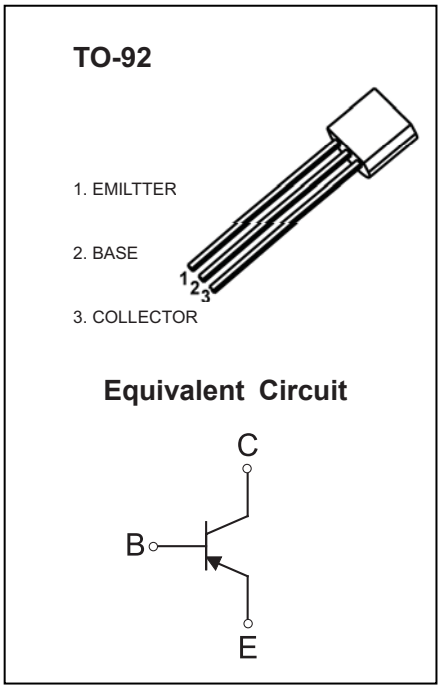
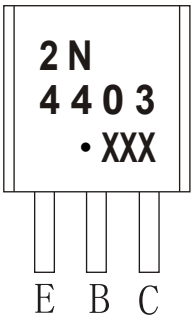
TO-92 Plastic-Encapsulate Transistors



FEATURES

Power dissipation

MARKING



ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
2N4403	TO-92	Bulk	1000pcs/Bag

MAXIMUM RATINGS (T_a=25 ℃ 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 Currnet -Continuous	-600	mA
P_C	Collector Power dissipation	0.625	W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55 +150	℃
$R_{\Theta JA}$	Thermal Resistance, junction to Ambient	200	℃/W

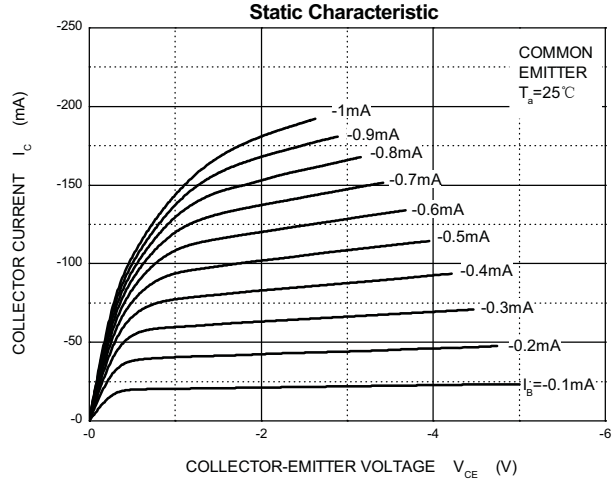
ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

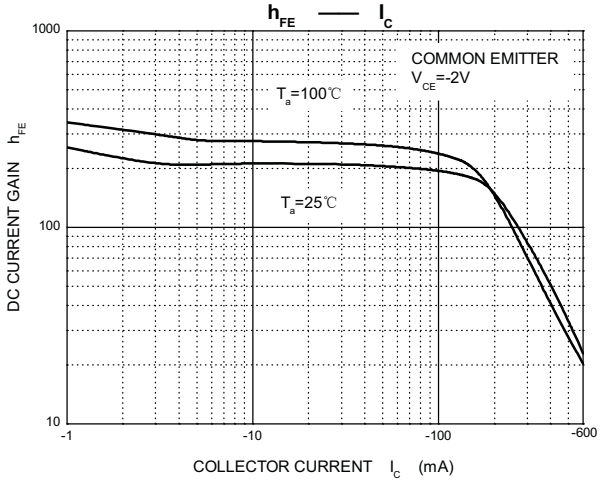
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=-100μA,I_E=0	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=-1mA,I_B=0	-40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=-100μA,I_C=0	-5			V
Collector cut-off current	I_{CBO}	V_{CB}=-35V,I_E=0			-100	nA
Emitter cut-off current	I_{EBO}	V_{EB}=-5V,I_C=0			-100	nA
DC current gain	$h_{FE(1)}$	V_{CE}=-1V,I_C=-0.1mA	30			
	$h_{FE(2)}$	V_{CE}=-1V,I_C=-1mA	60			
	$h_{FE(3)}$	V_{CE}=-1V,I_C=-10mA	100			
	$h_{FE(4)}$	V_{CE}=-2V,I_C=-150mA	100		300	
	$h_{FE(5)}$	V_{CE}=-2V,I_C=-500mA	20			
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	-0.75		-0.95	V
	$V_{BE(sat)2}$	I_C=-500mA,I_B=-50mA			-1.3	V
Transition frequency	f_T	V_{CE}=-10V,I_C=-20mA,f=100MHz	200			MHz
Collector capacitance	C_{ob}	V_{CB}=-10V,I_E=0,f=100KHz			8.5	pF
Delay time	t_d	V_{CC}=-30V, I_C=-150mA I_{B1}=- I_{B2}=-15mA			15	ns
Rise time	t_r				20	ns
Storage time	t_S				225	ns
Fall time	t_f				30	ns

Typical Characteristics

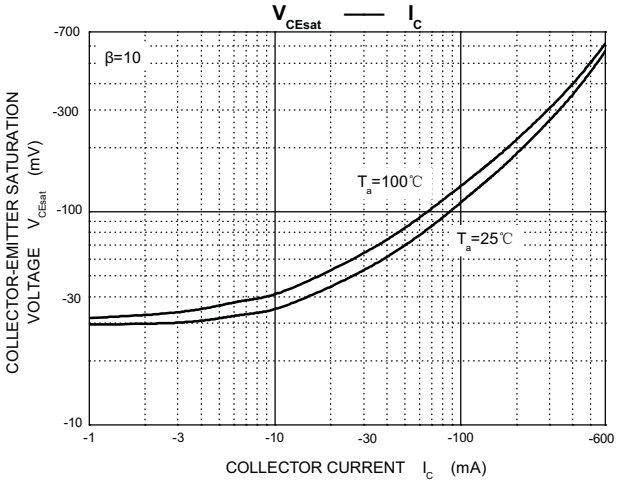
Static Characteristic



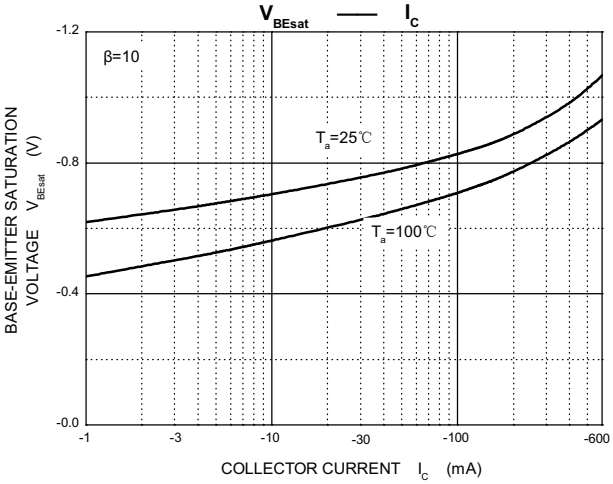
h_{FE} — I_C



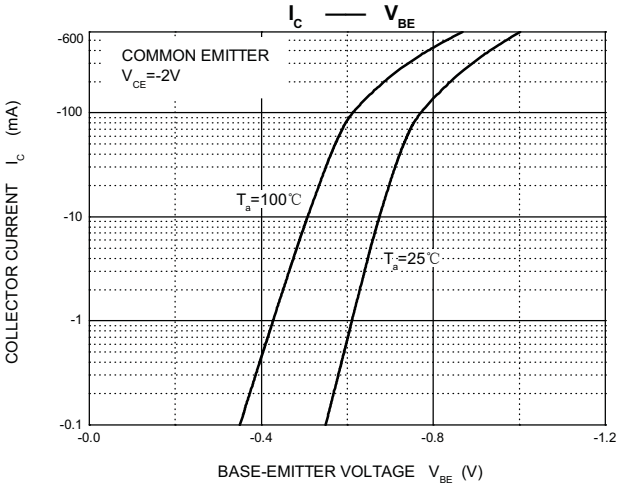
V_{CEsat} — I_C



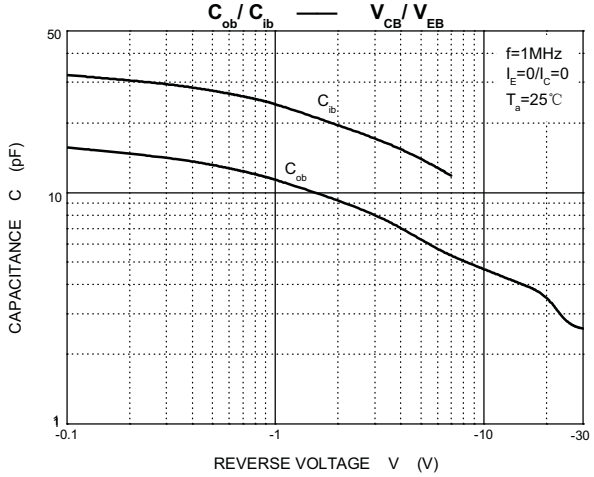
V_{BEsat} — I_C



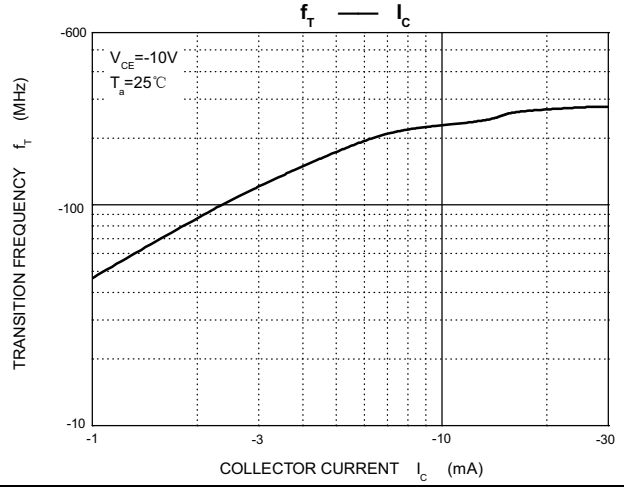
I_C — V_{BE}



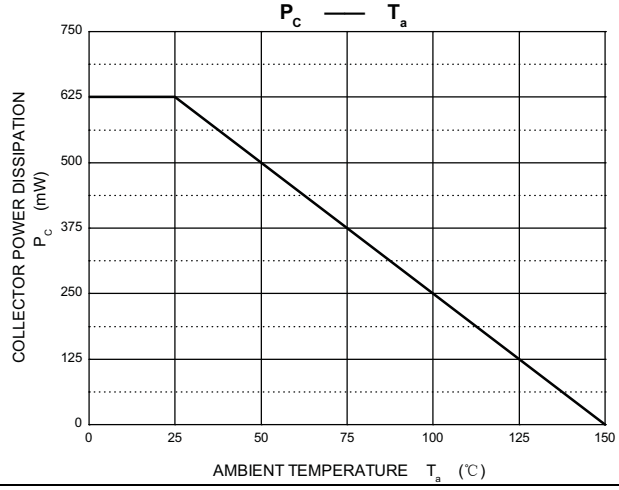
C_{ob} / C_{ib} — V_{CB} / V_{EB}



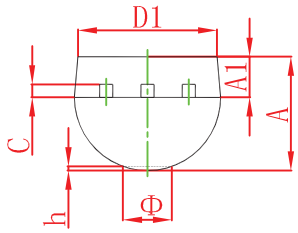
f_T — I_C

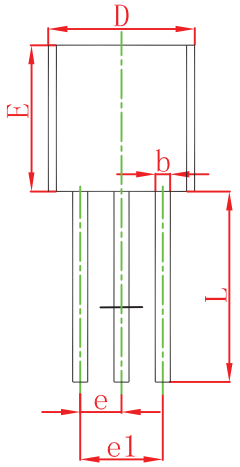


P_C — T_a



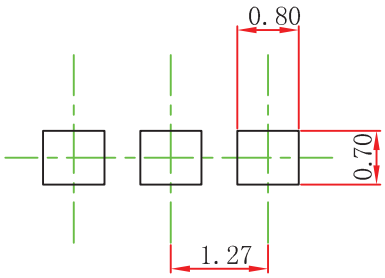
TO-92 Package Outline Dimensions





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 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.