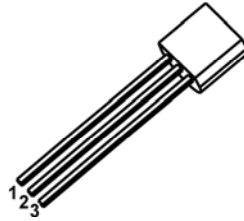


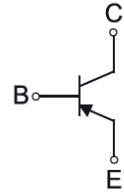
Features

- PNP transistor in TO-92 package with excellent power dissipation

1. EMILTTER
 2. BASE
 3. COLLECTOR



TO-92



Schematic Diagram

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current-Continuous	I_C	-600	mA
Collector Power Dissipation	P_C	0.625	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	$^{\circ}\text{C}/\text{W}$
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-100\mu\text{A}, I_E=0$	-40	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, I_B=0$	-40	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-100\mu\text{A}, I_C=0$	-5	-	-	V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=-35\text{V}, I_E=0$	-	-	-100	nA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=-5\text{V}, I_C=0$	-	-	-100	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=-1\text{V}, I_C=-0.1\text{mA}$	30	-	-	-
	$h_{FE(2)}$	$V_{CE}=-1\text{V}, I_C=-1\text{mA}$	60	-	-	
	$h_{FE(3)}$	$V_{CE}=-1\text{V}, I_C=-10\text{mA}$	100	-	-	
	$h_{FE(4)}$	$V_{CE}=-2\text{V}, I_C=-150\text{mA}$	100	-	300	
	$h_{FE(5)}$	$V_{CE}=-2\text{V}, I_C=-500\text{mA}$	20	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=-150\text{mA}, I_B=-15\text{mA}$	-	-	-0.4	V
	$V_{CE(sat)2}$	$I_C=-500\text{mA}, I_B=-50\text{mA}$	-	-	-0.75	V
Base-Emitter Saturation Voltage	$V_{BE(sat)1}$	$I_C=-150\text{mA}, I_B=-15\text{mA}$	-0.75	-	-0.95	V
	$V_{BE(sat)2}$	$I_C=-500\text{mA}, I_B=-50\text{mA}$	-	-	-1.3	V
Transition Frequency	f_T	$V_{CE}=-10\text{V}, I_C=-20\text{mA}, F=100\text{MHz}$	200	-	-	MHz
Output Capacitance	C_{ob}	$V_{CB}=-10\text{V}, I_E=0, F=100\text{KHz}$	-	-	8.5	pF
Delay time	t_d	$V_{CC}=-30\text{V}, I_C=-150\text{mA}, I_{B1}=-I_{B2}=-15\text{mA}$	-	-	15	nS
Rise Time	t_r		-	-	20	nS
Storage Time	t_s		-	-	225	nS
Fall Time	t_f		-	-	30	nS

Typical Characteristic Curves

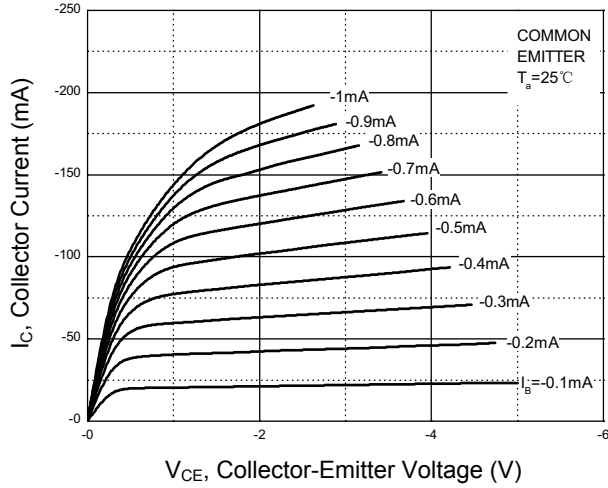


Figure 1. Static Characteristic

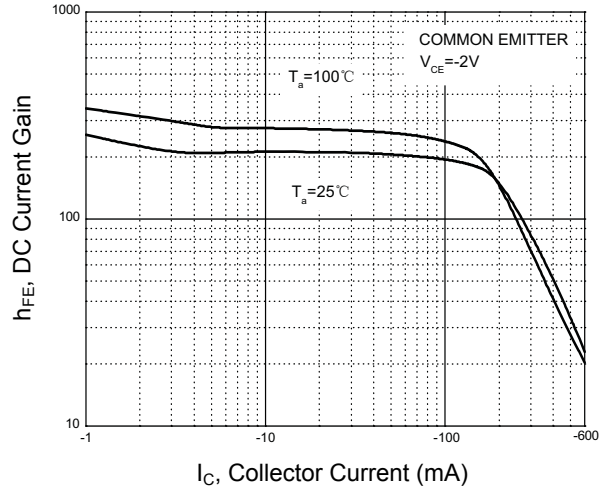


Figure 2. $h_{FE} - I_C$

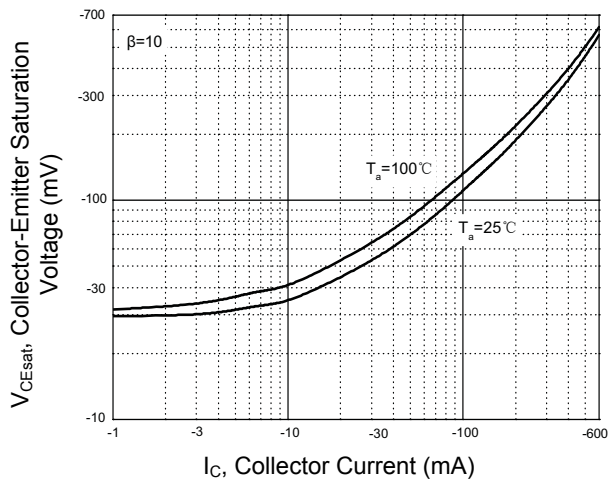


Figure 3. $V_{CEsat} - I_C$

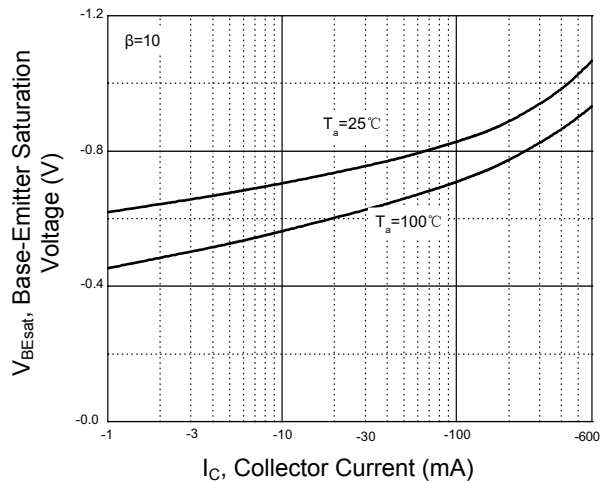


Figure 4. $V_{BEsat} - I_C$

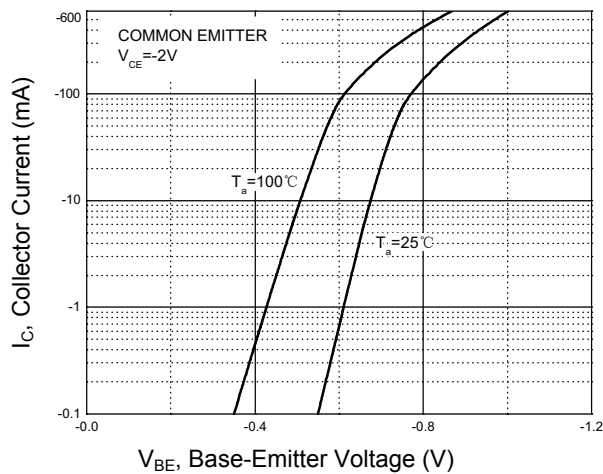


Figure 5. $I_C - V_{BE}$

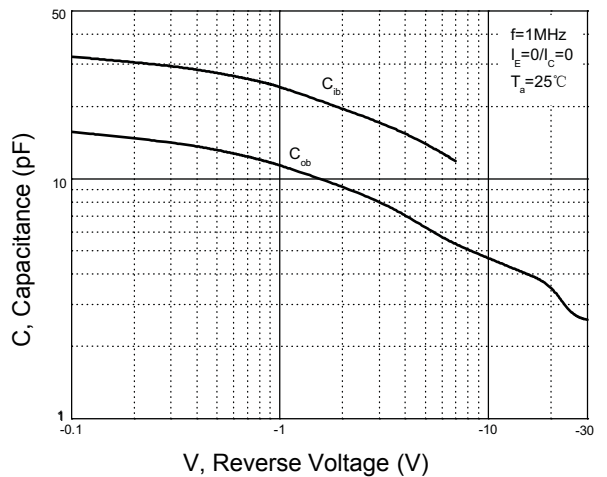


Figure 6. $C_{ob}/C_{ib} - V_{CB}/V_{EB}$

Typical Characteristic Curves

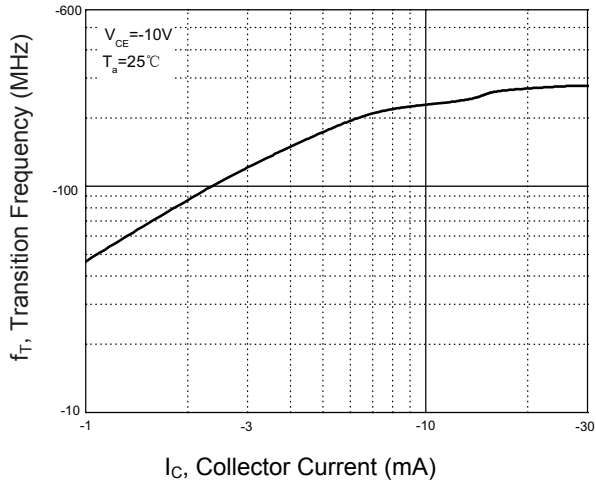


Figure 7. $f_T - I_C$

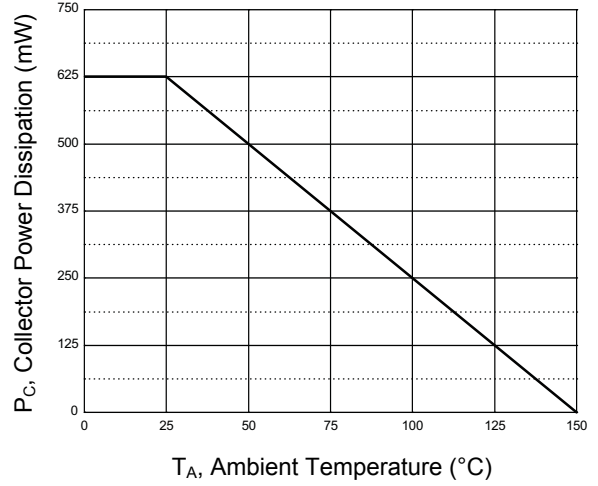
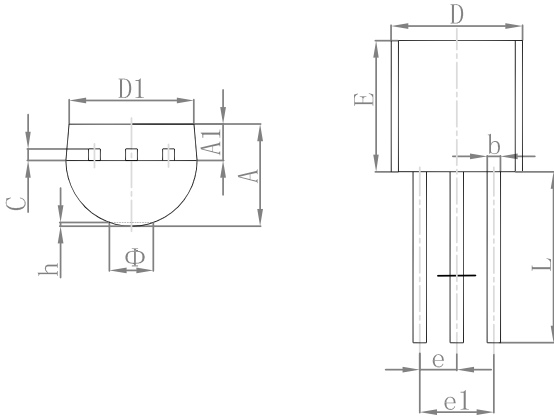


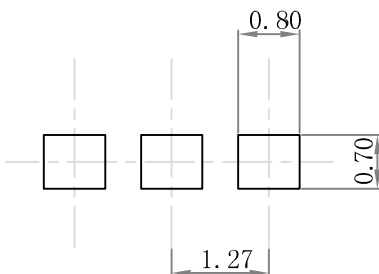
Figure 8. $P_C - T_a$

Package Outline Dimensions (TO-92)



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

Recommended Pad Layout



Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

Order Information

Device	Package	Marking	Quantity	HSF Status
2N4403	TO-92	2N4403	2,000pcs / Box	RoHS Compliant