



TO-92 Plastic-Encapsulate Transistors

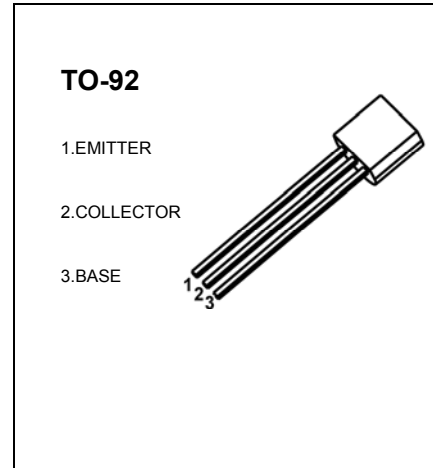
C1815 TRANSISTOR (NPN)

FEATURES

Power dissipation

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

Symbol	Parameter	Value	Unit
V _{CB0}	Collector-Base Voltage	60	V
V _{CEO}	Collector-Emitter Voltage	50	V
V _{EBO}	Emitter-Base Voltage	5	V
I _C	Collector Current -Continuous	150	mA
P _C	Collector Power Dissipation	400	mW
R _{θJA}	Thermal Resistance from Junction to Ambient	312	°C/W
T _j	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55~+150	°C



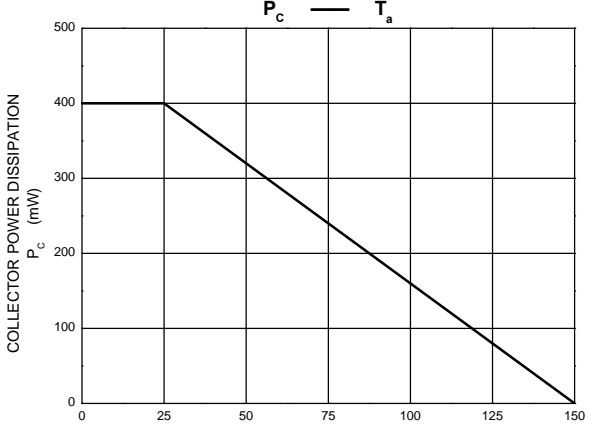
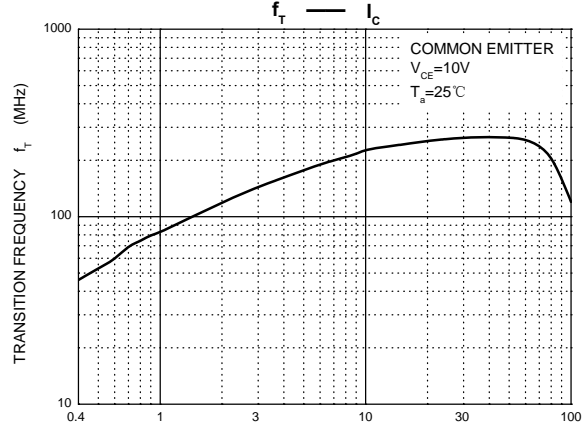
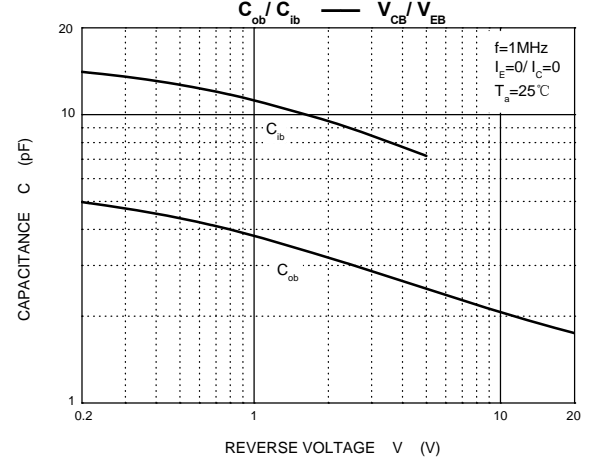
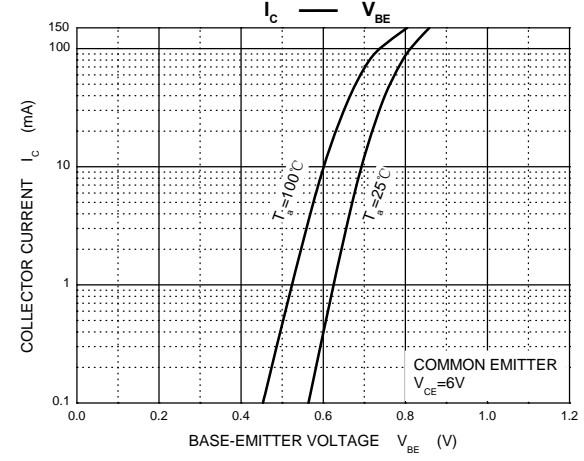
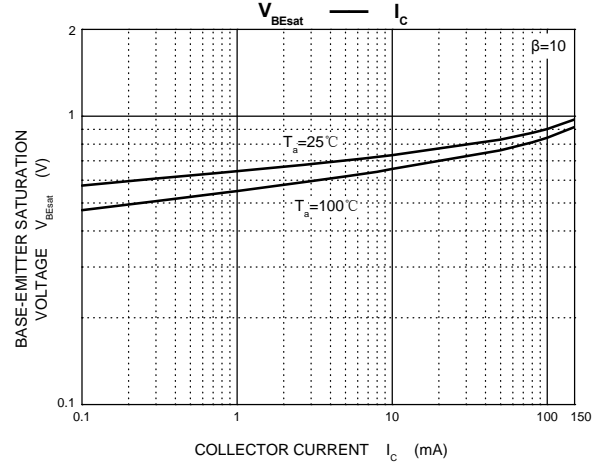
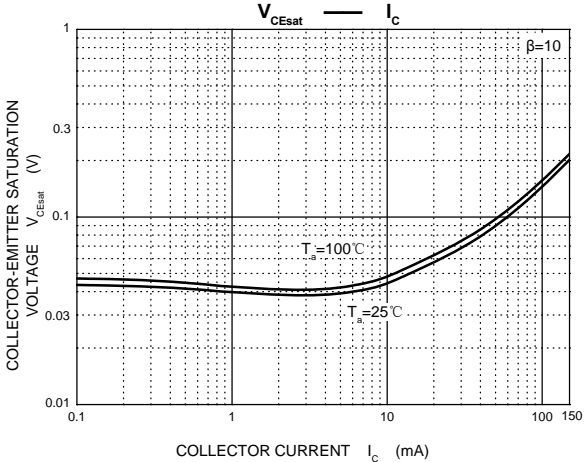
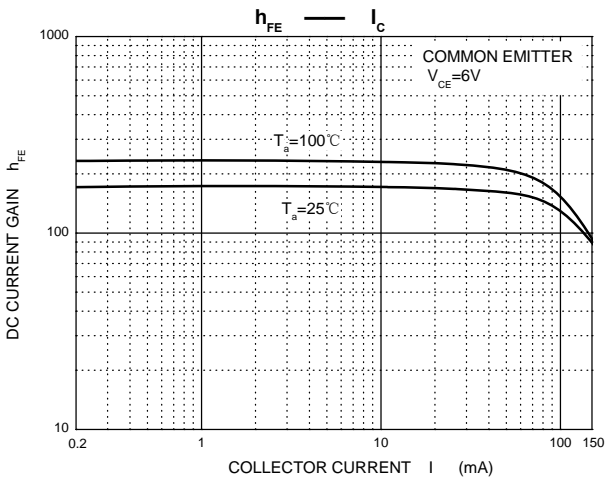
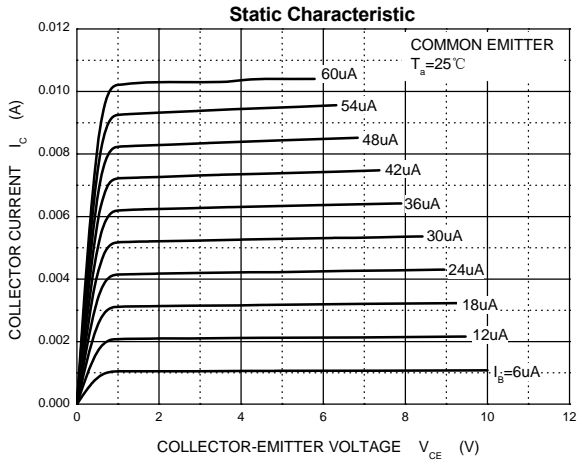
ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V _{(BR)CBO}	I _C = 100uA, I _E =0	60			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C = 0. 1mA, I _B =0	50			V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E = 100uA, I _C =0	5			V
Collector cut-off current	I _{CBO}	V _{CB} = 60V, I _E =0			0.1	uA
Collector cut-off current	I _{CEO}	V _{CE} = 50V, I _B =0			0.1	uA
Emitter cut-off current	I _{EBO}	V _{EB} =5V, I _C =0			0.1	uA
DC current gain	h _{FE}	V _{CE} = 6 V, I _C = 2mA	70		700	
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =100mA, I _B =10mA			0.25	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C =100mA, I _B =10mA			1	V
Transition frequency	f _T	V _{CE} =10 V, I _C = 1mA f=30MHz	80			MHz
Collector Output Capacitance	C _{ob}	V _{CB} =10V, I _E =0 f=1MHz			3.5	pF
Noise Figure	NF	V _{CE} =6V, I _C =0.1mA f =1KHz, R _G =10K			10	dB

CLASSIFICATION OF h_{FE}

Rank	O	Y	GR	BL
Range	70-140	120-240	200-400	350-700

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 Suggested Pad Layout



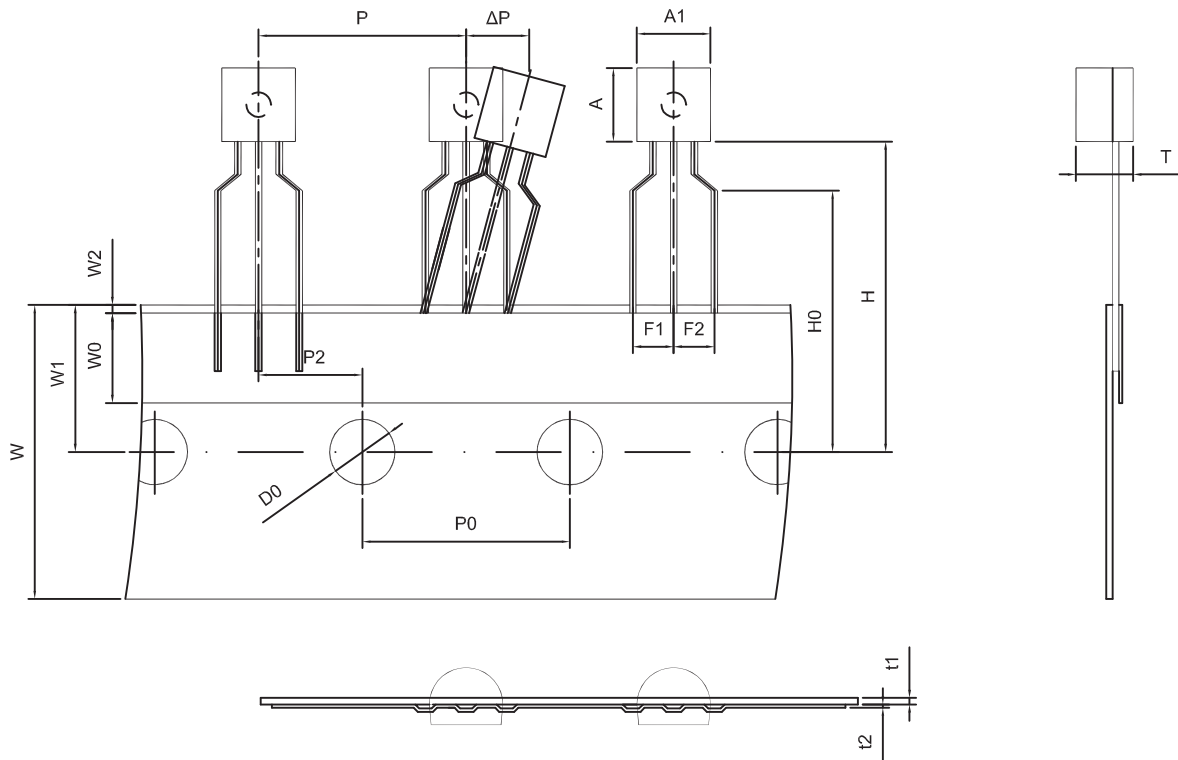
Note:

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

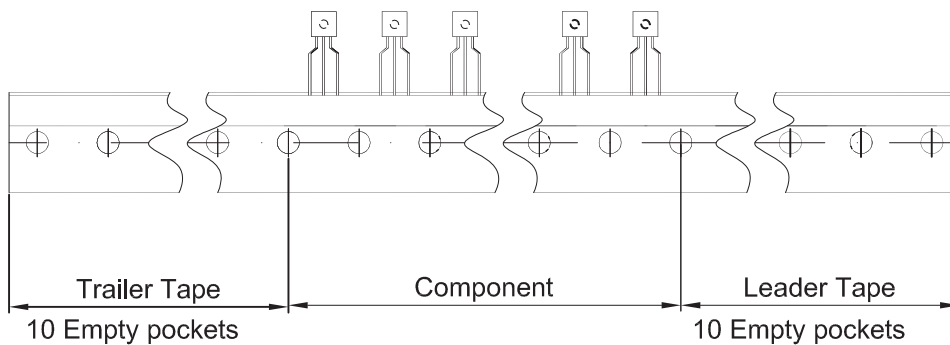
NOTICE

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TO-92 PACKAGE TAPING 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