

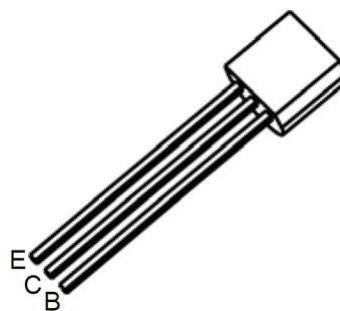
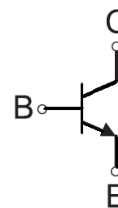
NPN TRANSISTOR

FEATURES

- General purpose switching and amplification
- Complementary to BC640

MECHANICAL DATA

- Case: TO-92
- Case material: Molded plastic. UL flammability 94V-0
- Terminals: Tin plated, solderable per MIL-STD-202, method 208
- Weight: 2.30grams(approximate)


TO-92

Equivalent circuit

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

Parameter		Symbol	Value	Unit
Collector-emitter voltage	BC639	V _{CBO}	100	V
Collector-emitter voltage	BC639	V _{CEO}	100	V
Emitter-base voltage		V _{EBO}	5	V
Collector current -continuous		I _C	1	A
Collector power dissipation		P _C	0.83	W
Junction temperature		T _J	150	°C
Storage temperature		T _{STG}	-65 ~ 150	°C

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

Parameter		Symbol	Min	Max	Unit	Conditions
Collector-base breakdown voltage	BC639	V _{(BR)CBO}	100		V	I _C =-100μA, I _E =0
Collector-emitter breakdown voltage	BC639	V _{(BR)CEO}	80		V	I _C =-10mA, I _B =0
Emitter-base breakdown voltage		V _{(BR)EBO}	5		V	I _E =-10 μA, I _C =0
Collector cut-off current		I _{CBO}		100	nA	V _{CB} =-30V, I _E =0
Emitter cut-off current		I _{EBO}		10	μA	V _{EB} =-5V, I _C =0
DC current gain		h _{FE} (1)	25			V _{CE} =-2V, I _C =-5mA
		h _{FE} (2)	100		250	V _{CE} =-2V, I _C =-150mA
		h _{FE} (3)	25			V _{CE} =-2V, I _C =-500mA
Collector-emitter saturation voltage		V _{CE(sat)}		0.5	V	I _C =-500mA, I _B =-50mA
Base-emitter voltage		V _{BE}		1	V	V _{CE} =-2V, I _C =-500mA
Transition frequency		f _T	100		MHz	V _{CE} =-5V, I _C =-10mA, f=50MHz

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TYPICAL CHARACTERISTICS

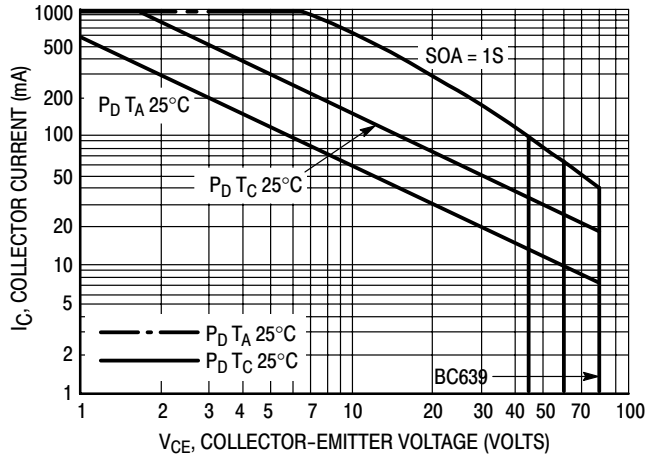


Figure 1. Active Region Safe Operating Area

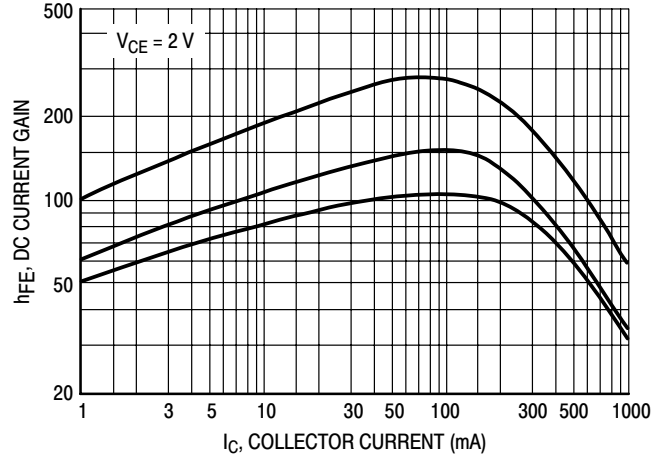


Figure 2. DC Current Gain

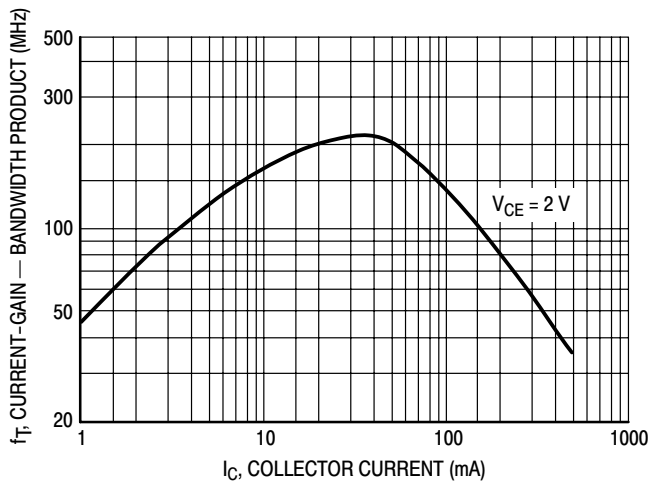


Figure 3. Current-Gain — Bandwidth Product

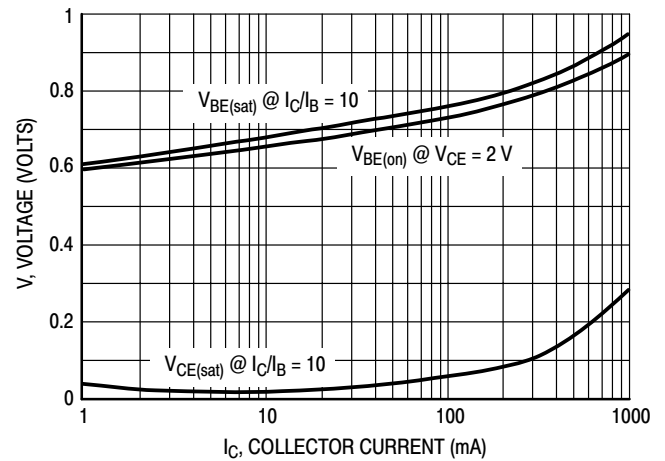


Figure 4. "Saturation" and "On" Voltages

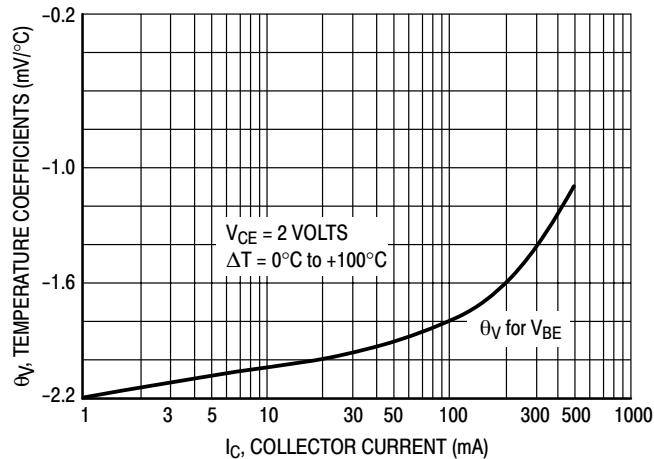
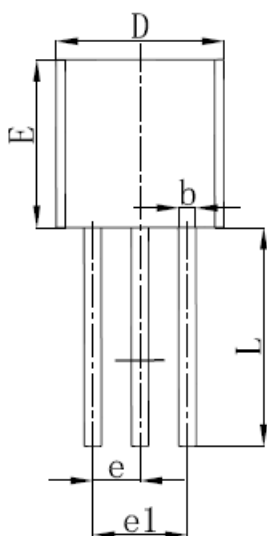
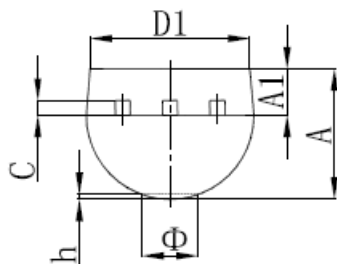


Figure 5. Temperature Coefficients

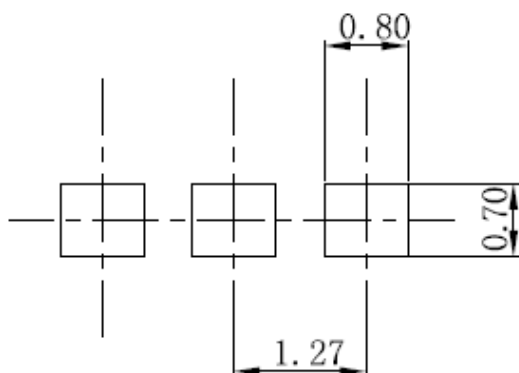
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TO-92 PACKAGE OUTLINE DIMENSIONS



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

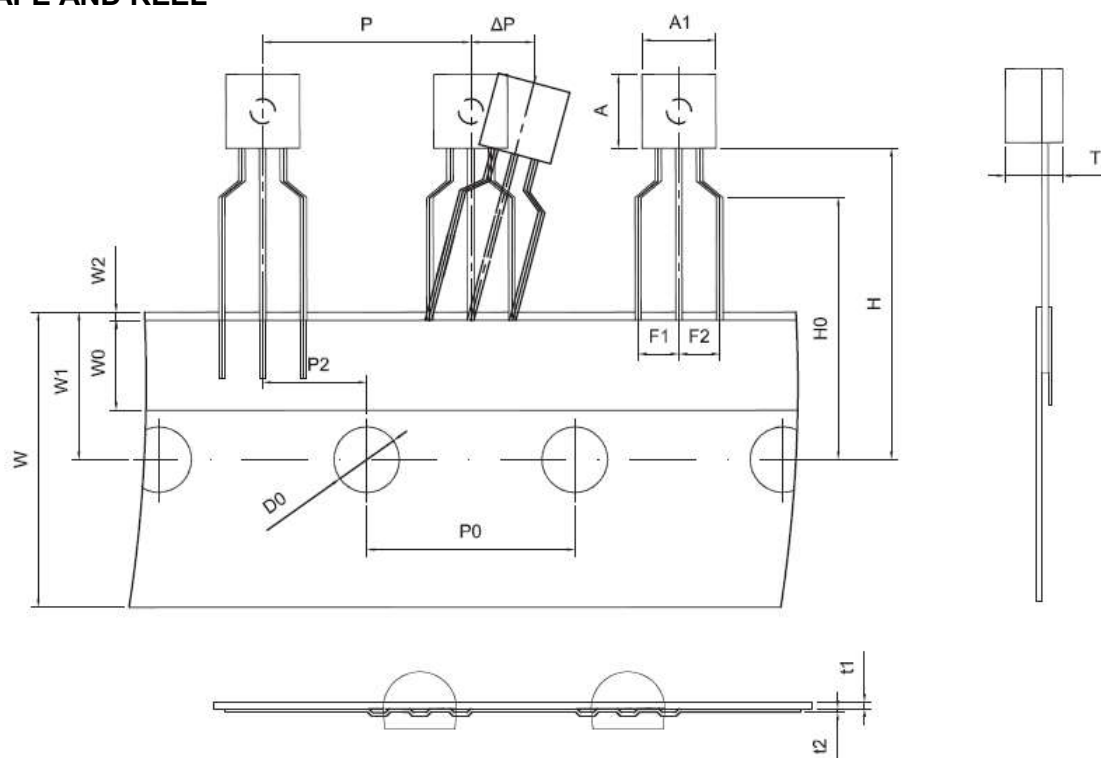


Note:

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

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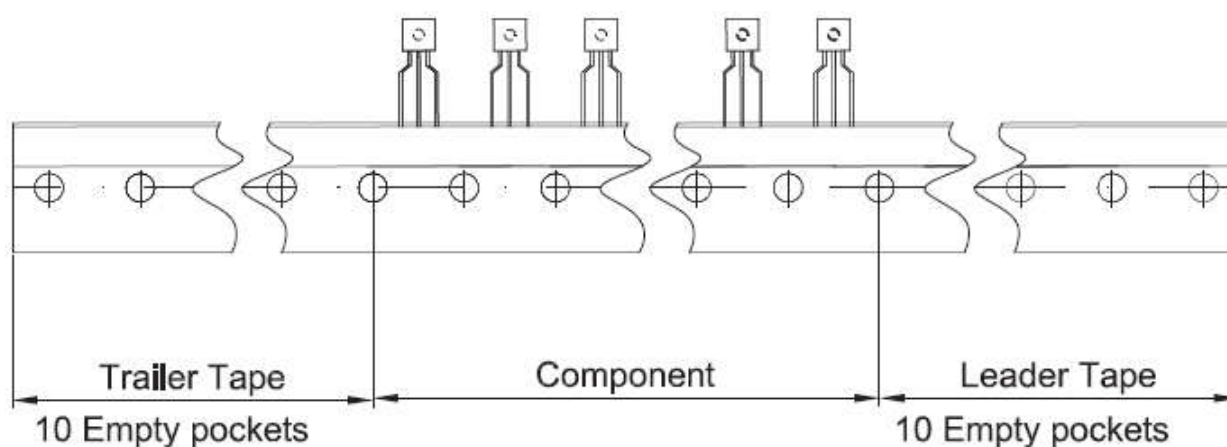
TO-92 TAPE AND REEL



Dimensions 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

TO-92 PACKAGE TAPING DIMENSION



Package	Box	Box size(mm)	Carton	Carton size(mm)
TO-92	2000pcs	333x162x43	20000pcs	350x340x250