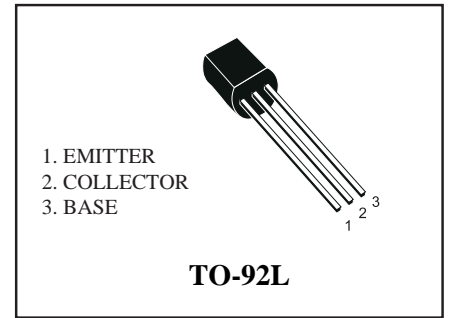


NPN Transistor
(Pb) Lead(Pb)-Free

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

Parameter	Symbol	value	Units
Collector-Base Voltage	V _{CB0}	30	V
Collector-Emitter Voltage	V _{CEO}	30	V
Emitter-Base Voltage	V _{EBO}	5	V
Collector Current -Continuous	I _C	2	A
Collector Power Dissipation	P _C	1	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55 to- +150	°C

ELECTRICAL CHARACTERISTICS (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYPE	MAX	UNIT
Collector-base breakdown voltage	V(BR) _{CBO}	I _C =100μA, I _E =0	30			V
Collector-emitter breakdown voltage	V(BR) _{CEO}	I _C = 10 mA, I _B =0	30			V
Emitter-base breakdown voltage	V(BR) _{EBO}	I _E =1mA, I _C =0	5			V
Collector cut-off current	I _{CBO}	V _{CB} = 30V, I _E =0			0.1	μ A
Emitter cut-off current	I _{EBO}	V _{EB} =5V, I _C =0			0.1	μ A
DC current gain	h _{FE}	V _{CE} =2V, I _C = 500mA	100		320	
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =1.5 A, I _B = 0.03A			2	V
Base-emitter voltage	V _{BE}	I _C = 500 mA, V _{CE} =2V			1	V
Transition frequency	f _T	V _{CE} =2 V, I _C =500mA		80		MHz

CLASSIFICATION OF h_{FE(1)}

Rank	O	Y
Range	100-200	160-320

Ratings and Characteristic Curves

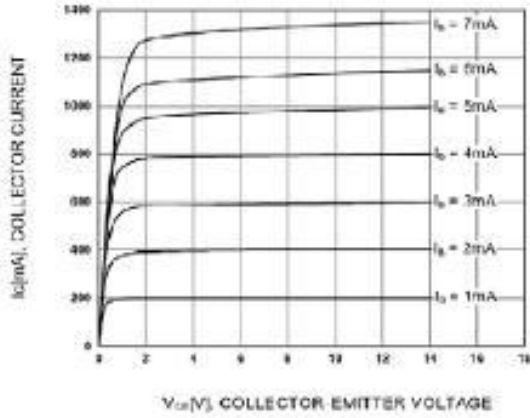


Figure 1. Static Characteristic

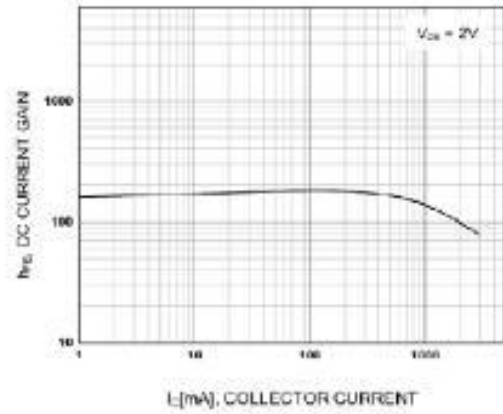


Figure 2. DC current Gain

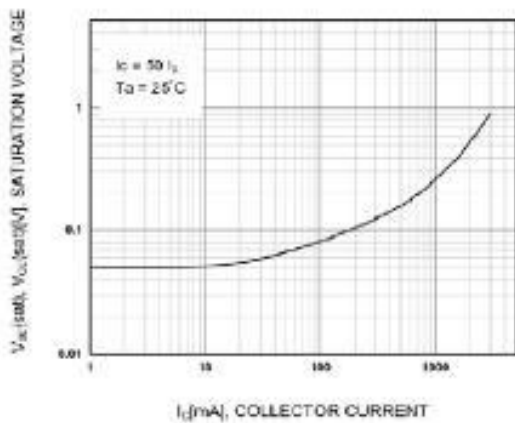


Figure 3. Collector-Emitter Saturation Voltage

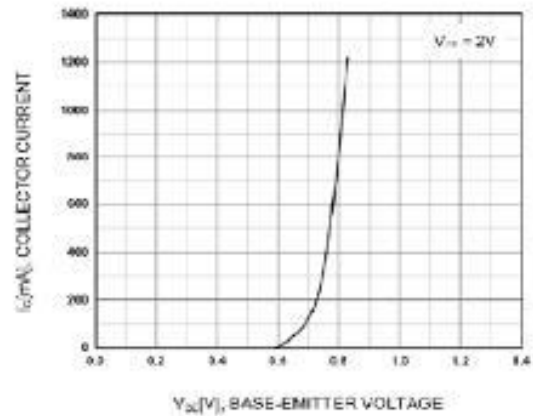


Figure 4. Base-Emitter On Voltage

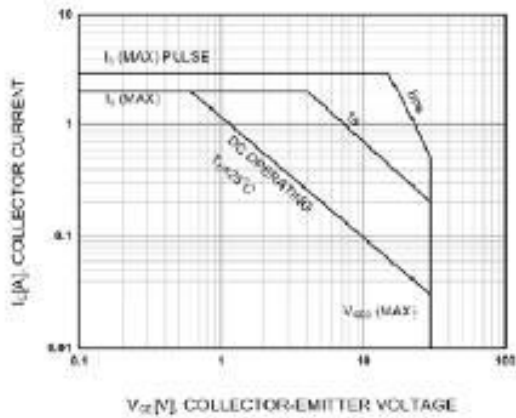


Figure 5. Safe Operating Area

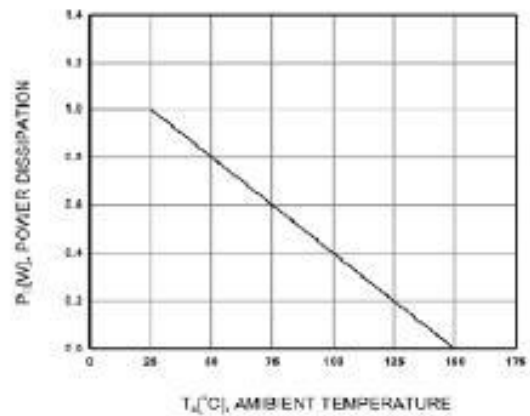
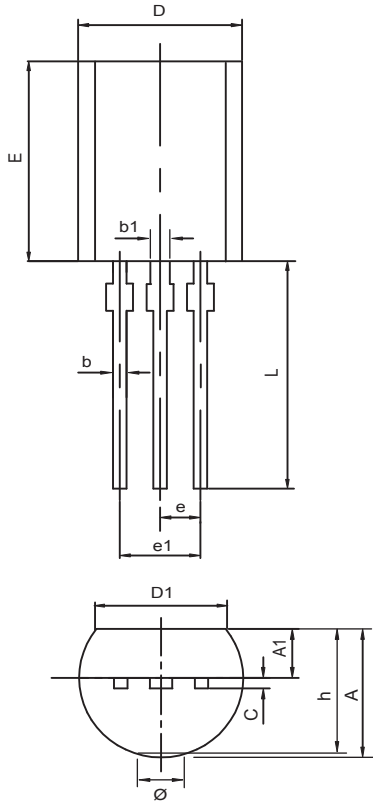


Figure 6. Power Derating

TO-92L Outline Dimensions

unit:mm



TO-92L		
Dim	Min	Max
A	3.70	4.10
A1	1.28	1.58
b	0.35	0.55
b1	0.60	0.80
c	0.35	0.45
D	4.70	5.10
D1	4.00	-
E	7.80	8.20
e	1.270TYP	
e1	2.44	2.64
L	13.8	14.2
Ø	-	1.60
h	0.00	0.30