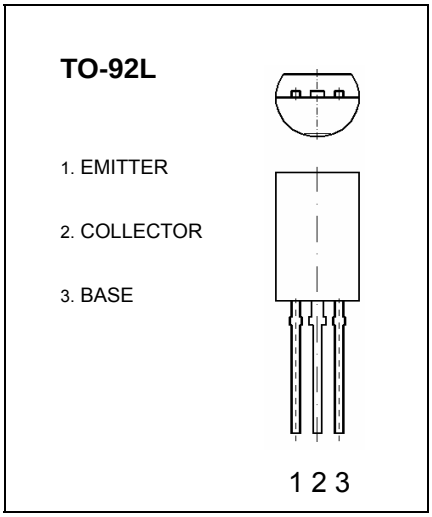
2SA1013

TRANSISTOR (PNP)



FEATURE

- **High voltage:V_{CEO}=-160V**
- **Large continuous collector current capability**
- **Complementary to 2SC2383**

MAXIMUM RATINGS (T_A=25℃ unless otherwise noted)

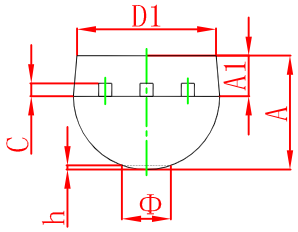
Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-160	V
V_{CEO}	Collector-Emitter Voltage	-160	V
V_{EBO}	Emitter-Base Voltage	-6	V
I_C	Collector Current -Continuous	-1	A
P_C	Collector Power Dissipation	0.9	W
T_j	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55 to +150	℃

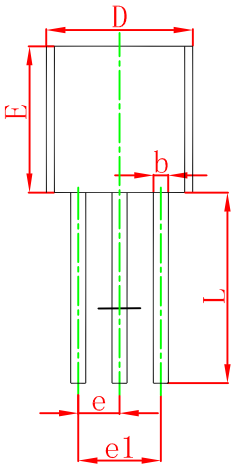
ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=- 100μA , I_E=0	-160		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= -1mA , I_B=0	-160		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E= -10μA, I_C=0	-6		V
Collector cut-off current	I_{CBO}	V_{CB}=-150 V , I_E=0		-1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=-6V, I_C=0		-1	μA
DC current gain	h_{FE}	V_{CE}=-5 V, I_C=- 200mA	60	320	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C= -500m A, I_B= -50mA		-1.5	V
Base-emitter voltage	V_{BE}	I_C= -5 mA, V_{CE}=- 5V		-0.75	V
Transition frequency	f_T	V_{CE}= -5 V, I_C= -200mA	15		MHz
Collector Output capacitance	C_{ob}	V_{CB}=-10V, I_E=0,f=1MHz		35	pF

CLASSIFICATION OF h_{FE}

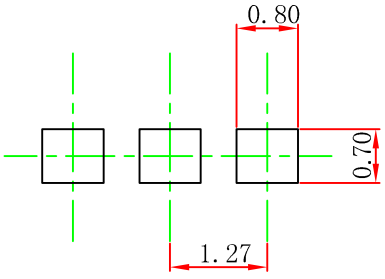
Rank	R	O	Y
Range	60-120	100-200	160-320





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.