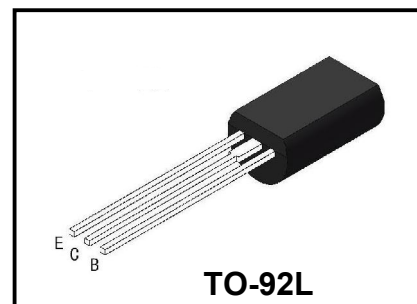


PNP Plastic-Encapsulate Transistors

Applications

- Color TV Audio Output
- Color TV Vertical Deflection Output
- Complement to 2SC2383



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

Parameter	Symbol	Value	Unit
Collector-Base Voltage	BV_{CBO}	-160	V
Collector-Emitter Voltage	BV_{CEO}	-160	V
Emitter-Base Voltage	BV_{EBO}	-6	V
Collector Current	I_C	-1	A
Collector Power Dissipation	P_C	0.9	W
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55~150	$^{\circ}\text{C}$

Electrical Characteristics $T_a=25^{\circ}\text{C}$ unless otherwise noted

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Collector-base breakdown voltage	BV_{CBO}	$I_C = -100\mu\text{A}, I_E = 0$	-160			V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = -1\text{mA}, I_B = 0$	-160			V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = -100\mu\text{A}, I_C = 0$	-6			V
Collector cut-off current	I_{CBO}	$V_{CB} = -150\text{V}, I_E = 0$			-1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -6\text{V}, I_C = 0$			-1	μA
DC current gain	h_{FE}	$V_{CE} = -5\text{V}, I_C = -200\text{mA}$	60		320	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -500\text{mA}, I_B = -50\text{mA}$			-1.5	V
Base-emitter voltage (on)	$V_{BE(on)}$	$V_{CE} = -5\text{V}, I_C = -5\text{mA}$			-0.75	V
Transition frequency	f_T	$V_{CE} = -5\text{V}, I_C = -200\text{mA}$	20			MHz
Collector output capacitance	C_{ob}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$			35	pF

h_{FE} Classification

Classification	2SA1013L-R	2SA1013L-O	2SA1013L-Y
Range	60-120	100-200	160-320

Typical Characteristics

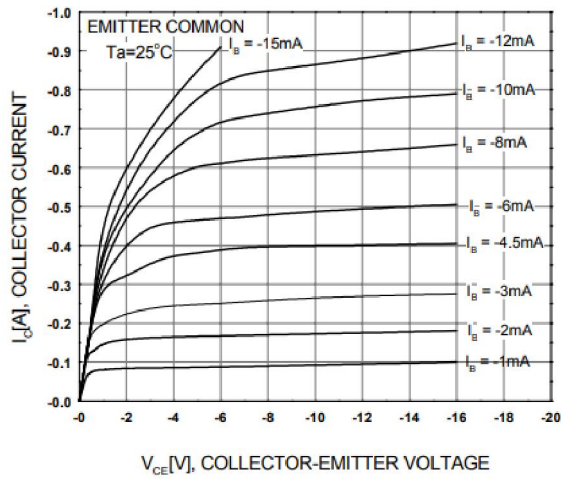


Figure 1. Static Characteristic

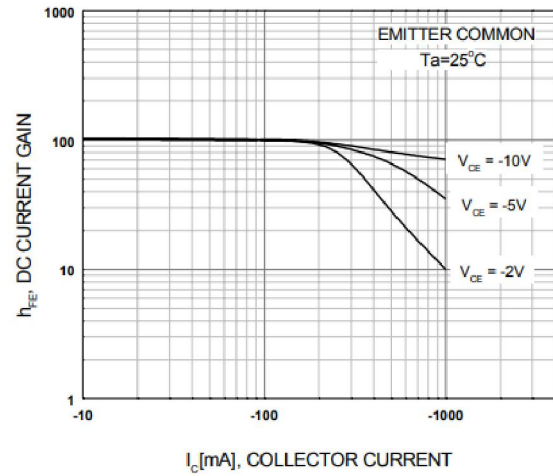


Figure 2. DC current Gain

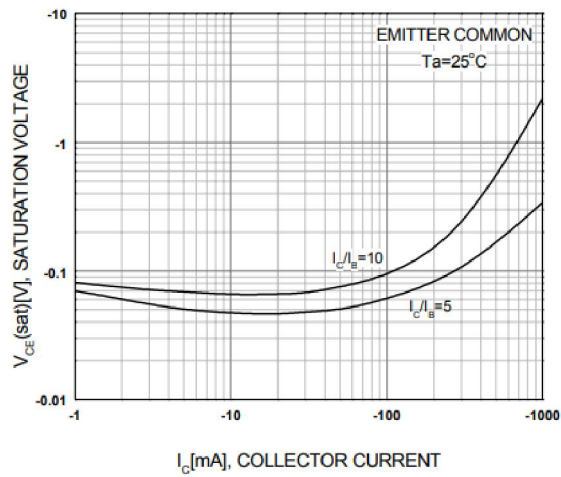


Figure 3. Collector-Emitter Saturation Voltage

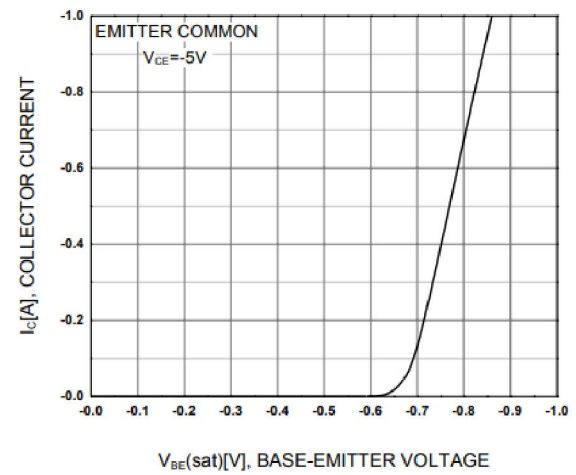


Figure 4. Base-Emitter on Voltage

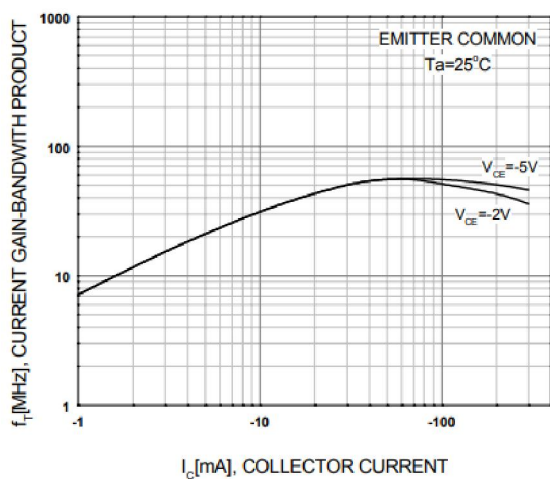


Figure 5. Current Gain Bandwidth Product

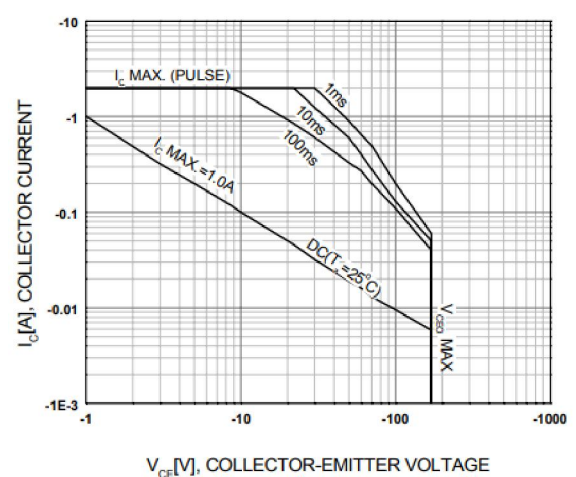


Figure 6. Safe Operating Area

Ordering information

Package	Packing Description	Base Quantity
TO-92L	Bulk	1000pcs/Bag

Package Dimensions

TO-92L

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	3.60	4.00	0.142	0.157
A1	2.20	2.60	0.087	0.102
b	0.40	0.50	0.016	0.020
b1	0.50	0.65	0.020	0.026
C	0.35	0.45	0.014	0.018
D	4.60	5.00	0.181	0.197
E	7.60	8.00	0.299	0.315
e	1.24	1.30	0.049	0.051
e1	2.48	2.60	0.098	0.102
L	13.50	14.50	0.531	0.571
L1	1.50	1.90	0.059	0.075

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