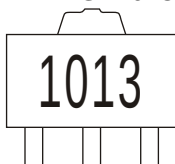


**SOT-89-3L Plastic-Encapsulate Transistors****2SA1013** TRANSISTOR (PNP)**FEATURE**

- High voltage
- Large continuous collector current capability

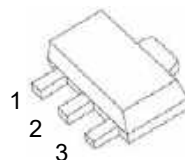
MARKING: 1013

**SOT-89-3L**

1. BASE

2. COLLECTOR

3. EMITTER

**MAXIMUM RATINGS** ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
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	0.5	W
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	$^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	250	$^{\circ}\text{C/W}$

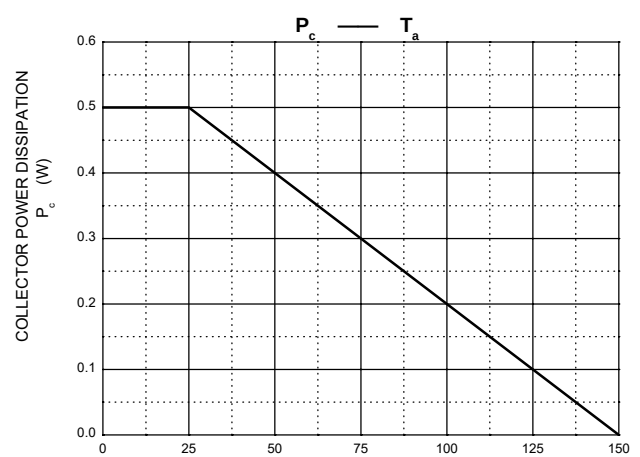
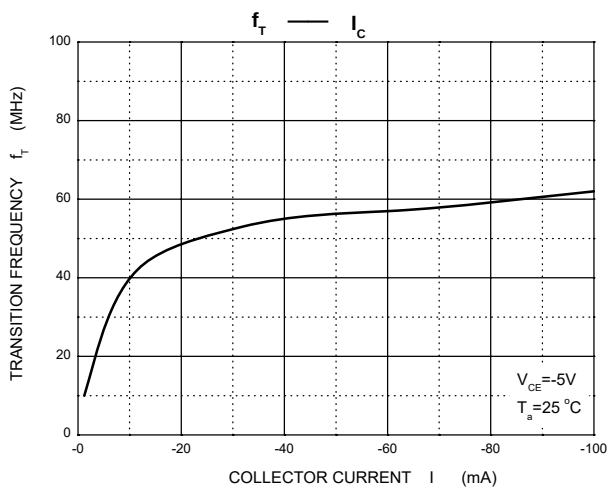
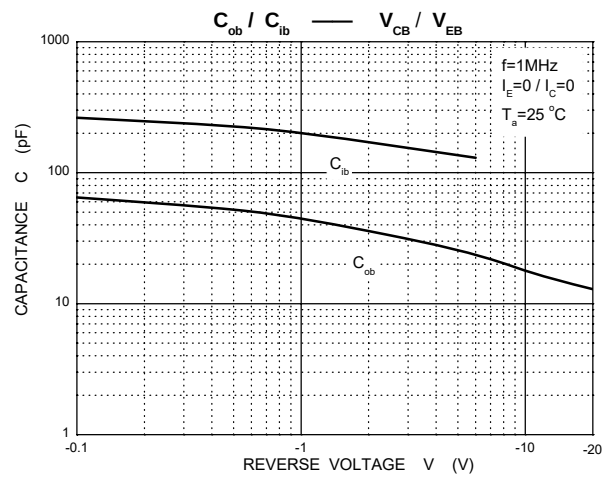
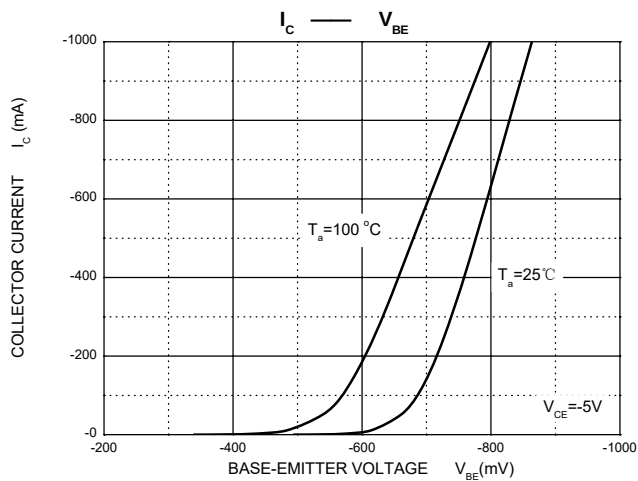
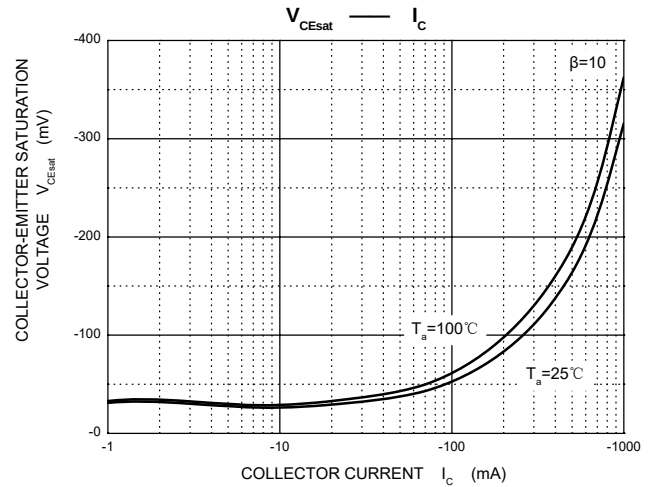
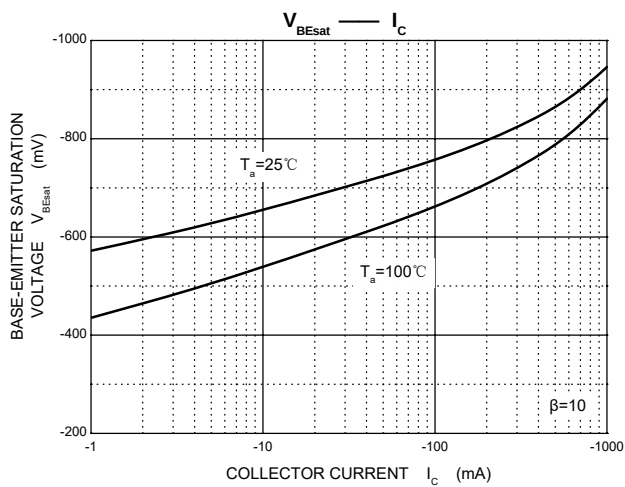
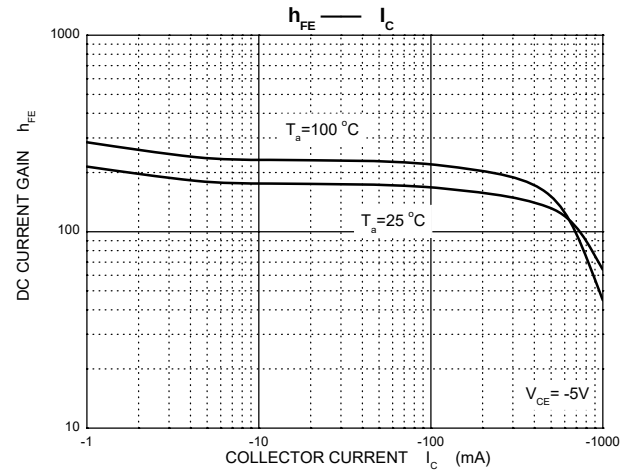
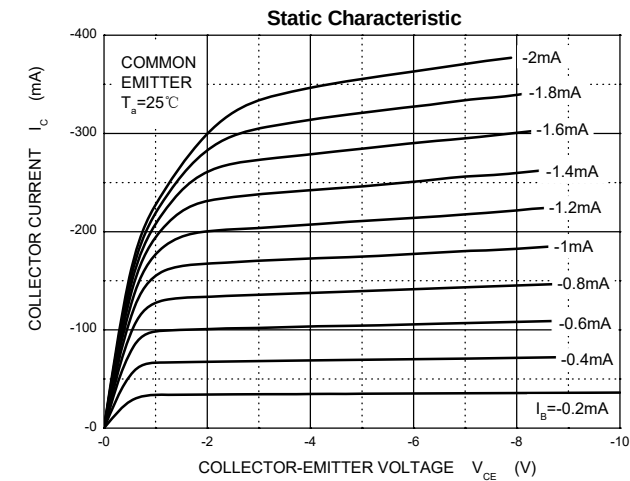
ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-100\mu\text{A}$, $I_E=0$	-160		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}$, $I_B=0$	-160		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}$, $I_C=0$	-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	V_{BE}	$I_C=-5\text{mA}$, $V_{CE}=-5\text{V}$		-0.75	V
Transition frequency	f_T	$V_{CE}=-5\text{V}$, $I_C=-200\text{mA}$	15		MHz

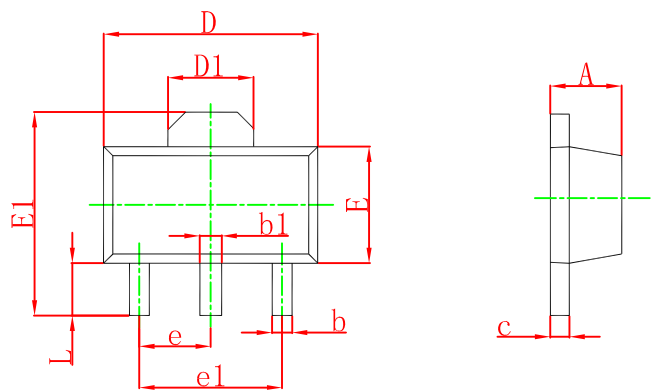
CLASSIFICATION OF h_{FE}

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

Typical Characteristics

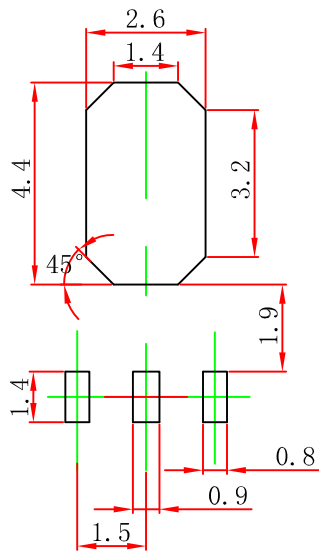


SOT-89-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

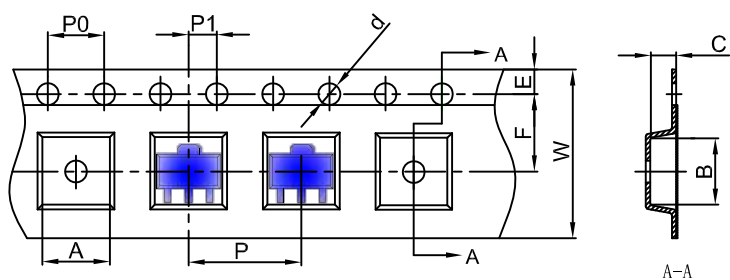
SOT-89-3L Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

SOT-89-3L Tape and Reel

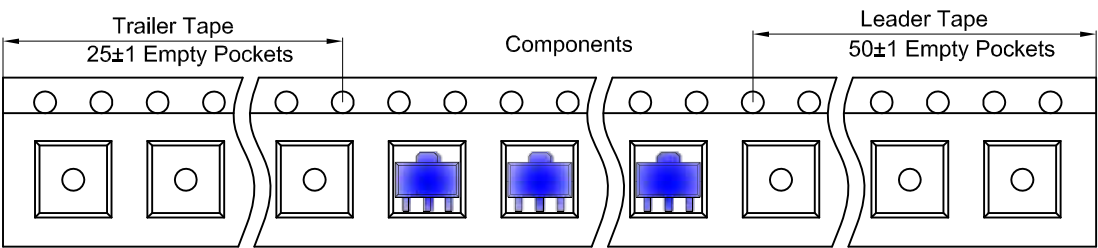
SOT-89-3L Embossed Carrier Tape



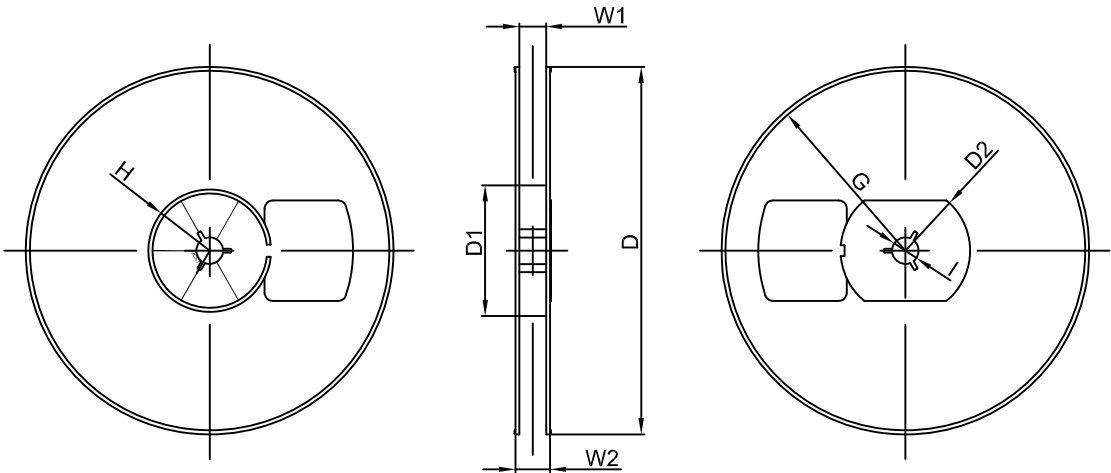
Packaging Description:
SOT-89-3L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 1,000 units per 7" or 18.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-89-3L	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

SOT-89-3L Tape Leader and Trailer



SOT-89-3L Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø180.00	60.00	R32.00	R86.50	R30.00	Ø13.00	13.20	16.50

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
1000 pcs	7 inch	10,000 pcs	203×203×195	40,000 pcs	438×438×220	