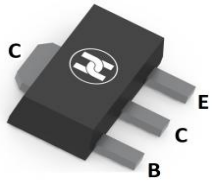
BIPOLAR TRANSISTOR (NPN)



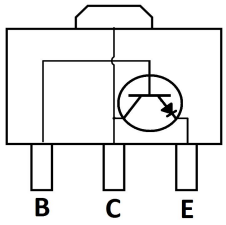
SOT-89

FEATURES

- Complementary to PXT3906
- Low Current
- Low Voltage
- Surface Mount device

MECHANICAL DATA

- Case: SOT-89
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.055 grams (approximate)



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

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	200	mA
Collector Power Dissipation	P_C	500	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 ~+150	°C

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

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Collector-base breakdown voltage	$V_{(BR)CBO}$	60			V	I_C=10uA，I_E=0
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	50			V	I_C=1mA，I_B=0
Emitter-base breakdown voltage	$V_{(BR)EBO}$	6			V	I_E=10uA，I_C=0
Collector cut-off current	I_{CBO}			0.05	uA	V_{CB}=30V, I_E=0
Collector cut-off current	I_{CEX}			0.05	uA	V_{CE}=30V, $V_{BE(OFF)}$=3V
Emitter cut-off current	I_{EBO}			0.05	uA	V_{EB}=1V, I_C=0
DC current gain	h_{FE}	60				V_{CE}=1V, I_C=0.1mA
		80				V_{CE}=1V, I_C=1mA
		100		300		V_{CE}=1V, I_C=10mA
		60				V_{CE}=1V, I_C=50mA
		30				V_{CE}=6V, I_C=100mA
Collector-emitter saturation voltage	$V_{CE(sat)}$			0.2	V	I_C=10mA，I_B=1mA
				0.3	V	I_C=50mA，I_B=5mA
Base-emitter saturation voltage	$V_{BE(sat)}$	0.65		0.85	V	I_C=10mA，I_B=1mA
				0.95	V	I_C=50mA，I_B=5mA
Transition frequency	f_T	300			MHz	V_{CE}=20V,I_C=10mA,f=100MHz
Collector capacitance	C_C			4	pF	V_{CB}=5V, I_E=0, f=1MHz
Emitter capacitance	C_E			8	pF	V_{EB}=0.5V, I_C=0, f=1MHz
Noise figure	NF		4	10	dB	V_{CE}=5V,I_C=0.1mA,R_S=1k Ω , f=10Hz-15.7KHz
Delay time	t_d			35	ns	I_C=10mA，I_{B1}=-I_{B2}=1mA
Rise time	t_r			35	ns	
Storage time	t_S			200	ns	
Fall time	t_f			50	ns	

Marking: 1A

BIPOLAR TRANSISTOR (NPN)

Typical Characteristics

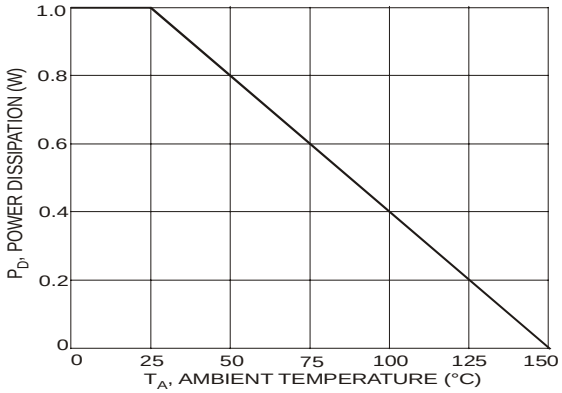


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

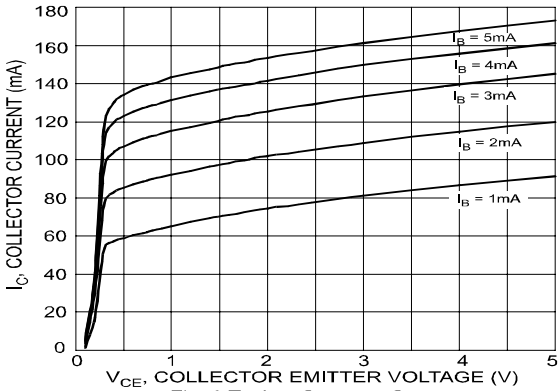


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

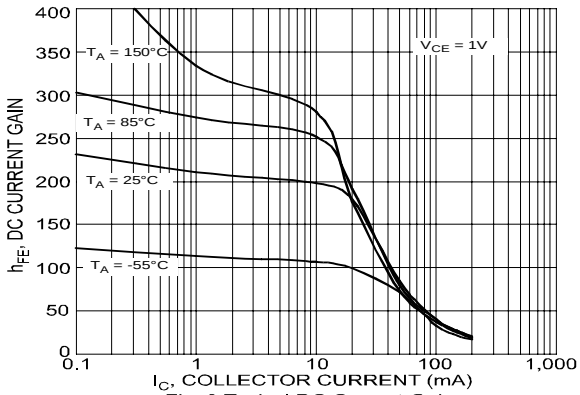


Fig. 3 Typical DC Current Gain vs. Collector Current

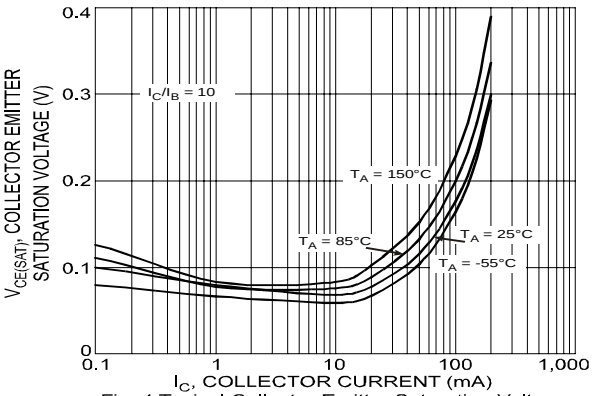


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

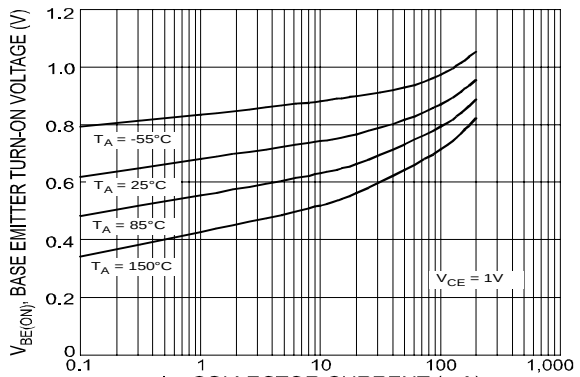


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

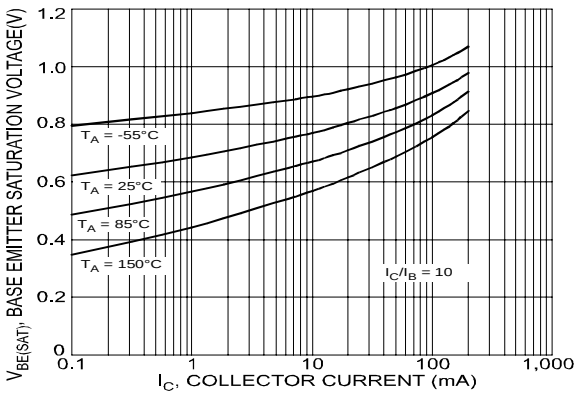


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

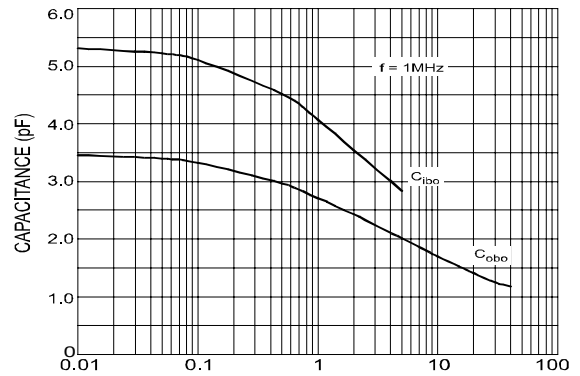


Fig. 7 Typical Capacitance Characteristics

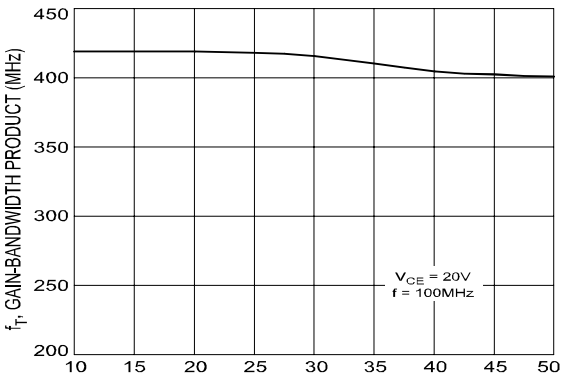
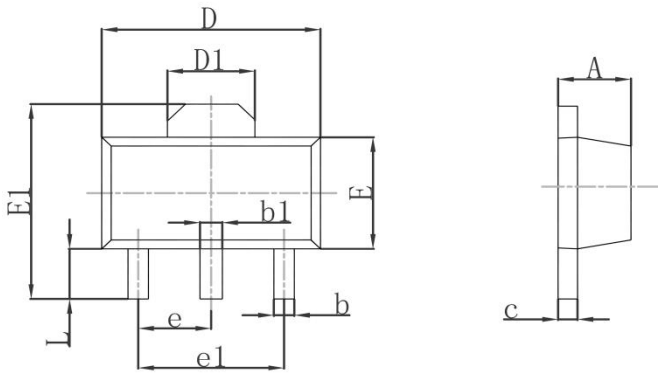


Fig. 8 Typical Gain-Bandwidth Product vs. Emitter Current

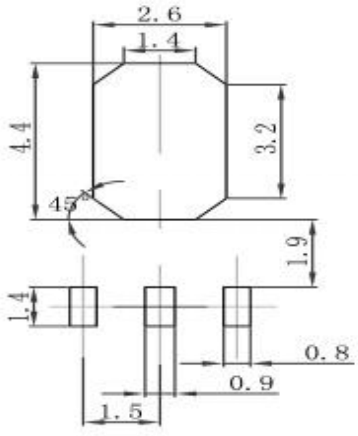
BIPOLAR TRANSISTOR (NPN)

SOT-89 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	1.550REF		0.061REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP		0.060TYP	
e1	3.000TYP		0.118TYP	
L	0.900	1.200	0.035	0.047

SOT-89 Suggested Pad Layout



Note:

1.Controlling dimension: in millimeters

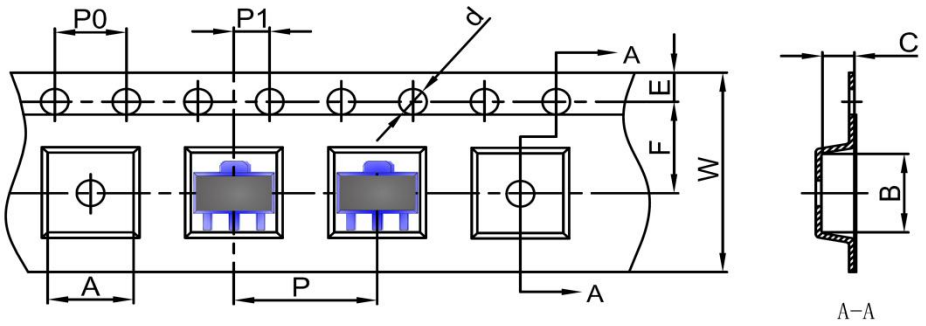
2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

BIPOLAR TRANSISTOR (NPN)

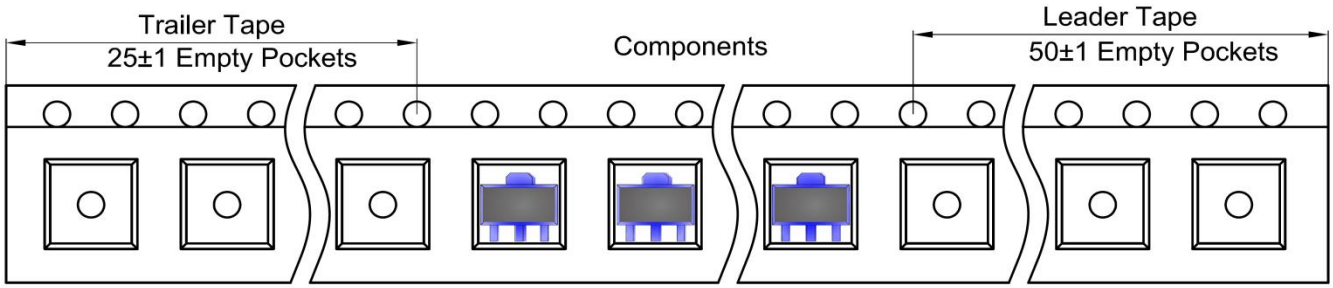
SOT-89 Tape and Reel

SOT-89 Embossed Carrier Tape

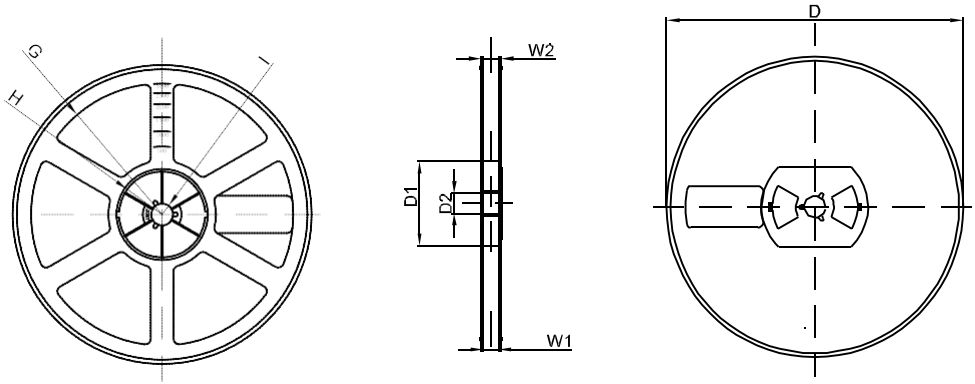


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-89	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOT-89 Tape Leader and Trailer



SOT-89 Reel



	DIMENSIONS ARE IN MILLIMETER							
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7" DIA	Ø178	54.40	13.00	R78	R25.60	R6.50	13.20	16.50
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1