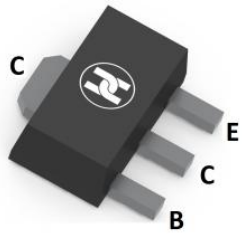
BIPOLAR TRANSISTOR (NPN)



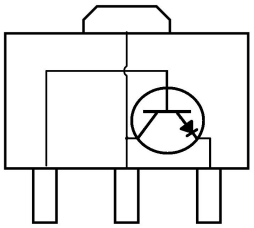
SOT-89

FEATURES

- Complementary to 2SB1036
- Excellent h_{FE} Linearity
- 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}	50	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	5	A
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	$V_{(BR)CBO}$	50			V	I_C=50uA，I_E=0
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	20			V	I_C=1mA，I_B=0
Emitter-base breakdown voltage	$V_{(BR)EBO}$	6			V	I_E=50uA，I_C=0
Collector cut-off current	I_{CBO}			0.5	uA	V_{CB}=40V, I_E=0
Emitter cut-off current	I_{EBO}			0.5	uA	V_{EB}=5V, I_C=0
DC current gain	h_{FE}	120		390		V_{CE}=2V, I_C=0.5A
Collector-emitter saturation voltage	$V_{CE(sat)}$			1	V	I_C=4A，I_B=100mA
Transition frequency	f_T		150		MHz	V_{CE}=6V,I_C=50mA,f=100MHz
Collector output capacitance	C_{ob}		30		pF	V_{CB}=20V, I_E=0, f=1MHz

CLASSIFICATION OF h_{FE}

Rank	Q	R
Range	120-270	180-390
Marking	AHQ	AHR

BIPOLAR TRANSISTOR (NPN)

Typical Characteristics

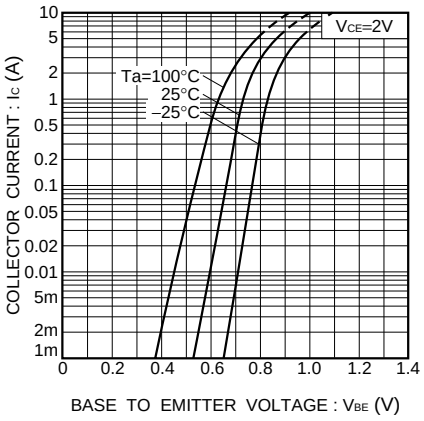


Fig.1 Grounded emitter propagation characteristics

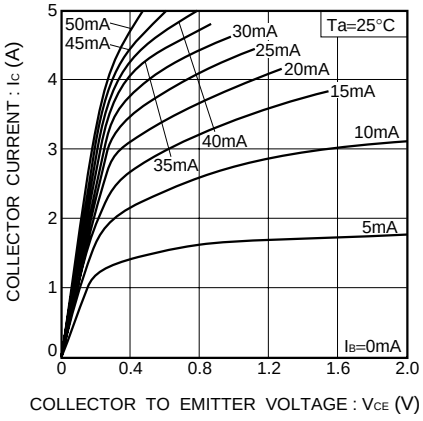


Fig.2 Grounded emitter output characteristics

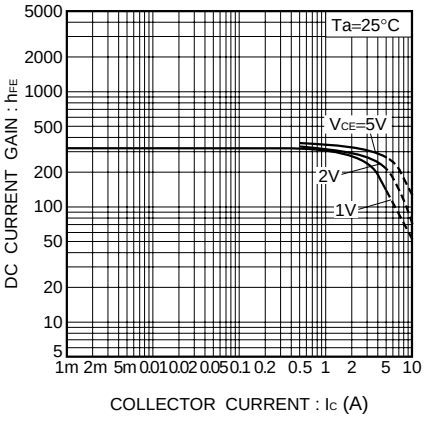


Fig.3 DC current gain vs. collector current (I)

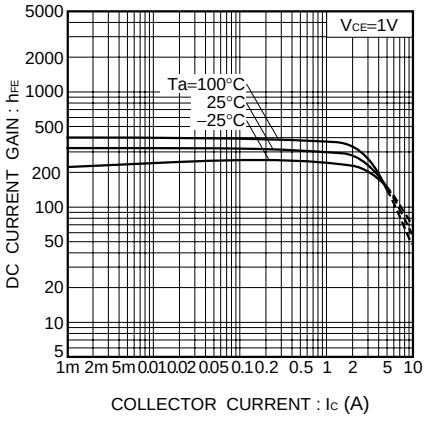


Fig.4 DC current gain vs. collector current (II)

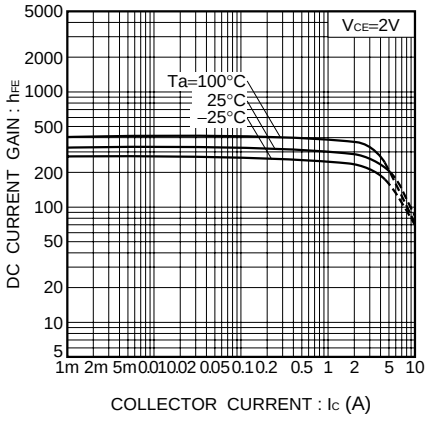


Fig.5 DC current gain vs. collector current (III)

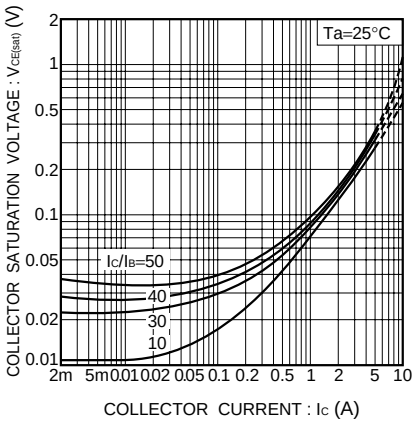


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

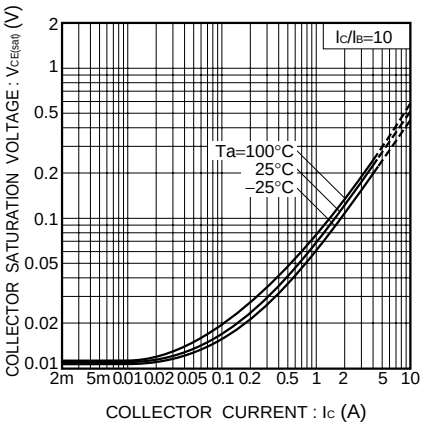


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

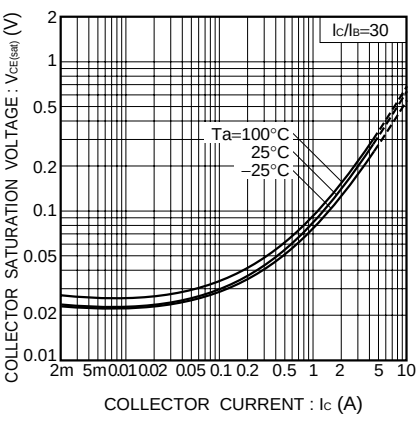


Fig.8 Collector-emitter saturation voltage vs. collector current (III)

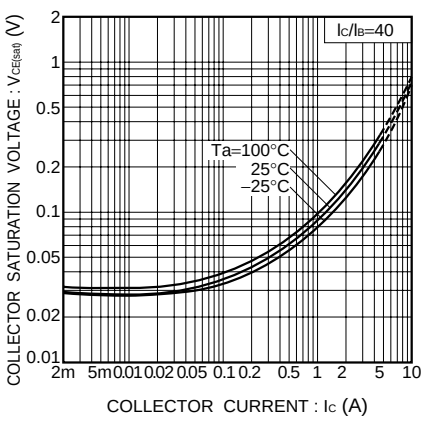


Fig.9 Collector-emitter saturation voltage vs. collector current (IV)

BIPOLAR TRANSISTOR (NPN)

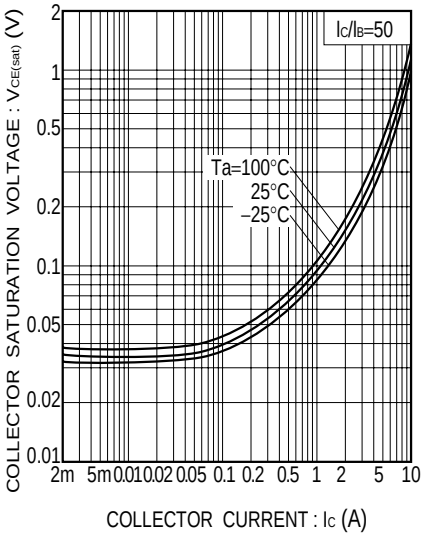


Fig.10 Collector-emitter saturation voltage vs. collector current (V)

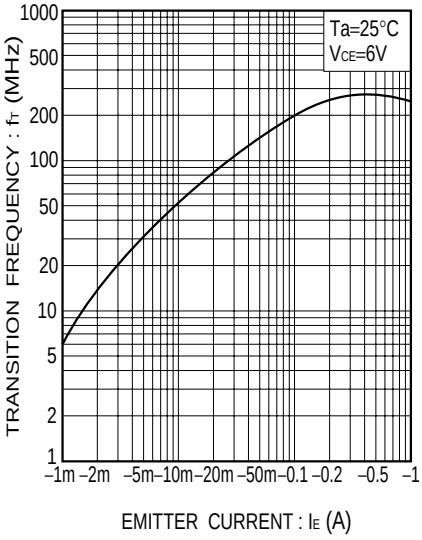


Fig.11 Gain bandwidth product vs. emitter current

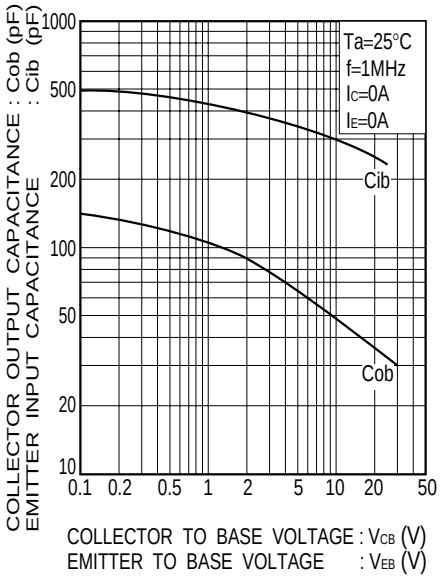


Fig.12 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

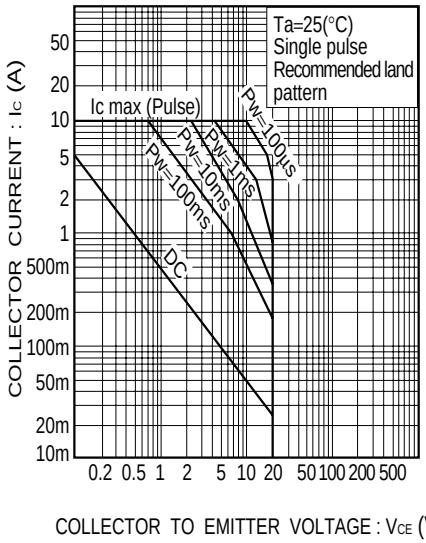
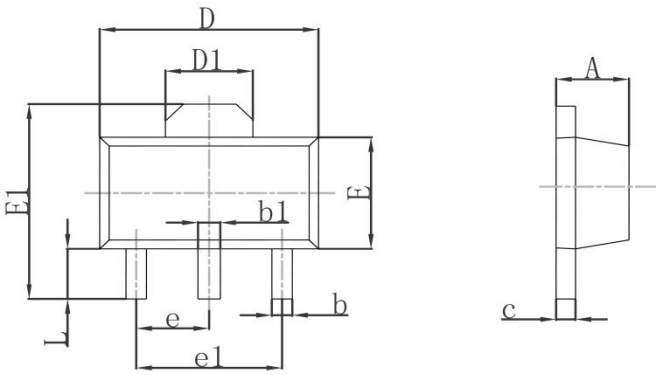


Fig.13 Safe operating area

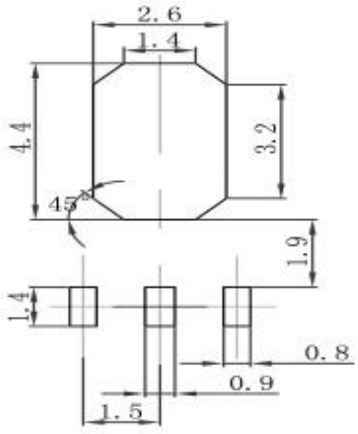
BIPOLAR TRANSISTOR (NPN)

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

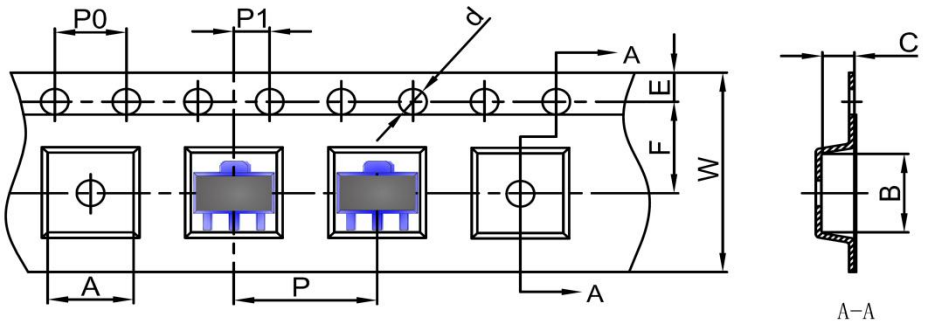
2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

BIPOLAR TRANSISTOR (NPN)

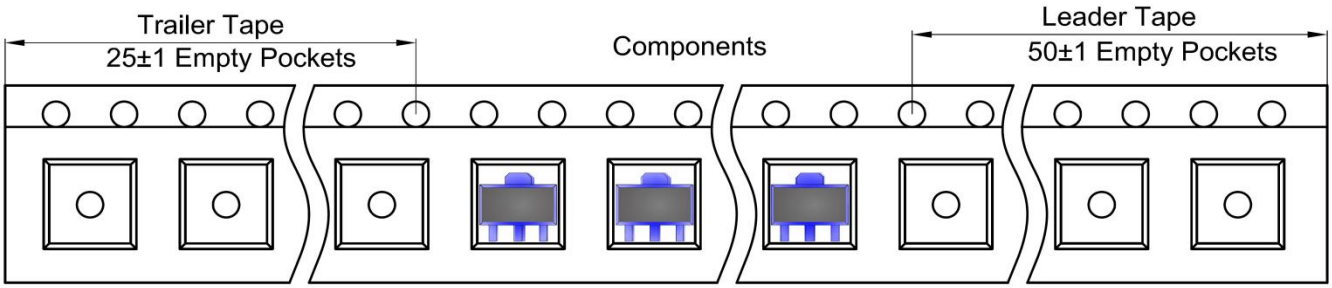
SOT-89 Tape and Reel

SOT-89 Embossed Carrier Tape

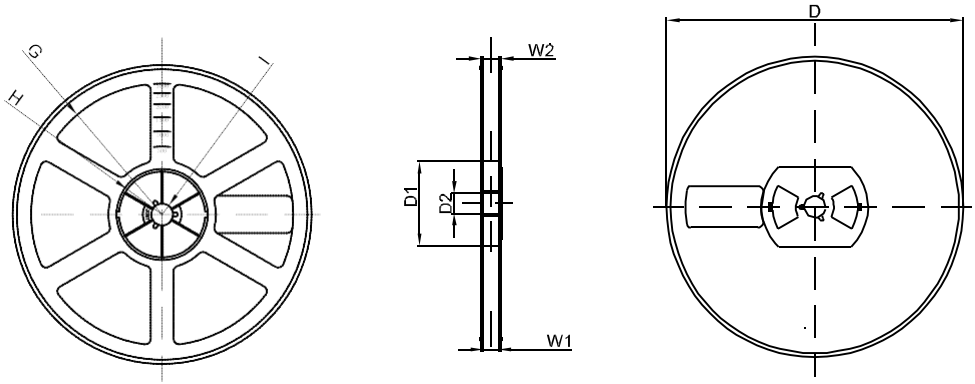


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-89	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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