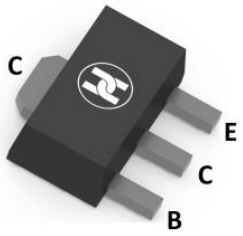
BIPOLAR TRANSISTOR (NPN)



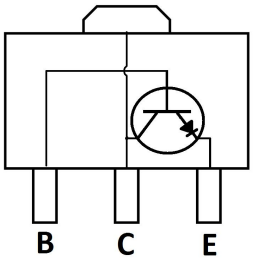
SOT-89

FEATURES

- Complementary to 2SA1203
- 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}	30	V
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1.5	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	$V_{(BR)CBO}$	30			V	I_C=1mA, I_E=0
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	30			V	I_C=10mA, I_B=0
Emitter-base breakdown voltage	$V_{(BR)EBO}$	5			V	I_E=1mA, I_C=0
Collector cut-off current	I_{CBO}			0.1	uA	V_{CB}=30V, I_E=0
Emitter cut-off current	I_{EBO}			0.1	uA	V_{EB}=5V, I_C=0
DC current gain	h_{FE}	130		400		V_{CE}=2V, I_C=0.5A
Collector-emitter saturation voltage	$V_{CE(sat)}$			0.5	V	I_C=800mA, I_B=80mA
Base-emitter saturation voltage	$V_{BE(sat)}$			1.2	V	I_C=800mA, I_B=80mA
Transition frequency	f_T		150		MHz	V_{CE}=6V, I_C=20mA f=30MHz
Collector output capacitance	C_{ob}			40	pF	V_{CB}=10V, I_E=0, f=1MHz

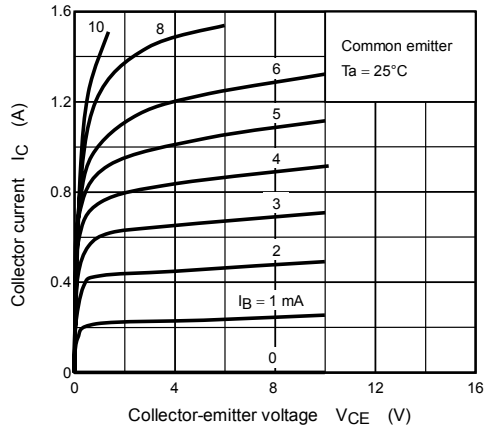
CLASSIFICATION OF h_{FE}

Rank	O	Y
Range	130-200	160-320
Marking	GO	GY

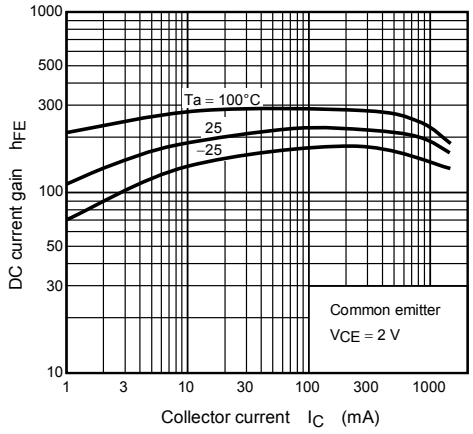
BIPOLAR TRANSISTOR (NPN)

Typical Characteristics

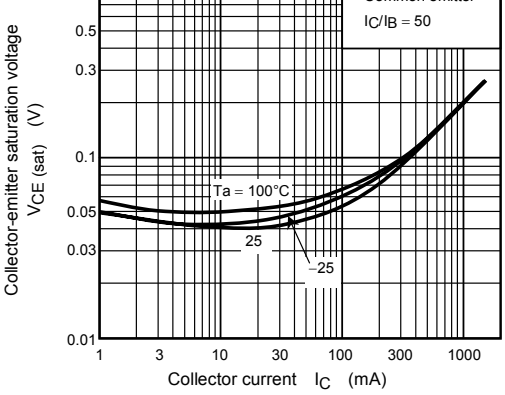
$I_C - V_{CE}$



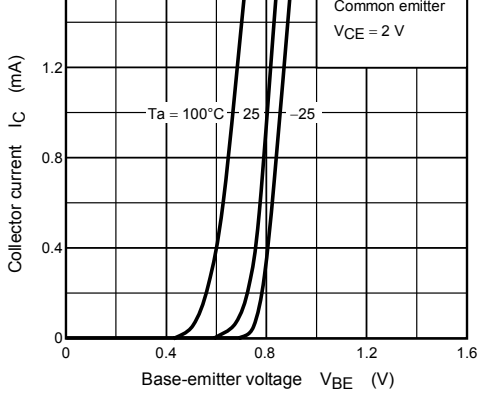
$h_{FE} - I_C$



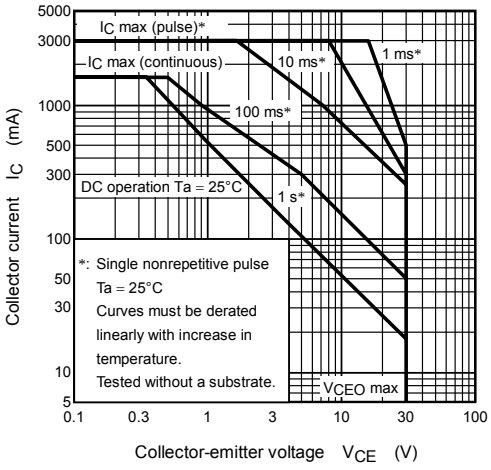
$V_{CE\ (sat)} - I_C$



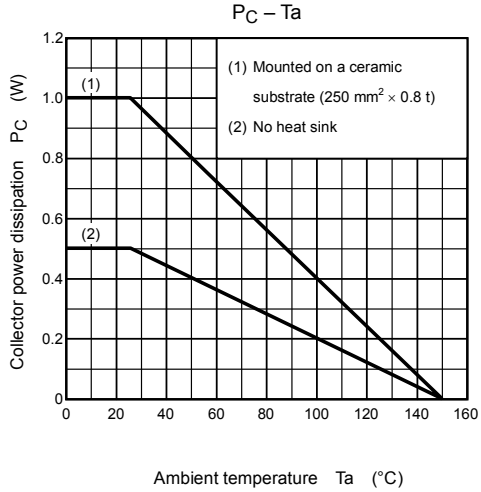
$I_C - V_{BE}$



Safe Operating Area

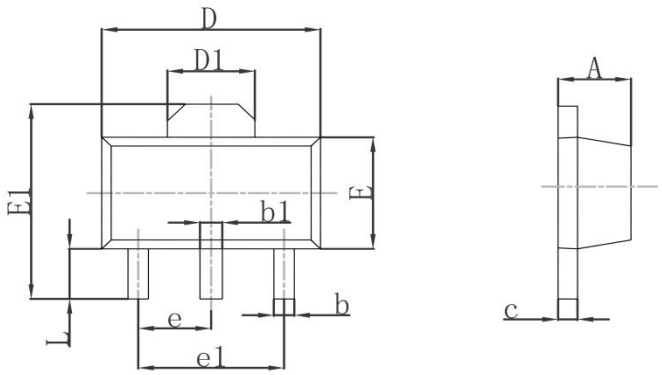


$P_C - Ta$



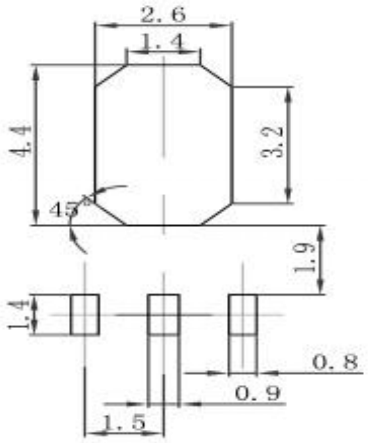
BIPOLAR TRANSISTOR (NPN)

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

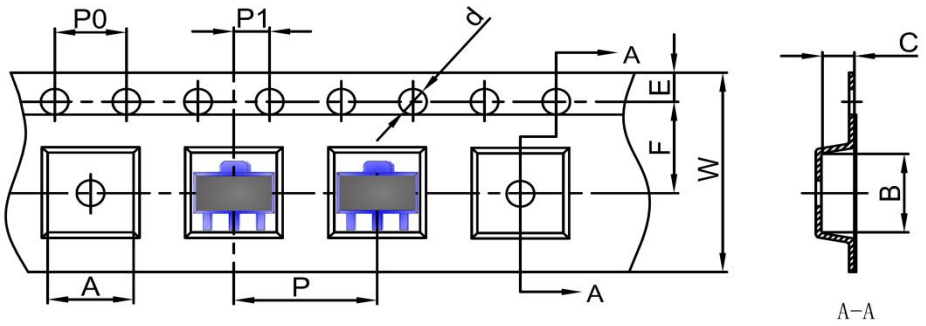
2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

BIPOLAR TRANSISTOR (NPN)

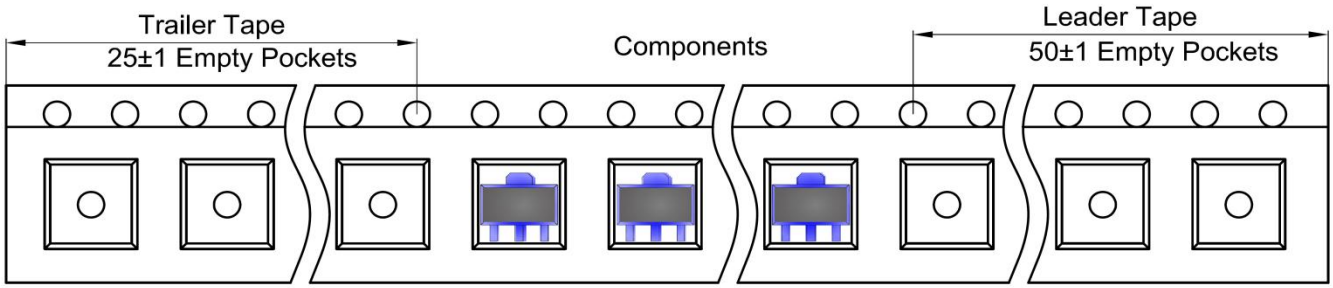
SOT-89 Tape and Reel

SOT-89 Embossed Carrier Tape

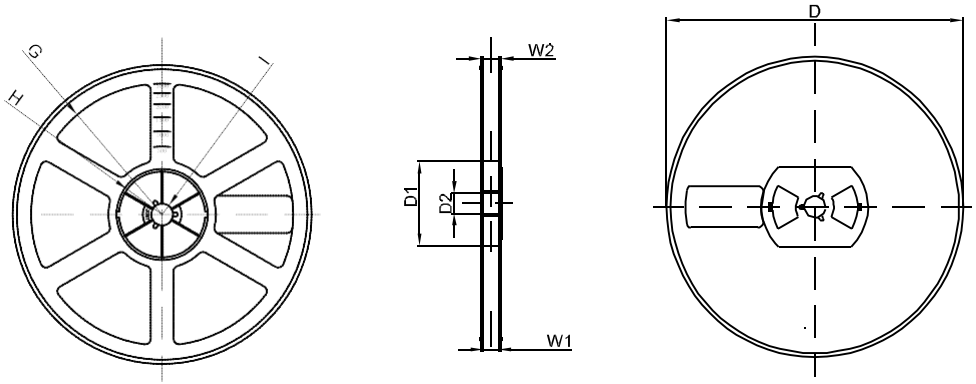


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-89	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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