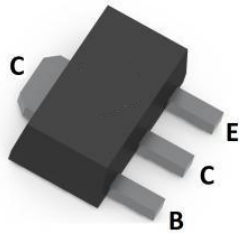
NPN Silicon Epitaxial Transistor

FEATURES

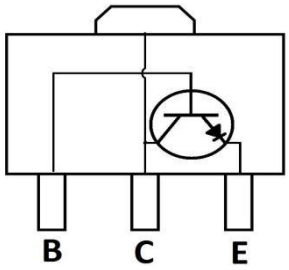
- High collector to emitter voltage: V_{CEO} > 120V.



SOT-89

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	Rating	Unit
Collector-base voltage	V_{CBO}	120	V
Collector-emitter voltage	V_{CEO}	120	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	0.7	A
Collector current (pulse) *	$I_{C\ (pu)}$	1.2	A
Collector power dissipation	P_c	2	W
Junction temperature	T_j	150	℃
Storage temperature	T_{stg}	-55 to +150	℃

*. PW ≤ 10ms,duty cycle ≤ 50%

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Base-emitter voltage*	V_{BE}	V_{CE} =10V , I_C = 10mA	550	620	650	mV
Collector cutoff current	I_{CBO}	V_{CB} = 120V, I_E=0			100	nA
Emitter cutoff current	I_{EBO}	V_{EB} = 5V, I_C=0			100	nA
DC current gain*	h_{FE}	V_{CE} =1V , I_C = 5.0mA	45	200		
		V_{CE} =1V , I_C = 100mA	90	200	400	
Collector-emitter saturation voltage*	$V_{CE(sat)}$	I_C = 500mA , I_B = 50mA		0.3	0.6	V
Base-emitter saturation voltage*	$V_{BE(sat)}$	I_C = 500mA , I_B = 50mA		0.9	1.5	V
Output capacitance	C_{ob}	V_{CB} = 10V , I_E = 0 , f = 1.0MHz		10		pF
Transition frequency	f_T	V_{CE} = 10V , I_E = -10mA		90		MHz

*. PW ≤ 350μs,duty cycle ≤ 2%

CLASSIFICATION OF h_{FE}

Marking	HR	HQ	HP
hFE	90～180	135～270	200～400

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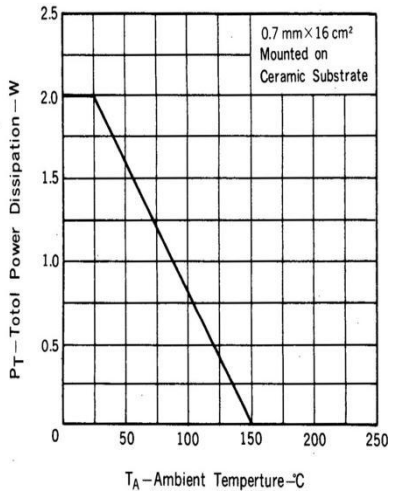
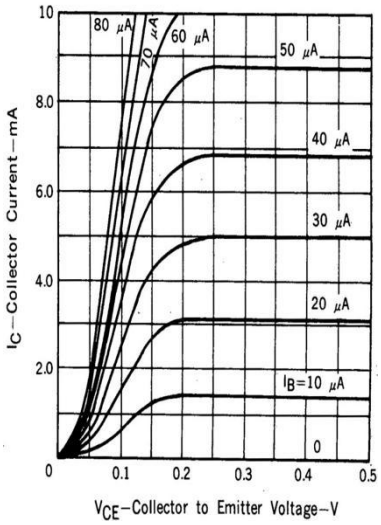
Typical Characteristics

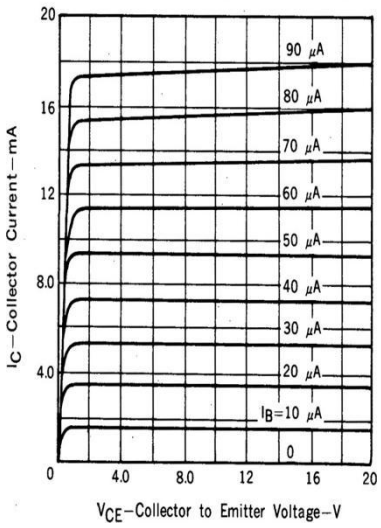
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



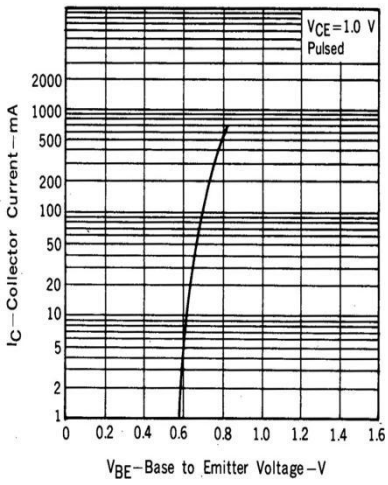
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



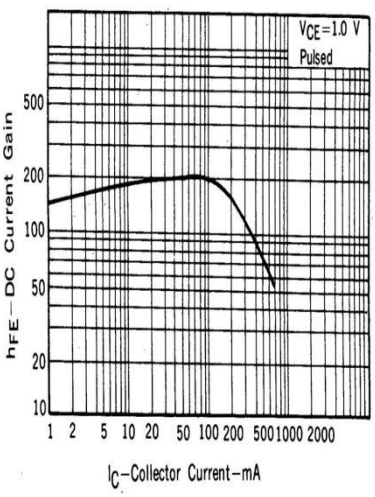
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



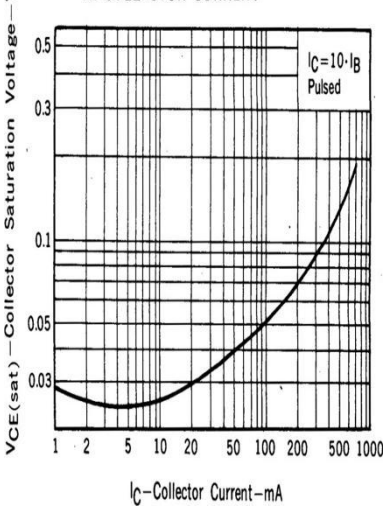
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



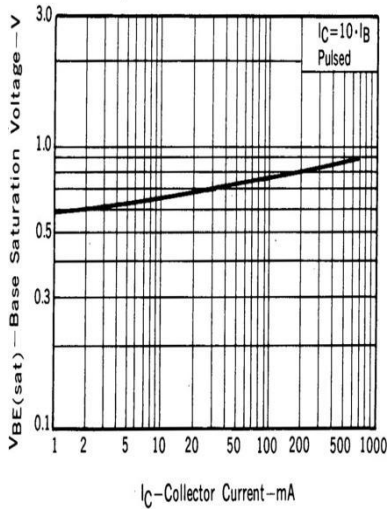
DC CURRENT GAIN vs. COLLECTOR CURRENT



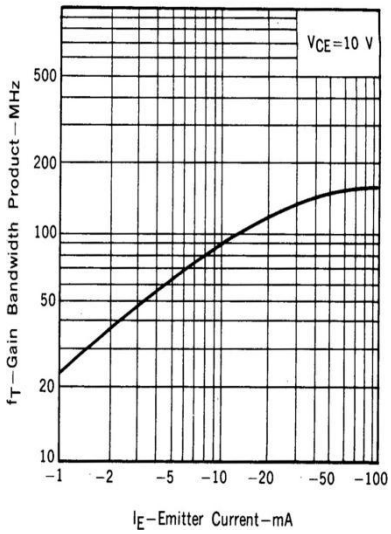
COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



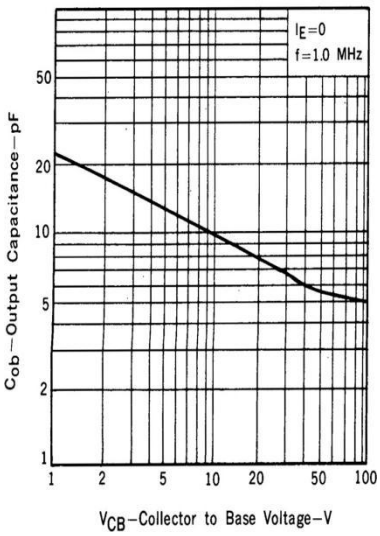
BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



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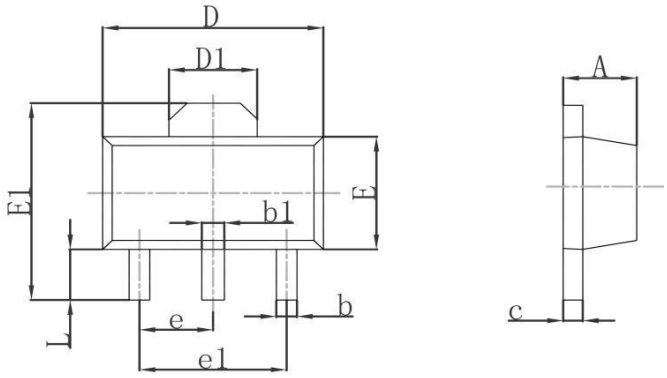
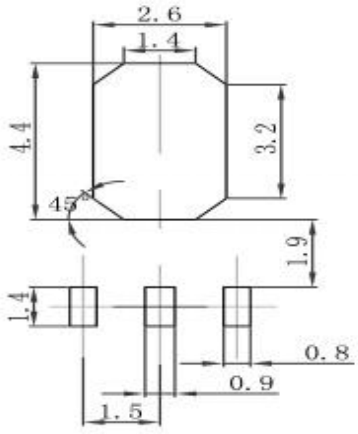
SOT-89 Package Outline Dimensions



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

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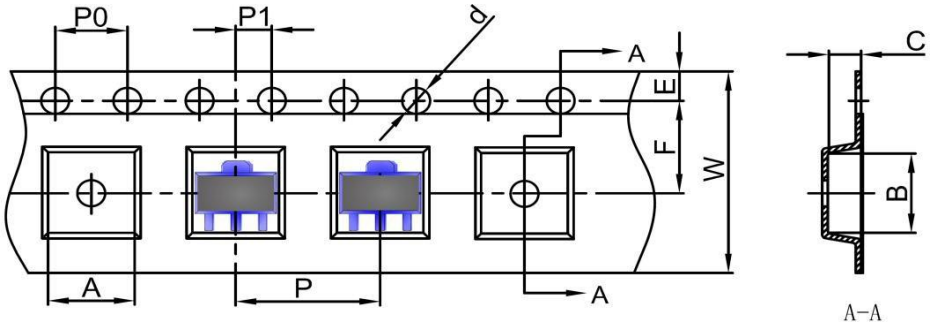
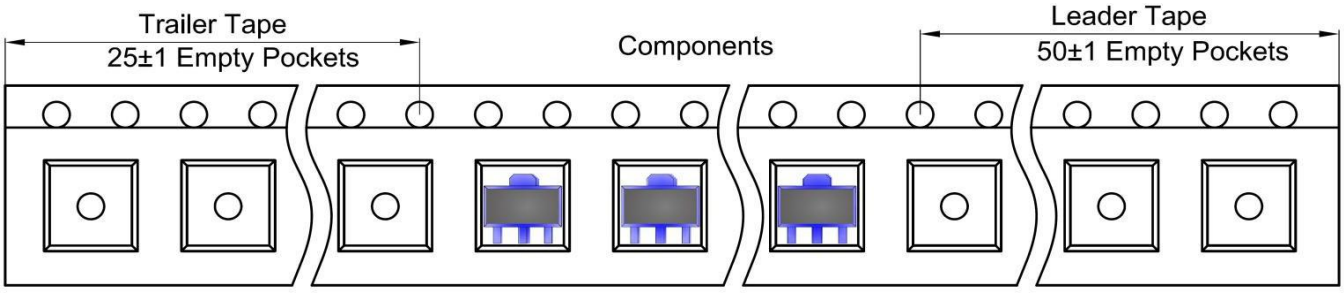
SOT-89 Tape and Reel

SOT-89 Embossed Carrier Tape

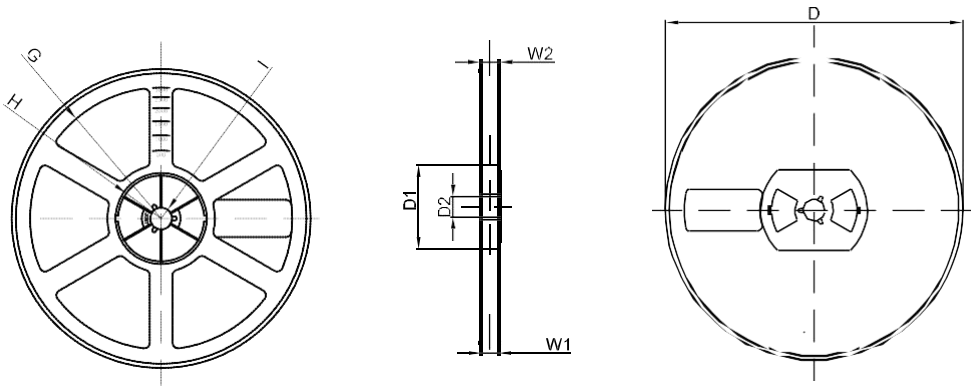


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-89	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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