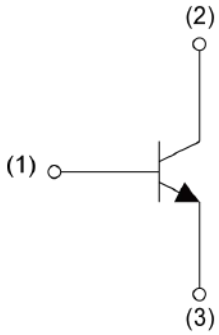
SOT-89 Plastic-Encapsulate Transistors

TRANSISTOR

■ Features

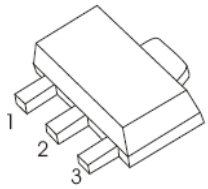
1)Low saturation voltage,typically
$V_{CE(sat)}$=-400mV(Max.)
(I_C/I_B=-1A/-50mA)
2)High speed switching

■ Marking: 533



(1) Base
(2) Collector
(3) Emitter

SOT-89
SC-62



1. BASE
2. COLLECTOR
3. EMITTER

■Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Values	Unit
Collector-base voltage	V_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	50	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_C	3	A
	I_{CP}*1	6	A
Power dissipation	P_D*2	0.5	W
	P_D*3	2.0	W
Junction temperature	T_j	150	℃
Range of storage temperature	T_{stg}	-55 to +150	℃

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	BV_{CBO}	I_C = 100μA	50	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	I_C = 1mA	50	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	I_E = 100μA	6	-	-	V
Collector cut-off current	I_{CBO}	V_{CB} = 50V	-	-	1.0	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 4V	-	-	1.0	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 1A, I_B = 50mA	-	130	350	mV
DC current gain	h_{FE}	V_{CE} = 3V, I_C = 50mA	180	-	450	-
Transition frequency	f_T*4	V_{CE} = 10V, I_E = -500mA, f = 100MHz	-	320	-	MHz
Output capacitance	C_{ob}	V_{CB} = 10V, I_E = 0A, f = 1MHz	-	13	-	pF
Turn-On time	t_{on}	I_C = 1.5A, I_{B1} = 150mA, I_{B2} = -150mA, $V_{CC} \simeq$ 10V, R_L = 6.8Ω See test circuit	-	50	-	ns
Storage time	t_{stg}		-	450	-	ns
Fall time	t_f		-	80	-	ns

*1 Pw=10ms, Single Pulse

*2 Each terminal mounted on a reference land.

*3 Mounted on a ceramic board.(40×40×0.7mm)

*4 Pulsed

Typical Characteristics

Fig.1 Ground Emitter Propagation Characteristics

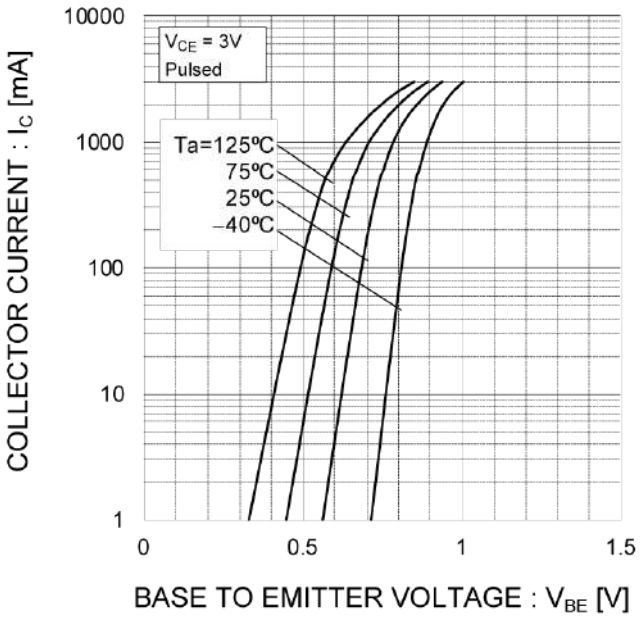


Fig.2 Typical Output Characteristics

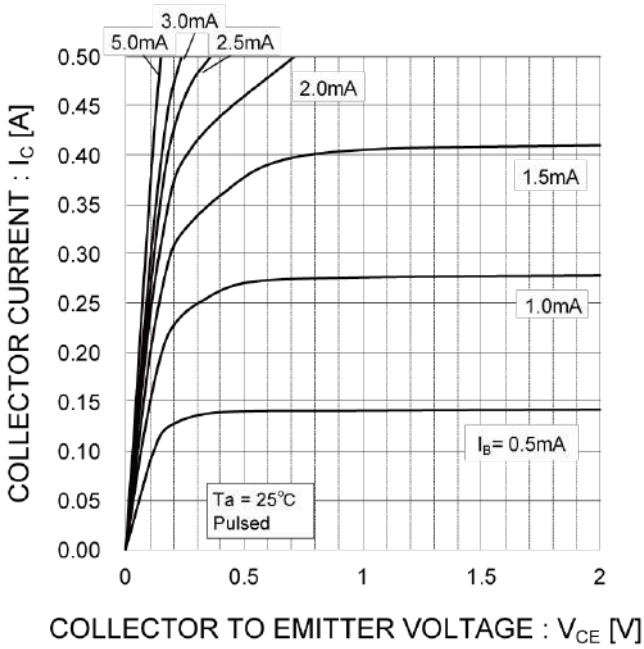


Fig.3 DC Current Gain vs. Collector Current (I)

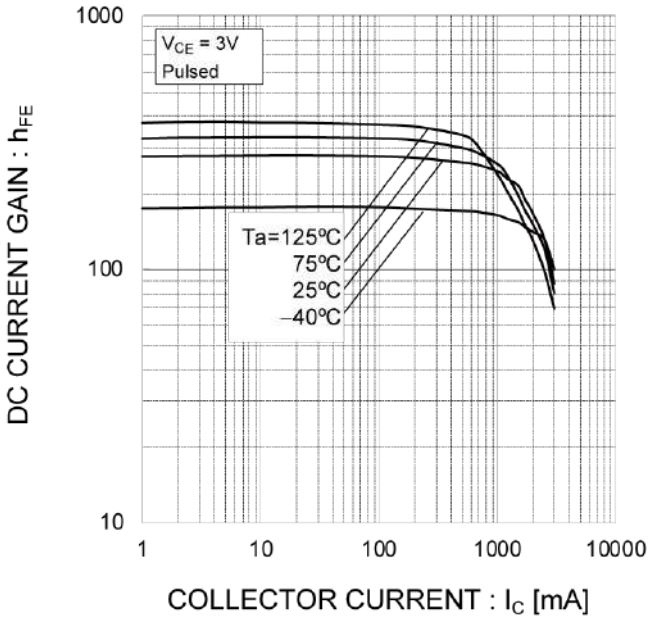
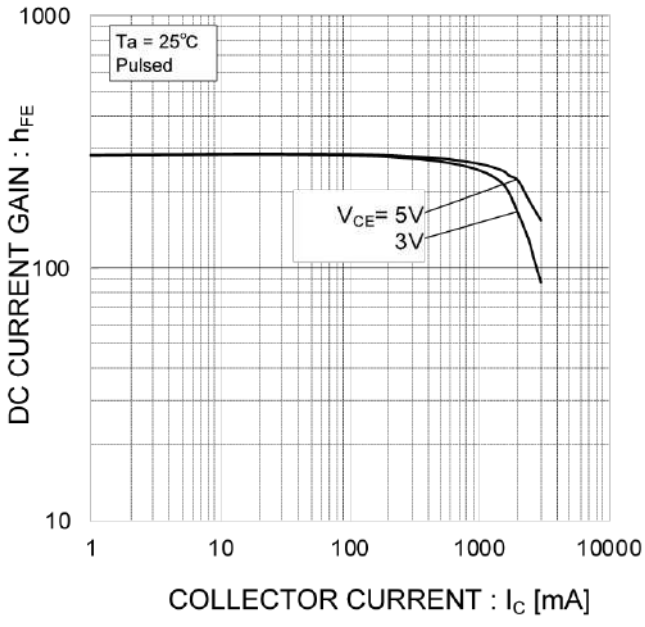


Fig.4 DC Current Gain vs. Collector Current (II)



Typical Characteristics

Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

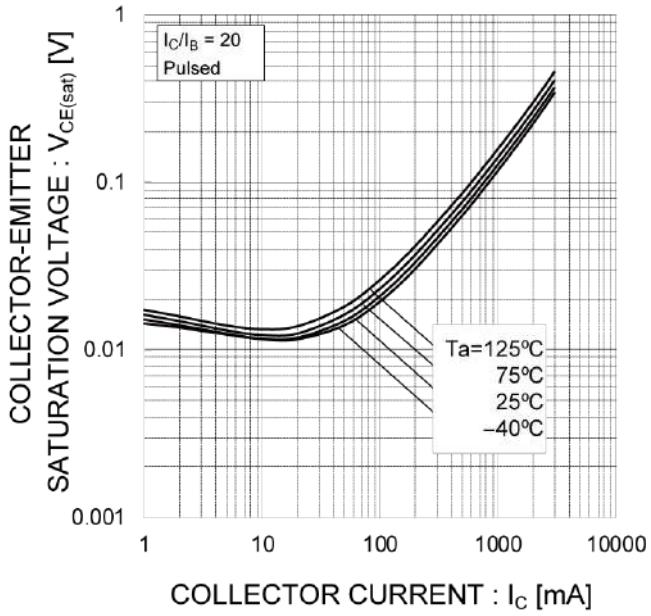


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

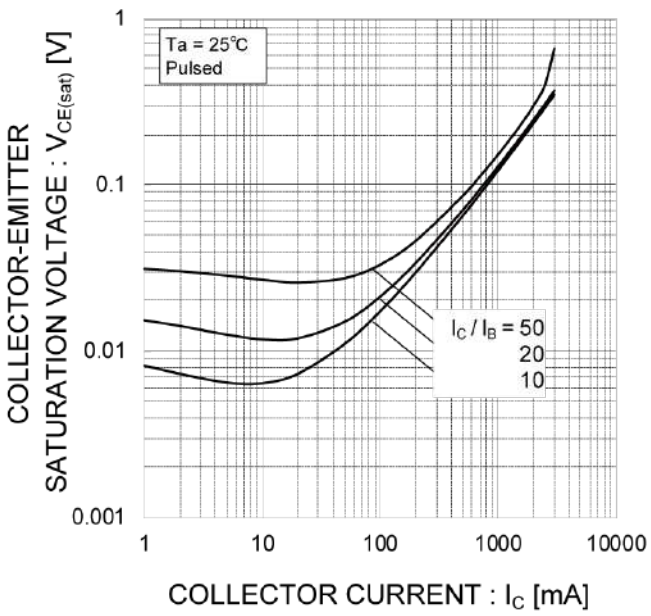


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

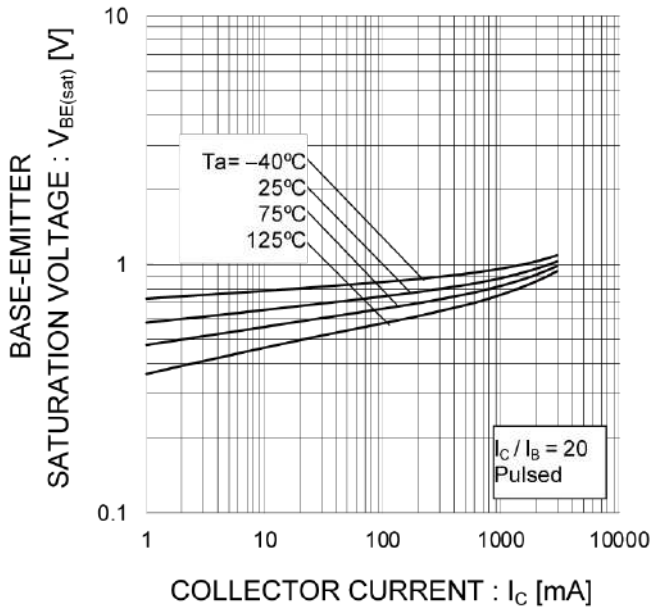
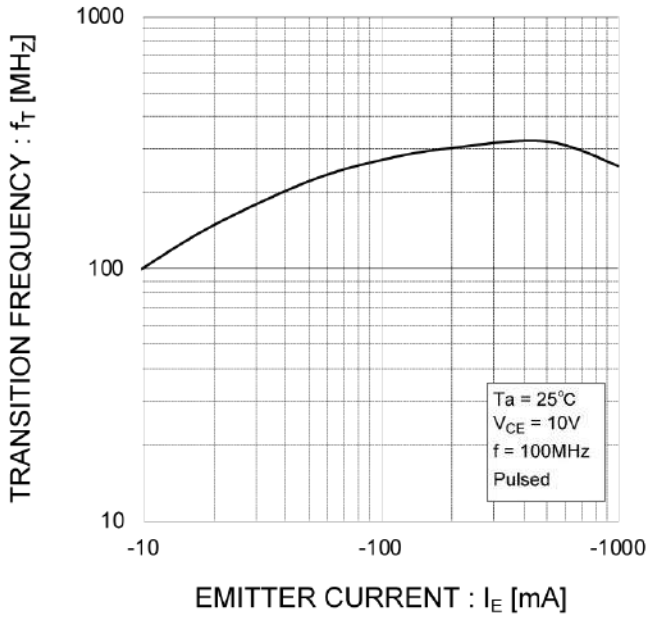


Fig.8 Gain Bandwidth Product vs. Emitter Current



Typical Characteristics

Fig.9 Emitter Input Capacitance vs. Emitter-Base Voltage
Collector Output Capacitance vs. Collector-Base Voltage

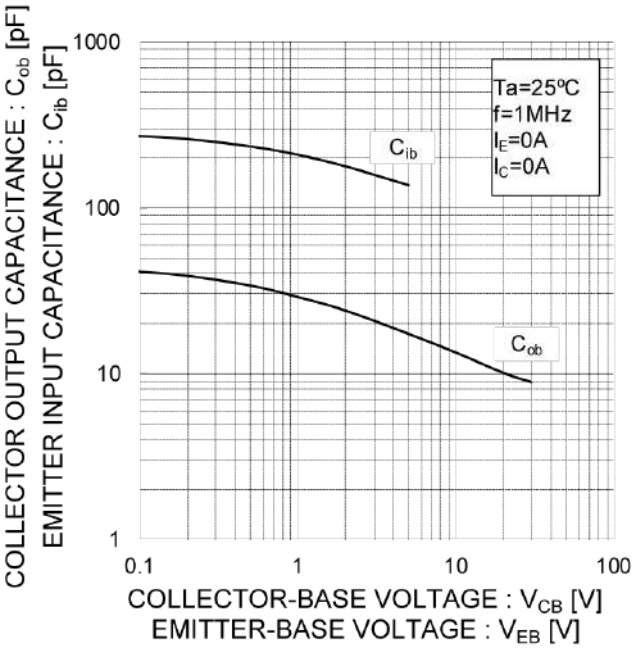
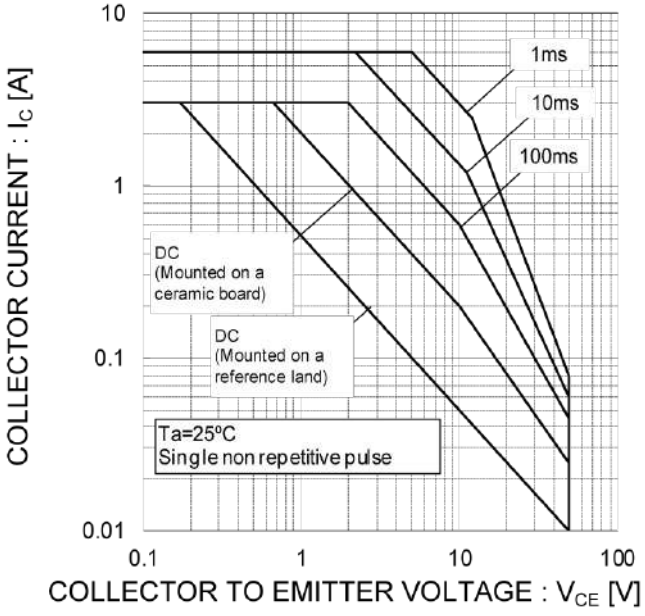
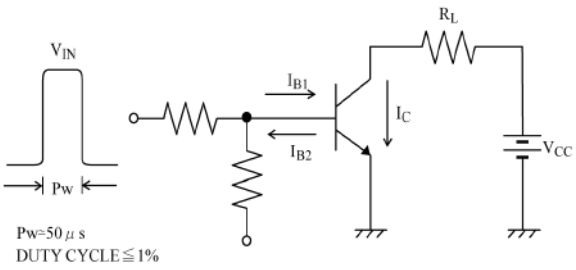
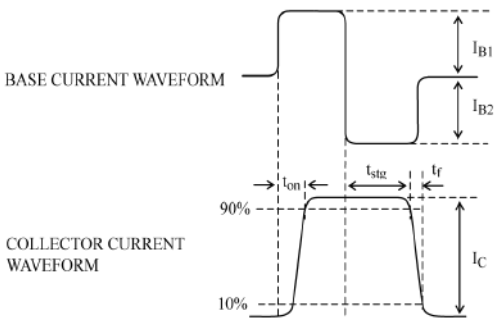


Fig.10 Safe Operating Area

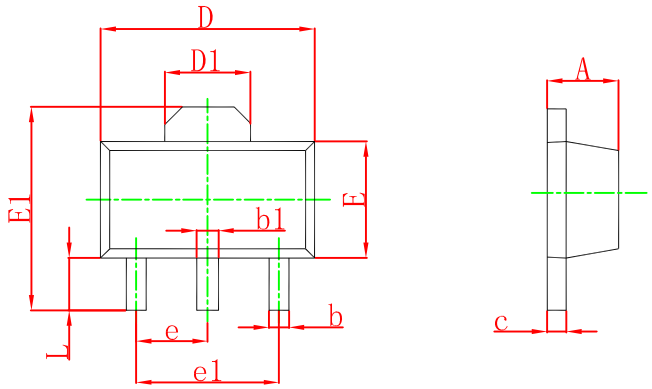


SWITCHING TIME TEST CIRCUIT



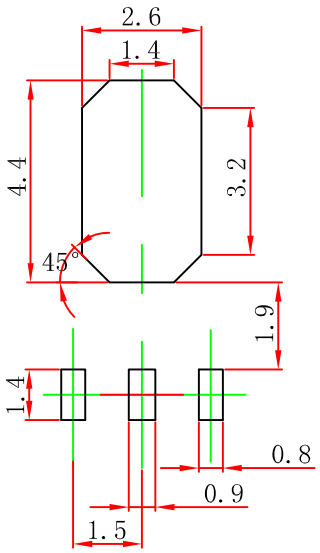


SOT-89-3L Package Outline Dimensions



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

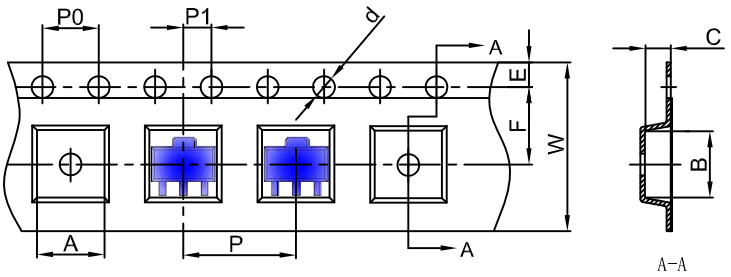
SOT-89-3L Suggested Pad Layout



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

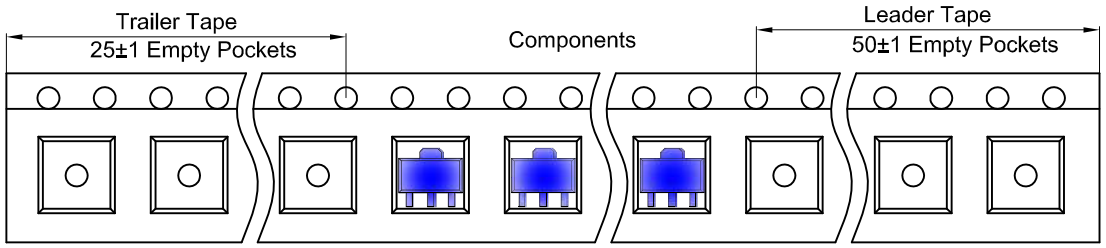


Packaging Description:

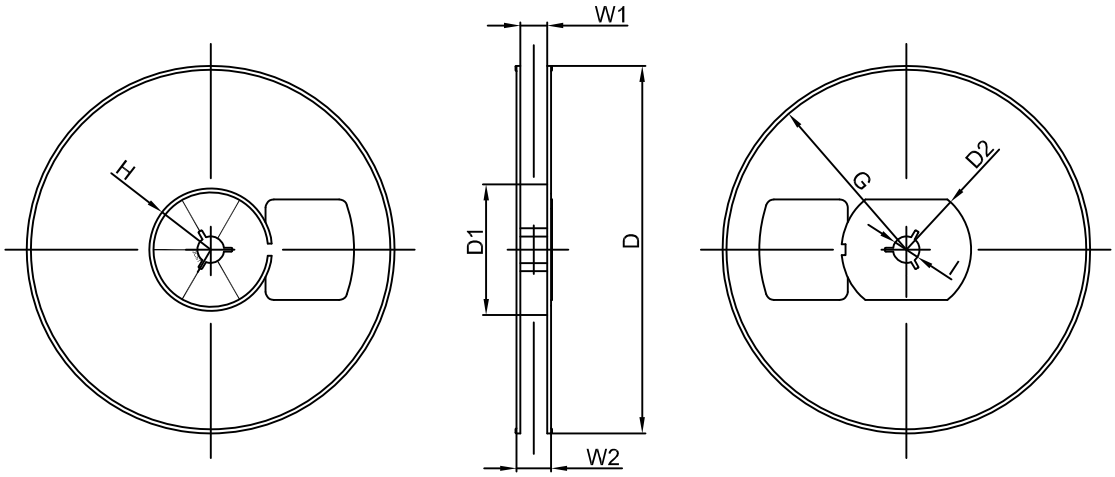
SOT-89-3L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts 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	