

Power transistor (60V, 3A)

• Features

- 1) High speed switching. (T_f : Typ. : 30ns at $I_C = 3A$)
- 2) Low saturation voltage, typically (Typ. : 200mV at $I_C = 2A$, $I_B = 200mA$)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SA2071.

• Applications

NPN Silicon epitaxial planar transistor

• Structure

Low frequency
amplifier High
speed switching

• Absolute maximum ratings ($T_a = 25^\circ C$)

Parameter	Symbol	Limits	Unit
Collector-base voltage	VCBO	60	V
Collector-emitter voltage	VCEO	60	V
Emitter-base voltage	VEBO	6	V
Collector current	I_C	3	A
	I_{CP}	6	A *1
Power dissipation	PC	500	mW *2
	PC	2.0	W *3
Junction temperature	T_j	150	$^\circ C$
Range of storage temperature	T_{stg}	-55~+150	$^\circ C$

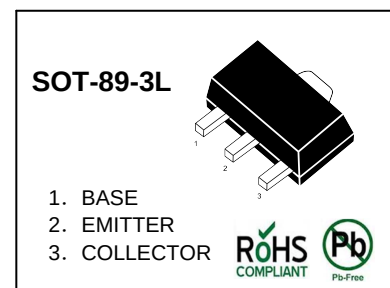
*1 $P_w = 100ms$

*2 Each terminal mounted on a recommended land.

*3 Mounted on a 40x40x0.7(mm) ceramic substrate

• h_{FE} RANK

Q	R
120-270	180-390



• Electrical characteristics (Ta=25 °C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	60	—	—	V	IC=100μA
Collector-emitter breakdown voltage	BVCEO	60	—	—	V	IC=1mA
Emitter-base breakdown voltage	BVEBO	6	—	—	V	IE=100μA
Collector cut-off current	ICBO	—	—	1.0	μA	VCB=40V
Emitter cut-off current	IEBO	—	—	1.0	μA	VEB=4V
Collector-emitter saturation voltage	VCE(sat)	—	200	500	mV	IC=2A, IB=200mA *1
DC current gain	hFE	120	—	390	—	VCE=2V, IC=100mA
Transition frequency	fT	—	200	—	MHz	VCE=10V, IE= -100mA, f=10MHz *
Collector output capacitance	Cob	—	20	—	pF	VCB=10V, IE=0mA, f=1MHz
Turn-on time	Ton	—	50	—	ns	IC=3A, IB1=300mA, IB2= -300mA, VCC 25V *2
Storage time	Tstg	—	150	—	ns	
Fall time	Tf	—	30	—	ns	

*1 Non repetitive pulse

*2 See switching characteristics measurement circuits

• Electrical characteristic curves

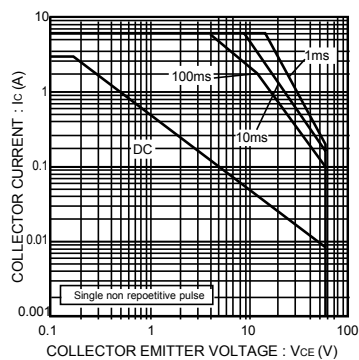


Fig.1 Safe operating area

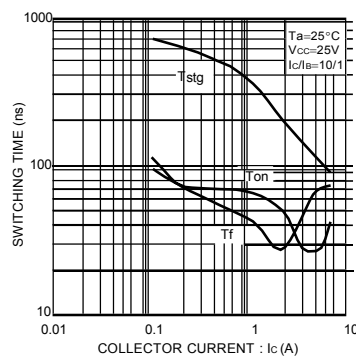


Fig.2 Switching Time

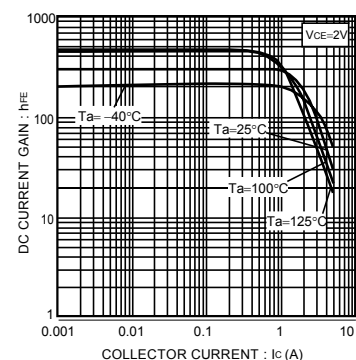


Fig.3 DC current gain vs. collector current

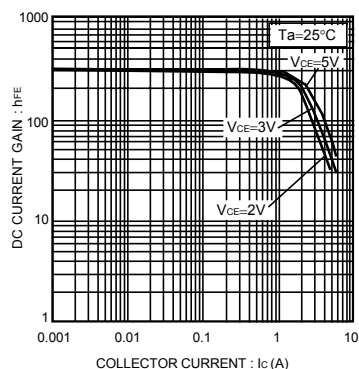


Fig.4 DC current gain vs. collector current

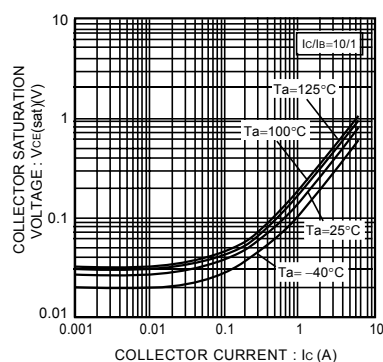


Fig.5 Collector-emitter saturation voltage vs. Collector Current

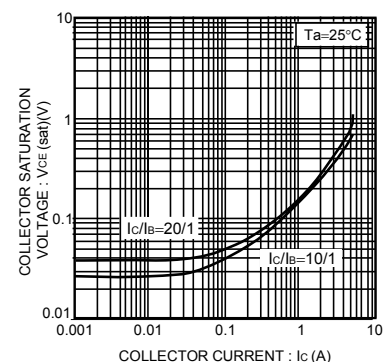


Fig.6 Collector-emitter saturation voltage vs. collector current

Typical Characteristics

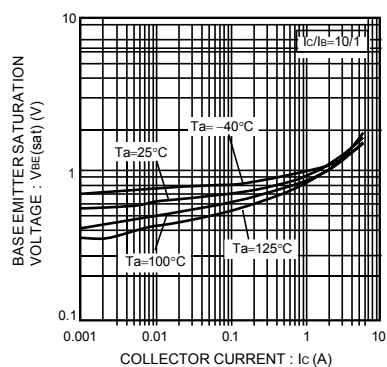


Fig.7 Base-emitter saturation voltage vs. collector current

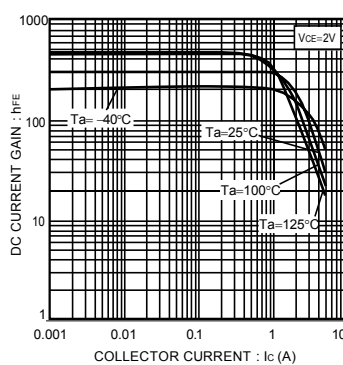


Fig.3 DC current gain vs. collector current

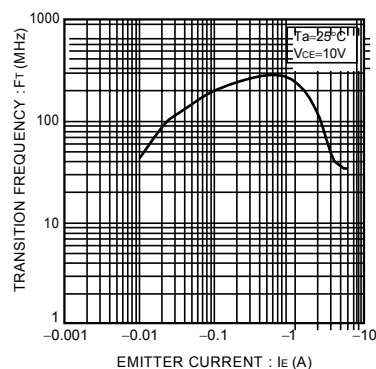


Fig.9 Transition frequency

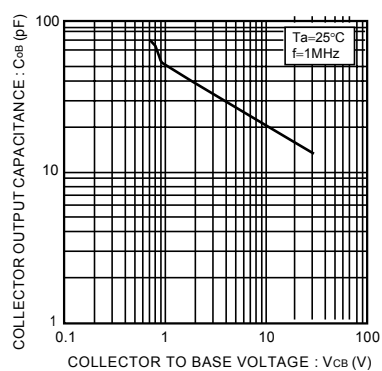
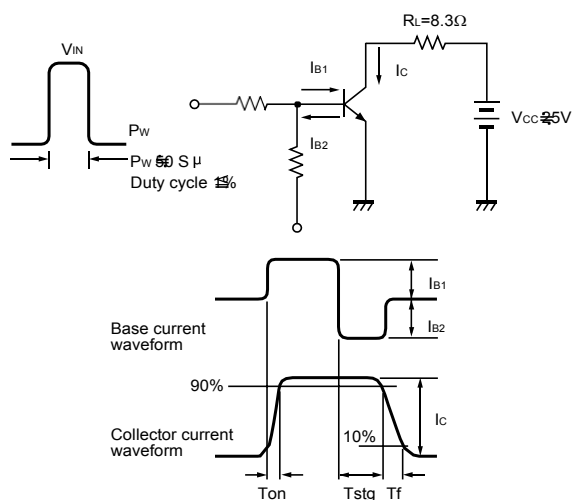


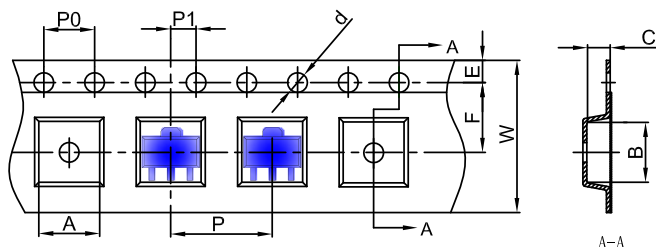
Fig.10 Collector output capacitance

• Switching characteristics measurement circuits



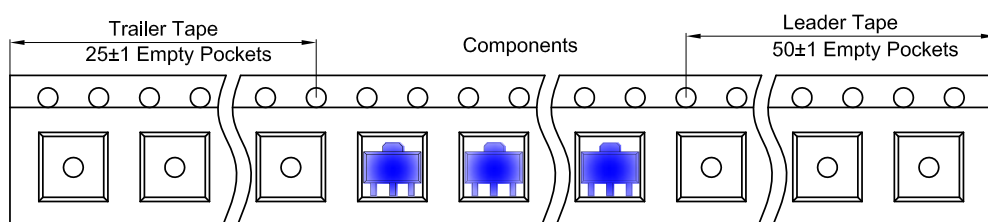
SOT-89-3L Tape and Reel

SOT-89-3L Embossed Carrier Tape

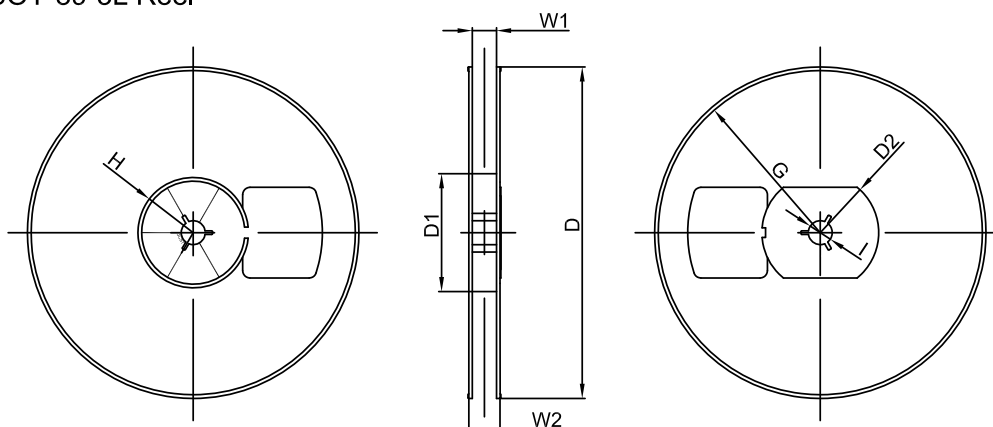


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-89-3L	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

SOT-89-3L Tape Leader and Trailer

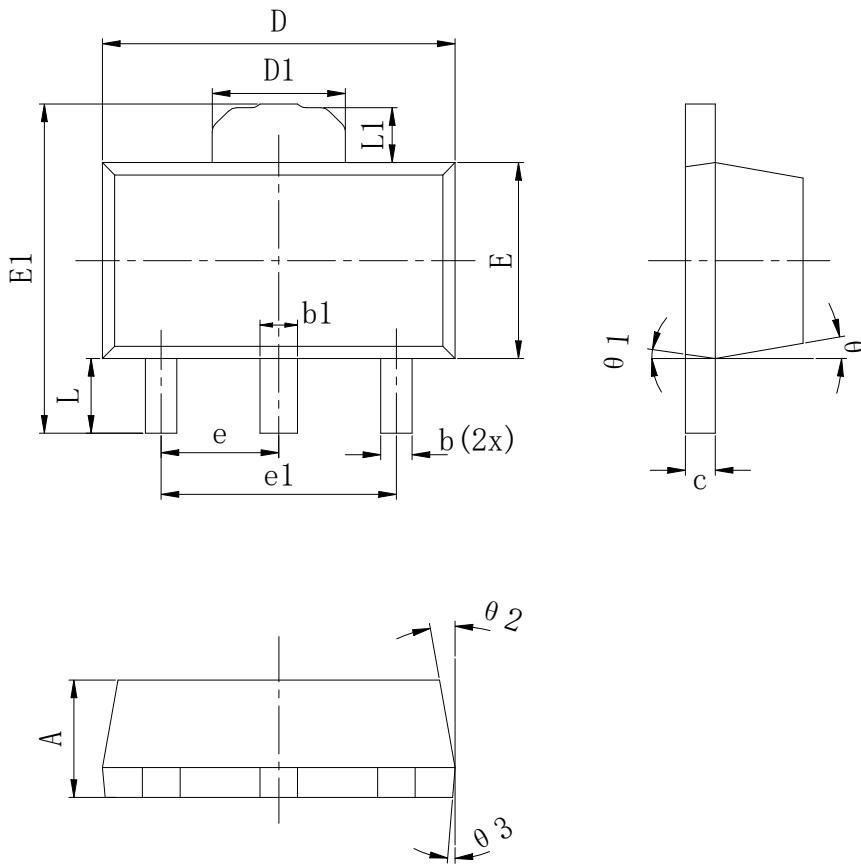


SOT-89-3L Reel



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	



SYMBOL	MILLIMETER		
	MIN	TYP.	MAX
A	1.400	1.500	1.600
b	0.320	0.400	0.520
b1	0.400	0.480	0.580
c	0.350	0.381	0.440
D	4.400	4.500	4.600
D1	1.700REF		
E	2.400	2.500	2.600
E1	4.050	4.200	4.350
e	1.500TYP.		
e1	3.000TYP.		
L	0.800	0.950	1.200
L1	0.700REF		
theta	10° REF		
theta 1	8° REF		
theta 2	10° REF		
theta 3	5° REF		

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