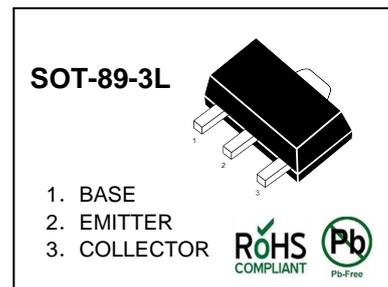


## NPN Silicon Epitaxial Planar Transistor

for high voltage and high speed switching applications

MARKING:13001



### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	700	V
Collector Emitter Voltage	$V_{CEO}$	450	V
Emitter Base Voltage	$V_{EBO}$	9	V
Collector Current (DC)	$I_C$	0.3	A
Total Power Dissipation	$P_{tot}$	0.75	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

### Characteristics at $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $V_{CE} = 10\text{ V}$ , $I_C = 0.25\text{ mA}$ at $V_{CE} = 20\text{ V}$ , $I_C = 20\text{ mA}$	$h_{FE(1)}$ $h_{FE(2)}$	5 15	- 30	- -
Collector Base Cutoff Current at $V_{CB} = 500\text{ V}$	$I_{CBO}$	-	100	$\mu\text{A}$
Collector Emitter Cutoff Current at $V_{CE} = 400\text{ V}$	$I_{CEO}$	-	100	$\mu\text{A}$
Emitter Base Cutoff Current at $V_{EB} = 9\text{ V}$	$I_{EBO}$	-	100	$\mu\text{A}$
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	700	-	V
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	450	-	V
Emitter Base Breakdown Voltage at $I_E = 100\text{ }\mu\text{A}$	$V_{(BR)EBO}$	9	-	V
Collector Emitter Saturation Voltage at $I_C = 50\text{ mA}$ , $I_B = 10\text{ mA}$	$V_{CE(sat)}$	-	0.4	V
Base Emitter Saturation Voltage at $I_C = 50\text{ mA}$ , $I_B = 10\text{ mA}$	$V_{BE(sat)}$	-	1.1	V
Transition Frequency at $V_{CE} = 20\text{ V}$ , $I_C = 20\text{ mA}$ , $f = 1\text{ MHz}$	$f_T$	8	-	MHz
Storage Time at UI9600, $I_C = 100\text{ mA}$	$t_s$	-	3	$\mu\text{s}$
Fall Time at UI9600, $I_C = 100\text{ mA}$	$t_f$	-	1	$\mu\text{s}$

### CLASSIFICATION OF $h_{FE(2)}$

Range	15-20	20-25	25-30

## Typical Characteristics

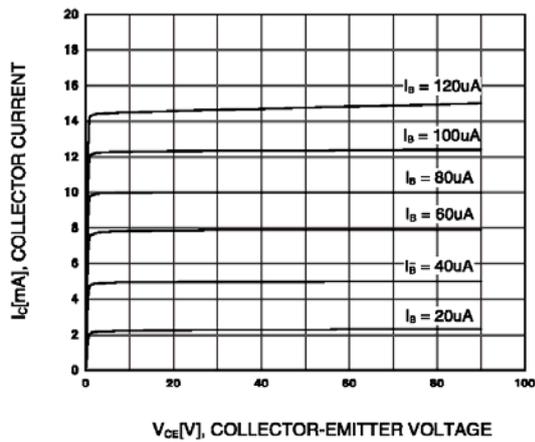


Figure 1. Static Characteristic

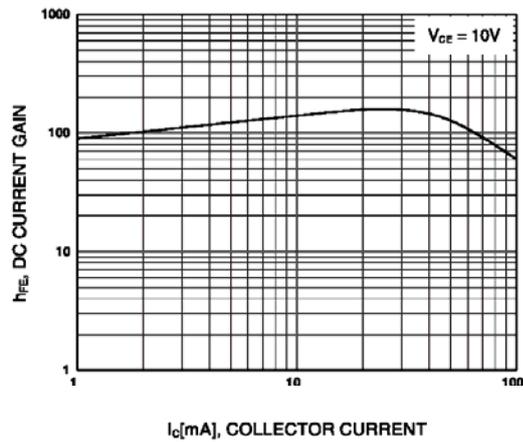


Figure 2. DC current Gain

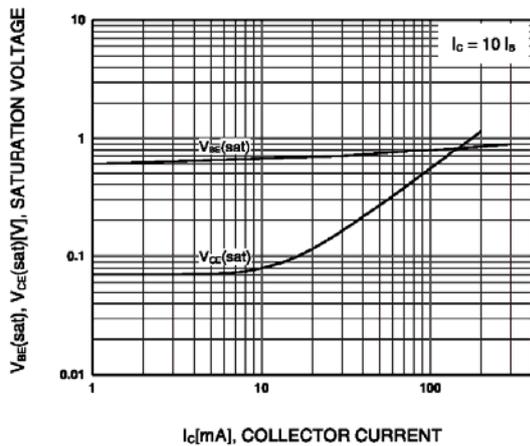


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emmitter Saturation Voltage

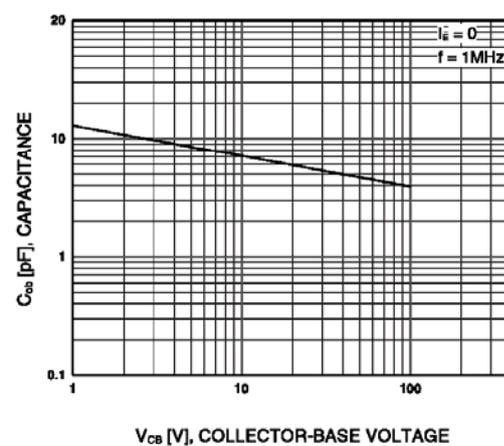
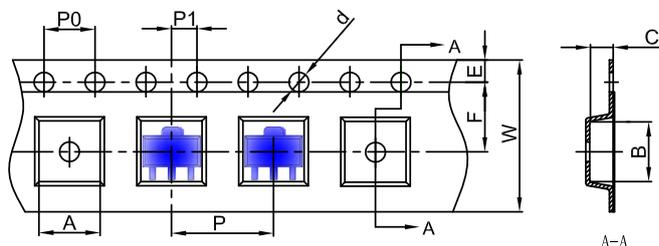


Figure 4. Collector Output Capacitance

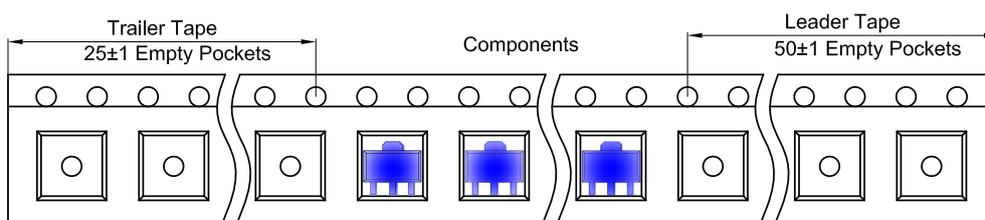
## SOT-89-3L Tape and Reel

### SOT-89-3L Embossed Carrier Tape

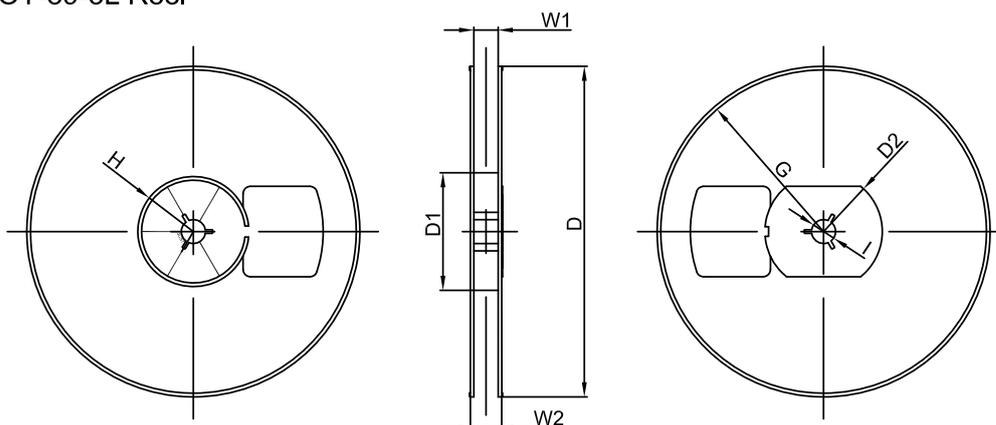


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-89-3L	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

### SOT-89-3L Tape Leader and Trailer

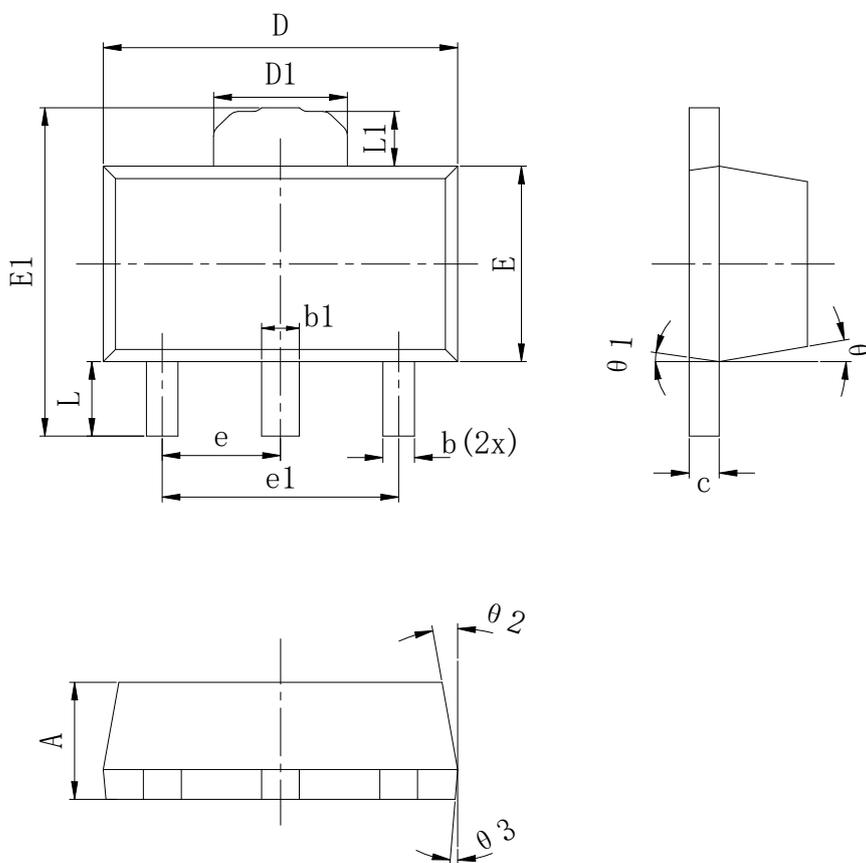


### SOT-89-3L Reel



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		
θ	10° REF		
θ 1	8° REF		
θ 2	10° REF		
θ 3	5° REF		

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