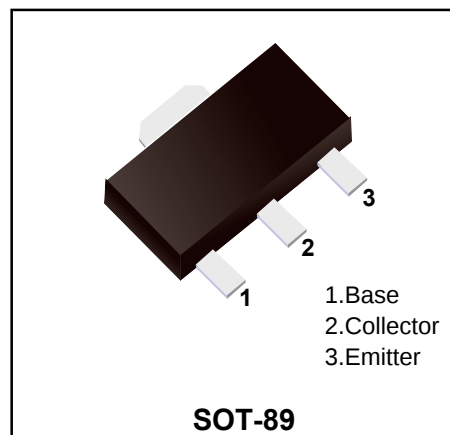


Plastic-Encapsulate Transistors

TRANSISTOR (NPN)

FEATURES

- ◆Compliment to 2N3906SI
- ◆Low current
- ◆Low voltage



Marking Code

2N3904SI

1A

MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	0.2	A
P_C	Collector Power Dissipation	0.5	W
T_J	Junction Temperature	150	°C
T_{stg}	Storage Temperature	-55~150	°C

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=30V, I_E=0$			0.05	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=6V, I_C=0$			0.05	μA
Collector ut-off current	I_{CEX}	$V_{CE}=30V, V_{BE(off)}=3V$			0.05	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=1V, I_C=0.1mA$	60			
	$h_{FE(2)}$	$V_{CE}=1V, I_C=1mA$	80			
	$h_{FE(3)}$	$V_{CE}=1V, I_C=10mA$	100		300	
	$h_{FE(4)}$	$V_{CE}=1V, I_C=50mA$	60			
	$h_{FE(5)}$	$V_{CE}=1V, I_C=100mA$	30			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=10mA, I_B=1mA$			0.2	V
	$V_{CE(sat)2}$	$I_C=50mA, I_B=5mA$			0.3	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C=10mA, I_B=1mA$	0.65		0.85	V
	$V_{BE(sat)2}$	$I_C=50mA, I_B=5mA$			0.95	V
Transition frequency	f_T	$V_{CE}=20V, I_C=10mA, f=100MHz$	300			MHz
Collector capacitance	C_c	$V_{CB}=5V, I_E=0, f=1MHz$			4	pF
Emitter capacitance	C_e	$V_{EB}=0.5V, I_C=0, f=1MHz$			8	pF
Noise figure	NF	$V_{CE}=5V, I_C=0.1mA, f=10Hz-15.7kHz, R_S=1K\Omega$			5	dB
Delay time	t_d	$I_C=10mA, I_{B1}=-I_{B2}=1mA$			35	ns
Rise time	t_r				35	ns
Storage time	t_s				200	ns
Fall time	t_f				50	ns

Ordering information

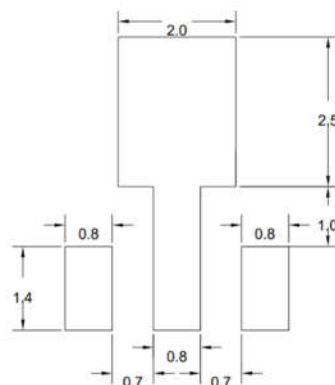
Package	Packing Description	Base Quantity	Packing Quantity
SOT-89	Tape/Reel, 7" reel	3000pcs/Reel	30000PCS/Carton

Package Dimensions

SOT-89

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.40	1.60	0.055	0.063
b	0.32	0.52	0.013	0.020
b1	0.38	0.58	0.015	0.023
c	0.35	0.45	0.014	0.018
D	4.40	4.60	0.173	0.181
D1	1.45	1.65	0.057	0.065
D2	1.70	1.80	0.067	0.071
E	2.30	2.60	0.091	0.102
E1	3.95	4.25	0.156	0.167
E2	1.80	2.00	0.071	0.079
e	1.40	1.60	0.055	0.063
e1	2.80	3.20	0.110	0.126
L	0.90	1.20	0.035	0.047

The recommended mounting pad size



UNIT:MM

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