

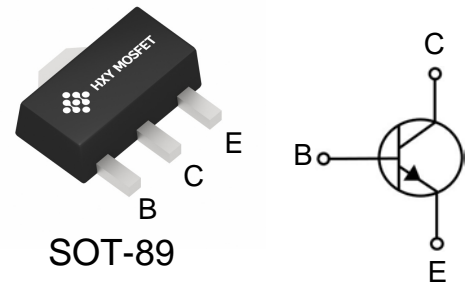


## Features

- Low Current
- Low Voltage
- Surface Mount device

## Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
2N3904U	SOT-89	1A	1000



## Maxmim Ratings (Ta=25 unless otherwise noted)

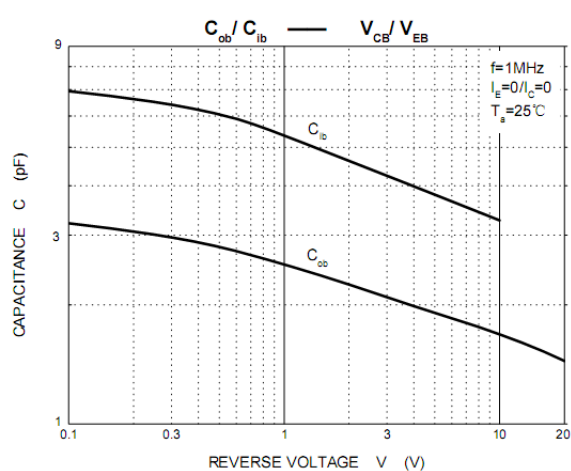
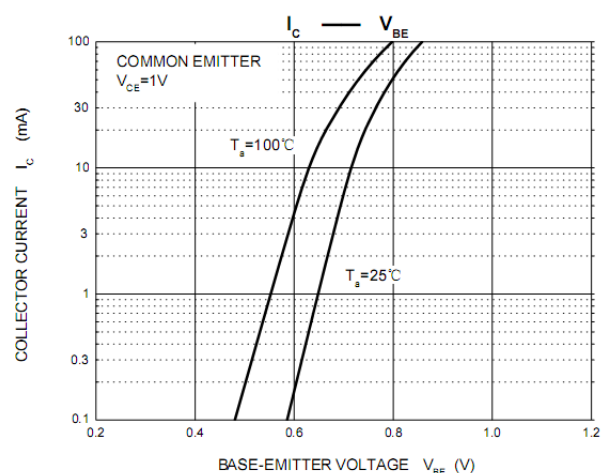
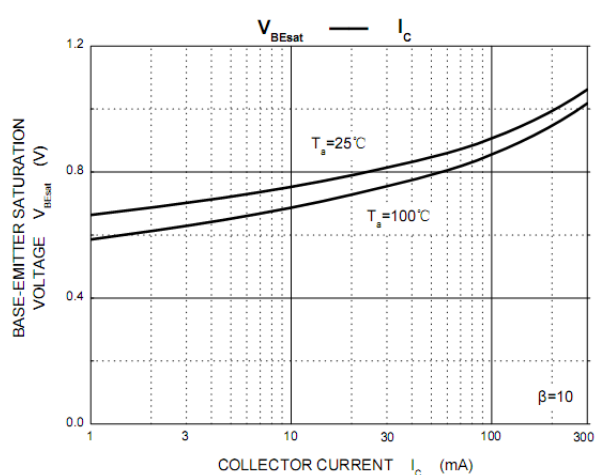
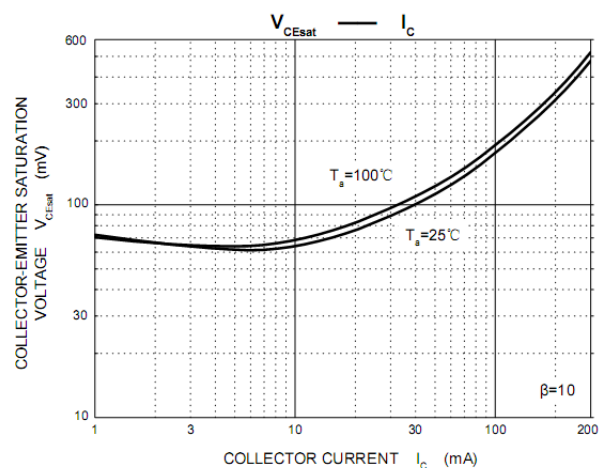
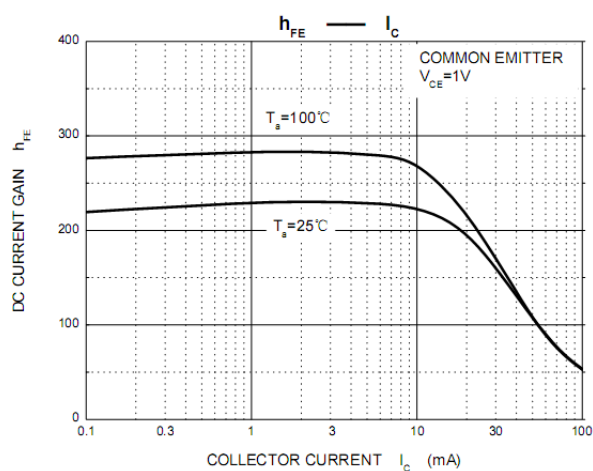
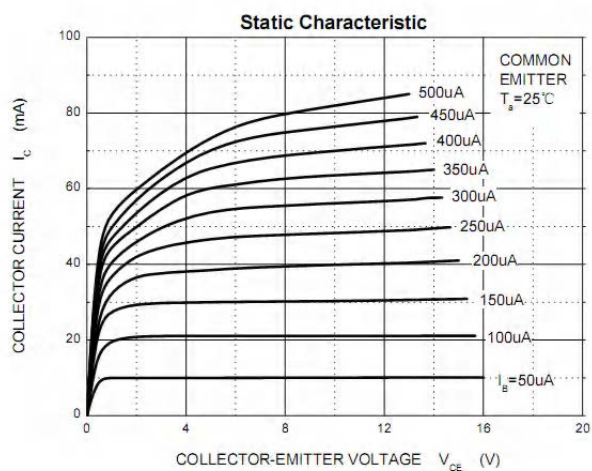
Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{CEO}$	Collector-Emitter Voltage	40	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current -Continuous	0.2	A
$P_C$	Collector Power Dissipation	0.5	W
$T_J, T_{stg}$	Operation Junction and Storage Temperature Range	-55~150	°C

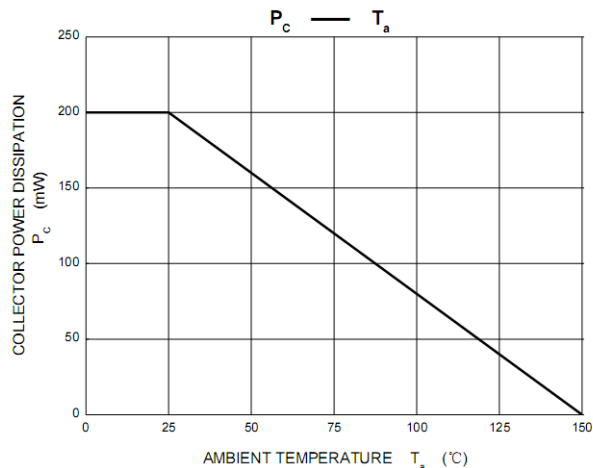
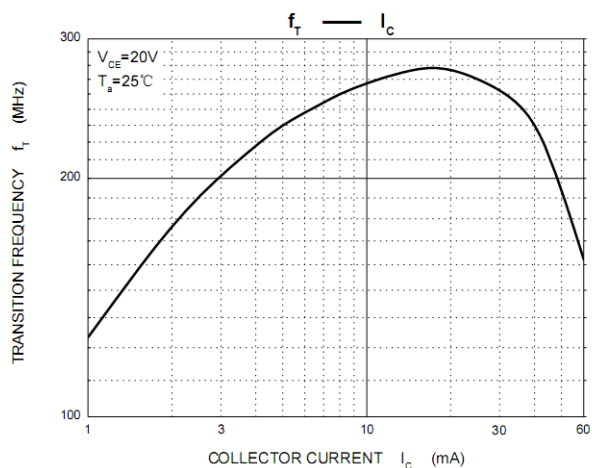
## Electrcal Charcteristics (Ta=25 unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=30V, I_E=0$			50	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=1V, I_C=0$			50	nA
DC current gain	$h_{FE(1)}$	$V_{CE}=1V, I_C=1mA$	80			
	$h_{FE(2)}$	$V_{CE}=1V, I_C=10mA$	100		300	
	$h_{FE(3)}$	$V_{CE}=1V, I_C=50mA$	60			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=1mA$			0.2	V
	$V_{CE(sat)}$	$I_C=50mA, I_B=5mA$			0.3	V
Base-emitter voltage	$V_{BE(sat)}$	$I_C=10mA, I_B=1mA$			0.85	V
	$V_{BE(sat)}$	$I_C=50mA, I_B=5mA$			0.95	V
Transition frequency	$f_T$	$V_{CE}=10V, I_C=10mA, f=100MHz$	300			MHz
Collector capacitance	$C_C$	$V_{CB}=5V, I_E=0, f=1MHz$			6	pF
Noise figure	NF	$V_{CE}=5V, I_C=0.1mA, f=10Hz \text{ to } 15.7KHz, R_s=1K\Omega$			4	dB

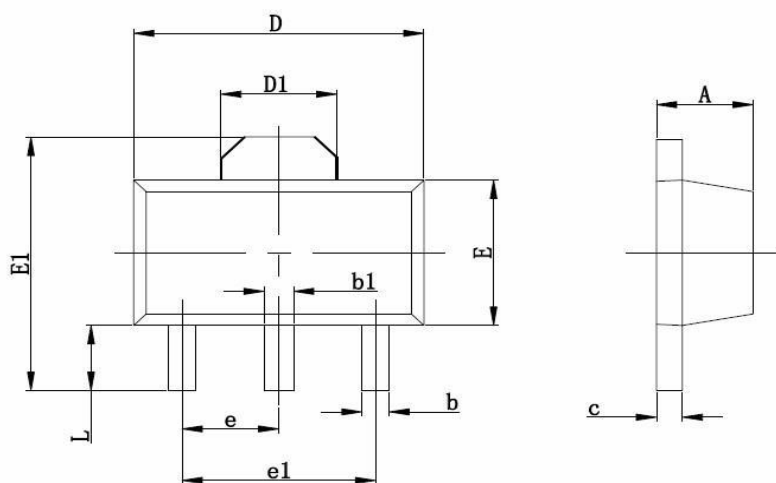


## Typical Characteristics





### 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	1.550 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



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