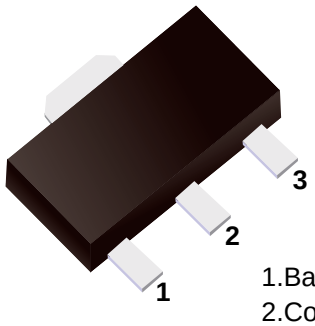
■NPN Transistors

■ Features

● Excellent h_{FE} characteristics



1.Base
2.Collector
3.Emitter

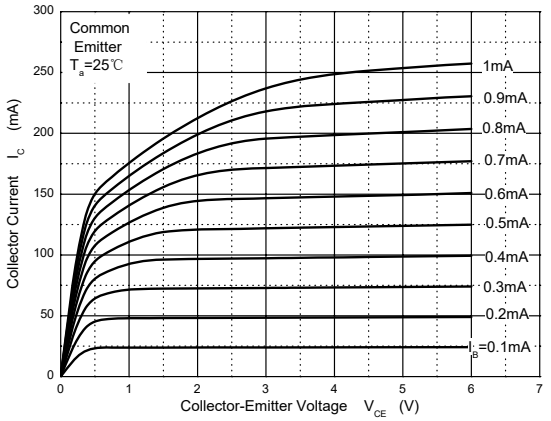
■ **Simplified outline(SOT-89)**

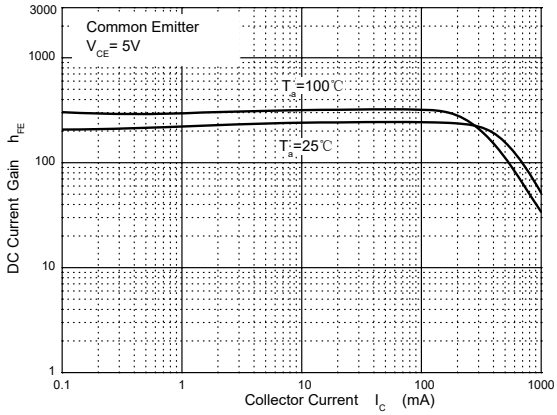
■ Absolute Maximum Ratings Ta = 25℃

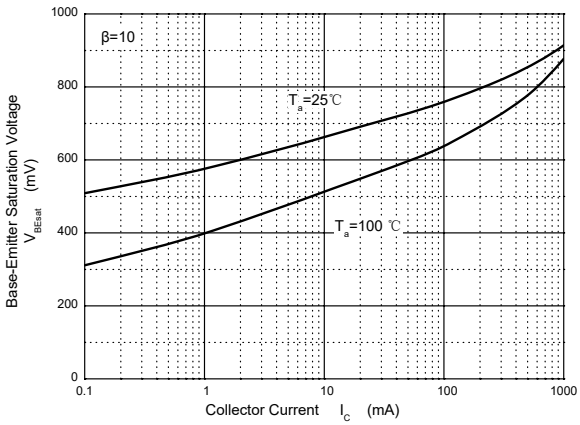
Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	160	V
Collector Emitter Voltage	V_{CEO}	160	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	1	A
Base Current	I_B	0.5	A
Collector Power Dissipation	P_{tot}	500	mW
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	- 55 to + 150	℃

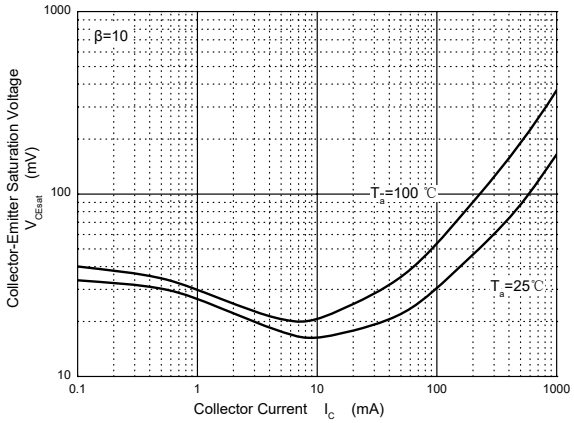
■ Electrical Characteristics Ta = 25℃

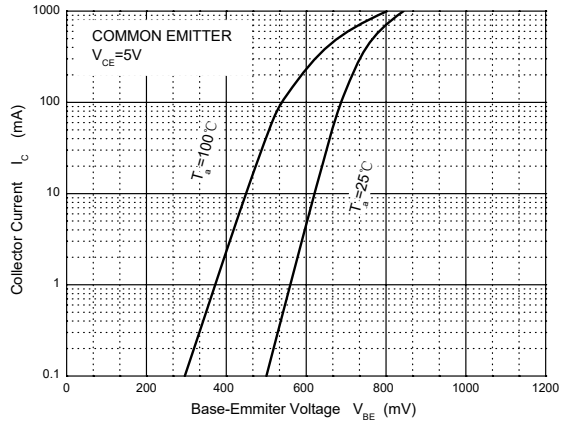
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_{CE} = 5 V, I_C = 200 mA Current Gain Group O Y	h_{FE} h_{FE}	100 160	- -	200 320	- -
Collector Base Cutoff Current at V_{CB} = 150 V	I_{CBO}	-	-	1	μA
Emitter Base Cutoff Current at V_{EB} = 6 V	I_{EBO}	-	-	1	μA
Collector Emitter Breakdown Voltage at I_C = 10 mA	$V_{(BR)CEO}$	160	-	-	V
Collector Emitter Saturation Voltage at I_C = 500 mA, I_B = 50 mA	$V_{CE(sat)}$	-	-	1.5	V
Base Emitter on Voltage at I_C = 5 mA, V_{CE} = 5 V	$V_{BE(on)}$	0.45	-	0.75	V
Transition Frequency at V_{CE} = 5 V, I_C = 200 mA	f_T	20	100	-	MHz
Collector Output Capacitance at V_{CB} = 10 V, f = 1 MHz	C_{ob}	-	-	20	pF

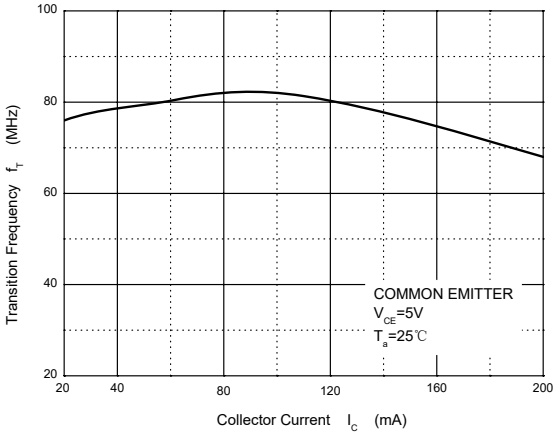

Common
Emitter
T_a=25℃
1mA
0.9mA
0.8mA
0.7mA
0.6mA
0.5mA
0.4mA
0.3mA
0.2mA
I_B=0.1mA
Collector Current I_C (mA)
Collector-Emitter Voltage V_{CE} (V)

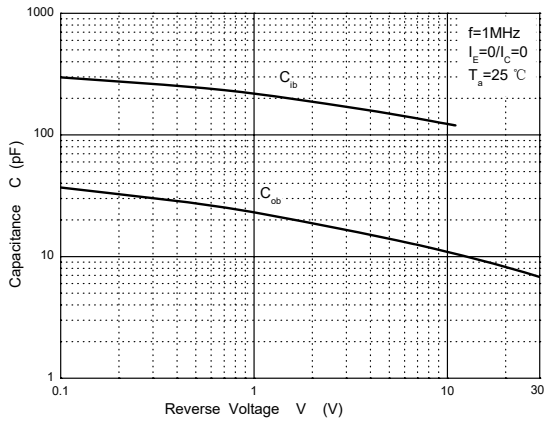

Common Emitter
V_{CE}= 5V
T_a=100℃
T_a=25℃
DC Current Gain h_{FE}
Collector Current I_C (mA)

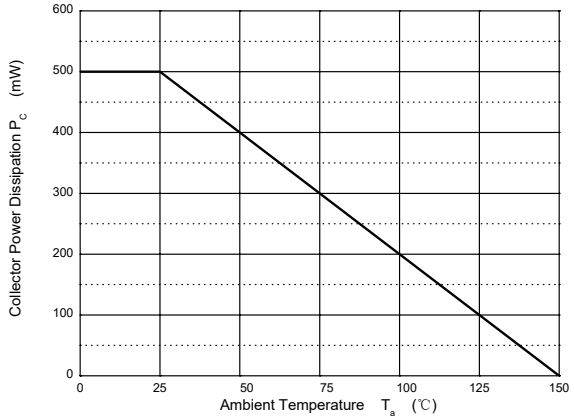

β=10
T_a=25℃
T_a=100 ℃
Base-Emitter Saturation Voltage
V_{BEsat} (mV)
Collector Current I_C (mA)


β=10
T_a=100 ℃
T_a=25℃
Collector-Emitter Saturation Voltage
V_{CEsat} (mV)
Collector Current I_C (mA)

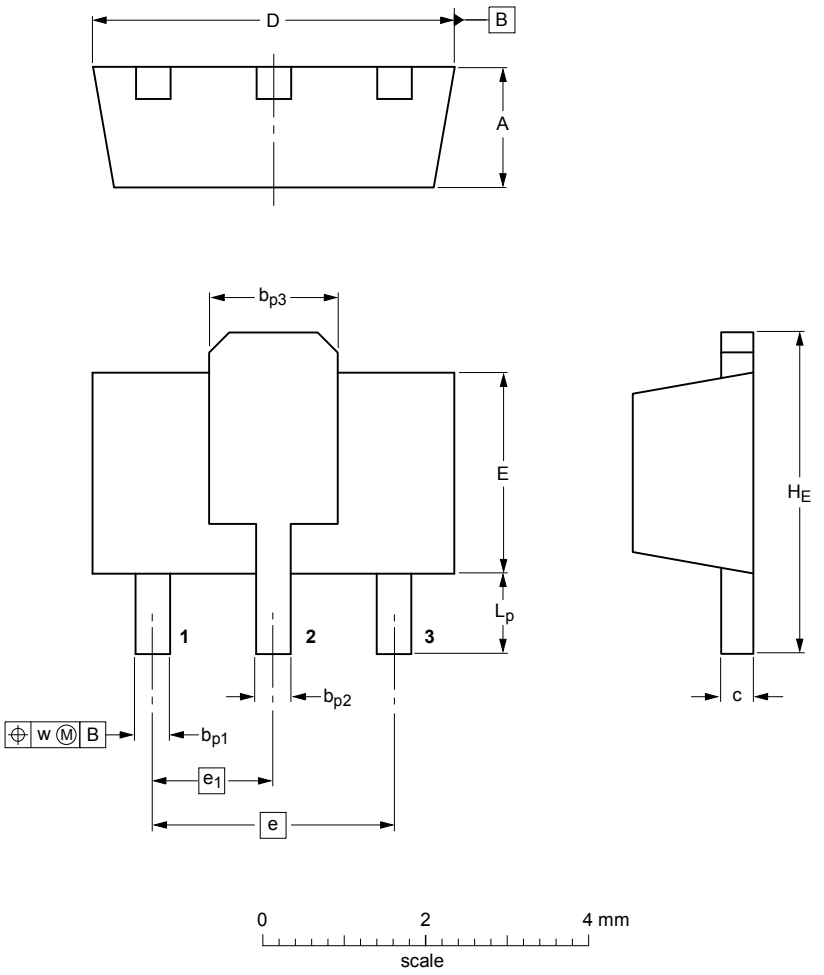

COMMON EMITTER
V_{CE}=5V
T_a=100℃
T_a=25℃
Collector Current I_C (mA)
Base-Emmiter Voltage V_{BE} (mV)


COMMON EMITTER
V_{CE}=5V
T_a=25℃
Transition Frequency f_T (MHz)
Collector Current I_C (mA)


f=1MHz
I_E=0/I_C=0
T_a=25 ℃
C_{ib}
C_{ob}
Capacitance C (pF)
Reverse Voltage V (V)


Collector Power Dissipation P_C (mW)
Ambient Temperature T_a (℃)

■ SOT-89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_{p1}	b_{p2}	b_{p3}	c	D	E	e	e_1	H_E	L_p	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.23	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	1.2 0.8	0.13