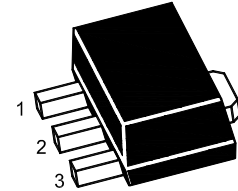


## Plastic-Encapsulate Transistors

TRANSISTOR (NPN)

### FEATURES

- Excellent DC current gain characteristics
- Complements the 2SB1386



1.Base 2.Collector 3.Emitter  
SOT-89 Plastic Package

**MAXIMUM RATINGS** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Value	Units
$V_{CB0}$	Collector-Base Voltage	50	V
$V_{CE0}$	Collector-Emitter Voltage	20	V
$V_{EB0}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current -Continuous	5	A
$P_C$	Collector Power Dissipation	500	mW
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55-150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS** ( $T_{amb}=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=50\mu\text{A}, I_E=0$	50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	20			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=50\mu\text{A}, I_C=0$	6			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=40\text{V}, I_E=0$			0.5	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$			0.5	$\mu\text{A}$
DC current gain	$h_{FE}$	$V_{CE}=2\text{V}, I_C=0.5\text{A}$	120		390	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=4\text{A}, I_B=100\text{mA}$			1	V
Transition frequency	$f_T$	$V_{CE}=6\text{V}, I_C=50\text{mA}, f=100\text{MHz}$		150		MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=20\text{V}, I_E=0, f=1\text{MHz}$		30		pF

**CLASSIFICATION OF  $h_{FE}$**

Rank	Q	R
Range	120-270	180-390
Marking	AHQ	AHR



**CHINA BASE**  
INTERNATIONAL

**SOT-89**

**2SD2098U**



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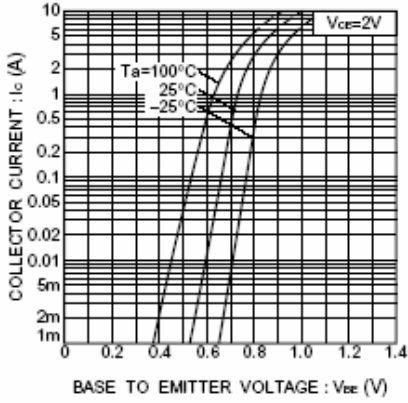


Fig.1 Grounded emitter propagation characteristics

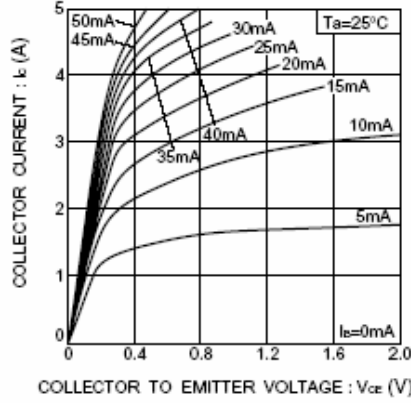


Fig.2 Grounded emitter output characteristics

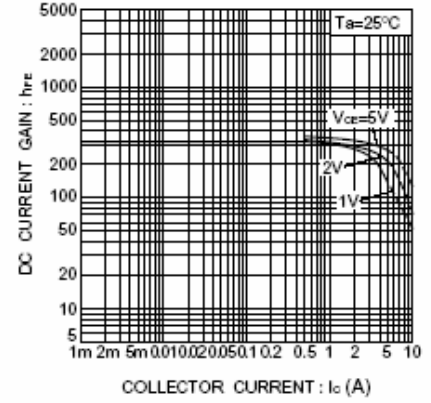


Fig.3 DC current gain vs. collector current ( I )

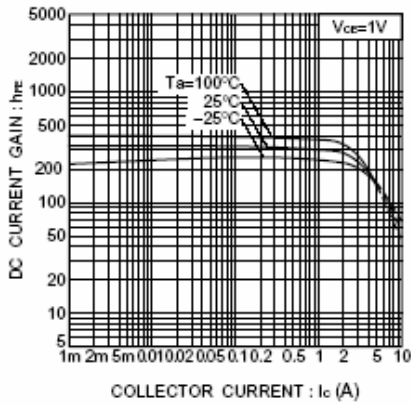


Fig.4 DC current gain vs. collector current ( II )

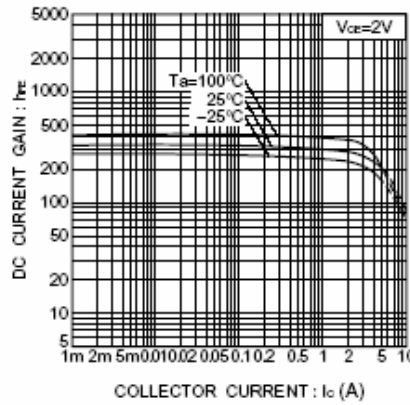


Fig.5 DC current gain vs. collector current ( III )

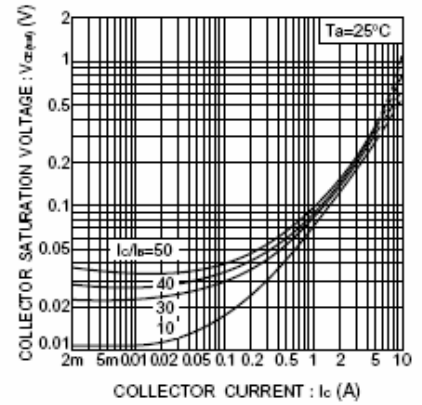


Fig.6 Collector-emitter saturation voltage vs. collector current ( I )

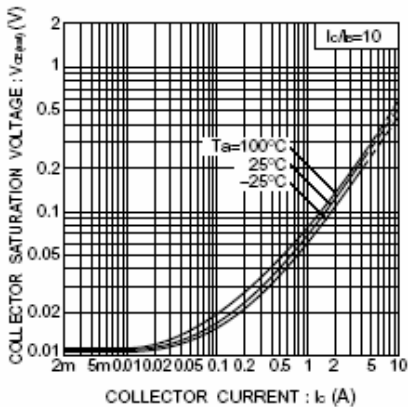


Fig.7 Collector-emitter saturation voltage vs. collector current ( II )

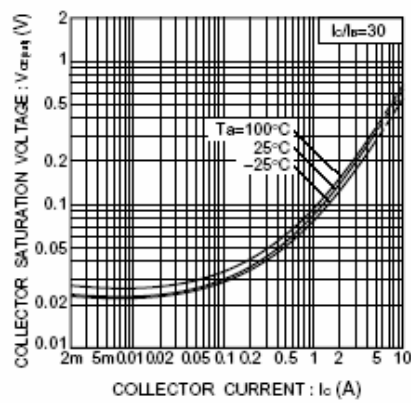


Fig.8 Collector-emitter saturation voltage vs. collector current ( III )

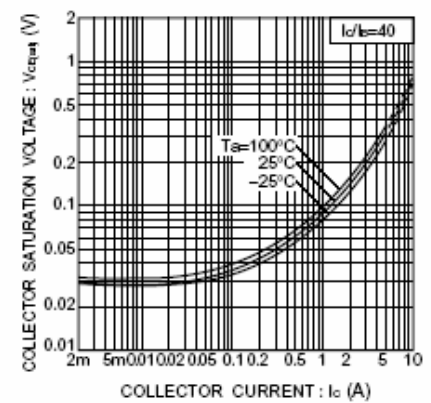


Fig.9 Collector-emitter saturation voltage vs. collector current ( IV )

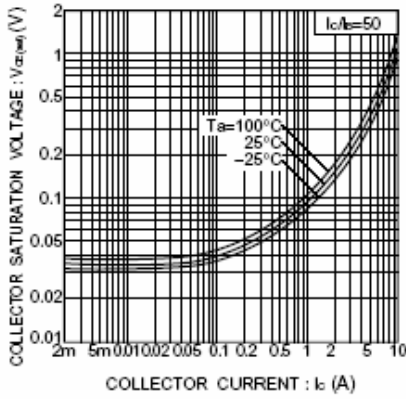


Fig.10 Collector-emitter saturation voltage vs. collector current (V)

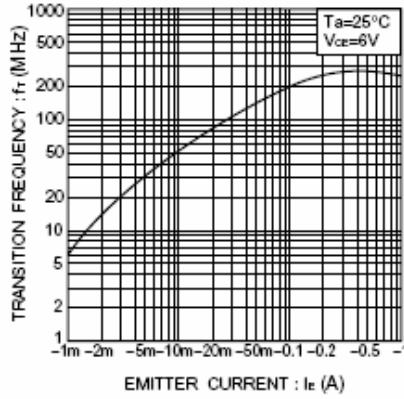


Fig.11 Gain bandwidth product vs. emitter current

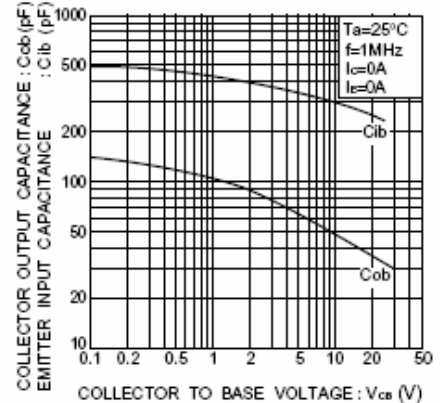


Fig.12 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

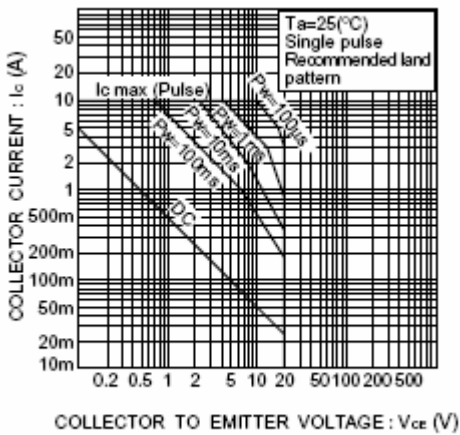
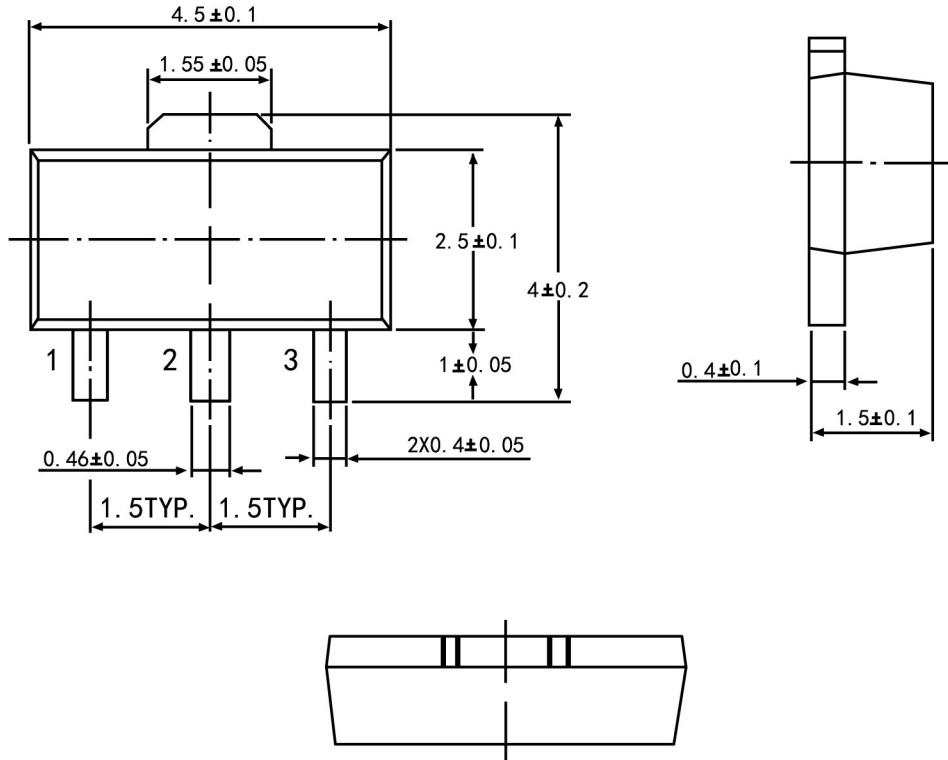


Fig.13 Safe operating area



### SOT-89 PACKAGE OUTLINE



Symbol	Dimension in Millimeters	
	Min	Max
A	1.40	1.60
B	0.44	0.62
B1	0.35	0.54
C	0.35	0.44
D	4.40	4.60
D1	1.62	1.83
E	2.29	2.60
e	1.50 Typ	
H	3.94	4.25
H1	2.63	2.93
L	0.89	1.20
All Dimensions In mm		