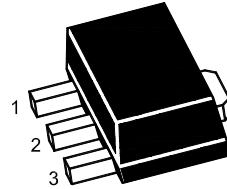


## Plastic-Encapsulate Transistors

TRANSISTOR (NPN)

### FEATURES

- Small Flat Package
- High Breakdown Voltage
- Excellent DC Current Gain Linearity



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

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

Symbol	Parameter	Value	Unit
$V_{CB0}$	Collector-Base Voltage	100	V
$V_{CEO}$	Collector-Emitter Voltage	80	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current	1	A
$P_C$	Collector Power Dissipation	500	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	250	$^{\circ}\text{C}/\text{W}$
$T_j$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature	-55~+150	$^{\circ}\text{C}$

### ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CB0}$	$I_C=0.1\text{mA}, I_E=0$	100			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	80			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=0.1\text{mA}, I_C=0$	5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=100\text{V}, I_E=0$			0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$			0.1	$\mu\text{A}$
DC current gain	$h_{FE(1)}^*$	$V_{CE}=2\text{V}, I_C=100\text{mA}$	90		400	
	$h_{FE(2)}^*$	$V_{CE}=2\text{V}, I_C=500\text{mA}$	25			
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C=500\text{mA}, I_B=50\text{mA}$			0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}^*$	$I_C=500\text{mA}, I_B=50\text{mA}$			1.5	V
Base-emitter voltage	$V_{BE}^*$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	0.6		0.7	V
Transition frequency	$f_T$	$V_{CE}=5\text{V}, I_C=10\text{mA}$		160		MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		12		pF

\*Pulse test

### CLASSIFICATION OF $h_{FE(1)}$

RANK	W	V	U
RANGE	90 - 180	135 - 270	200 - 400
MARKING	BW	BV	BU



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# SOT-89

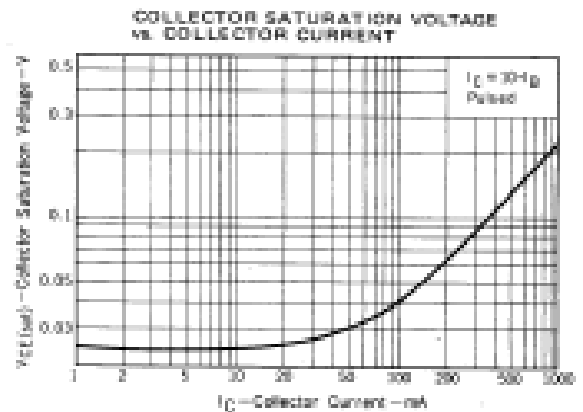
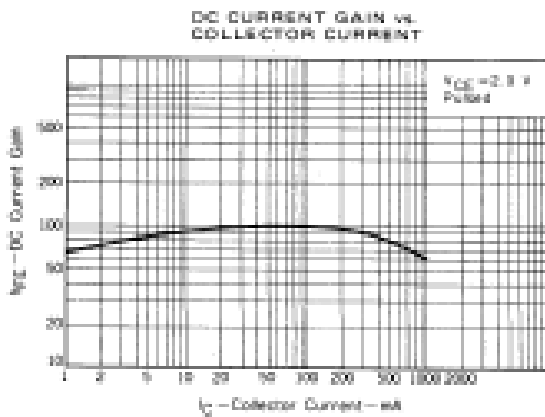
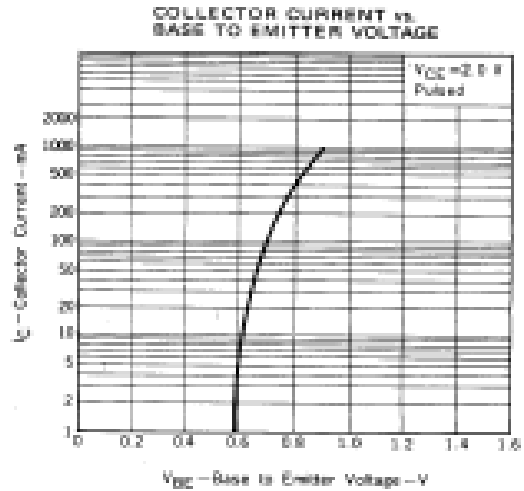
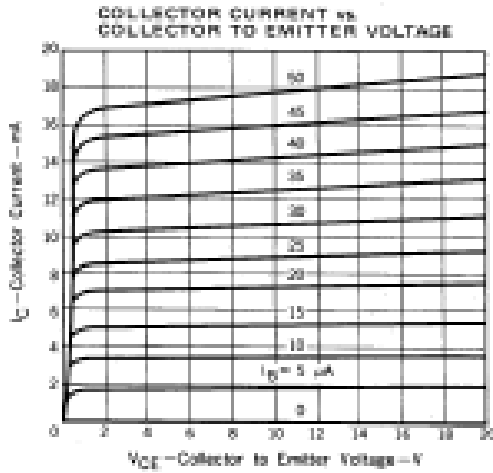
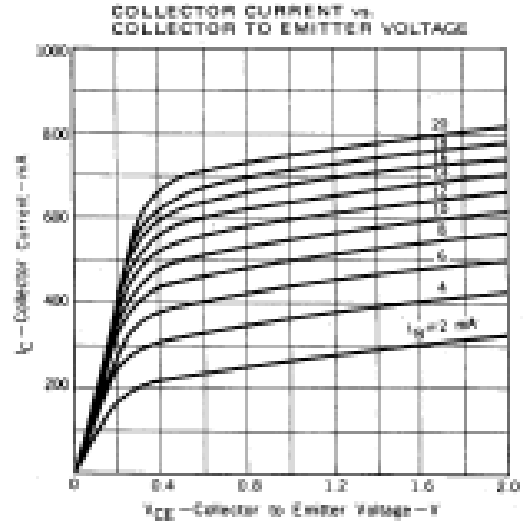
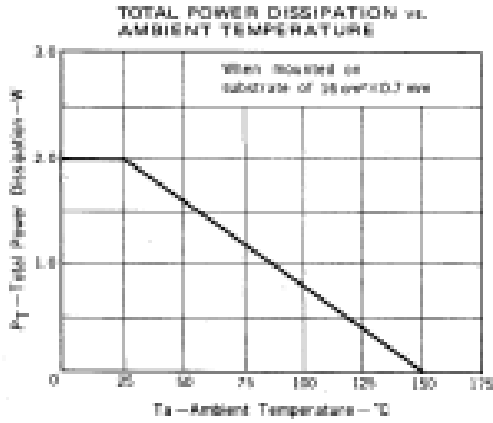
## 2SD1005



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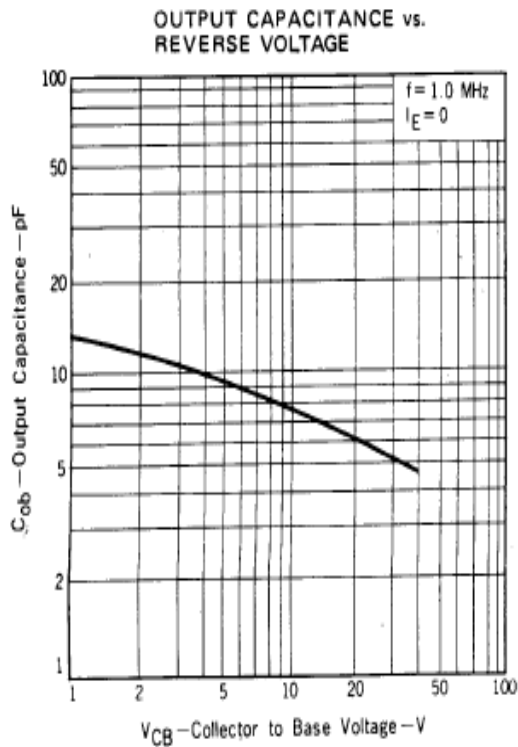
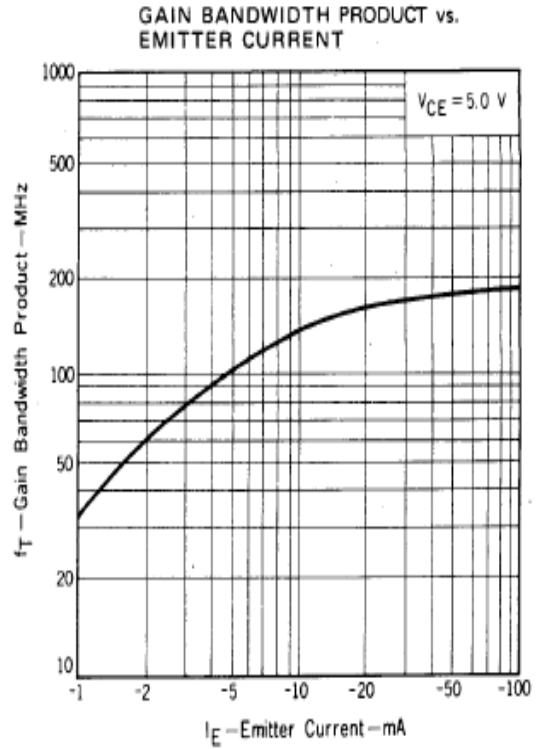
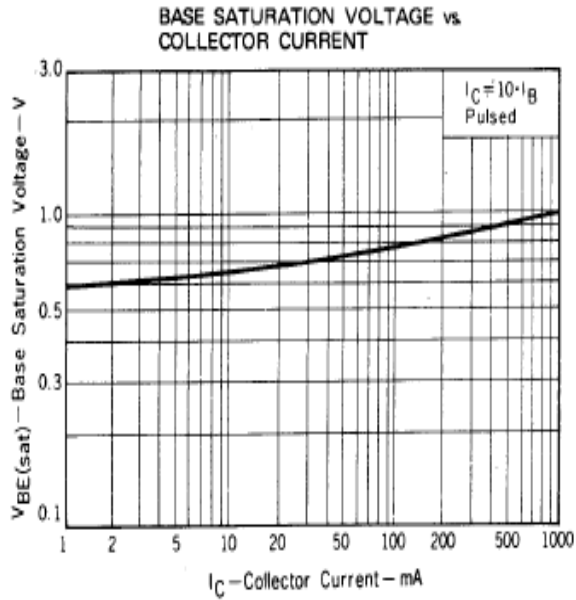
### 2SD1005

TYPICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C)





## 2SD1005





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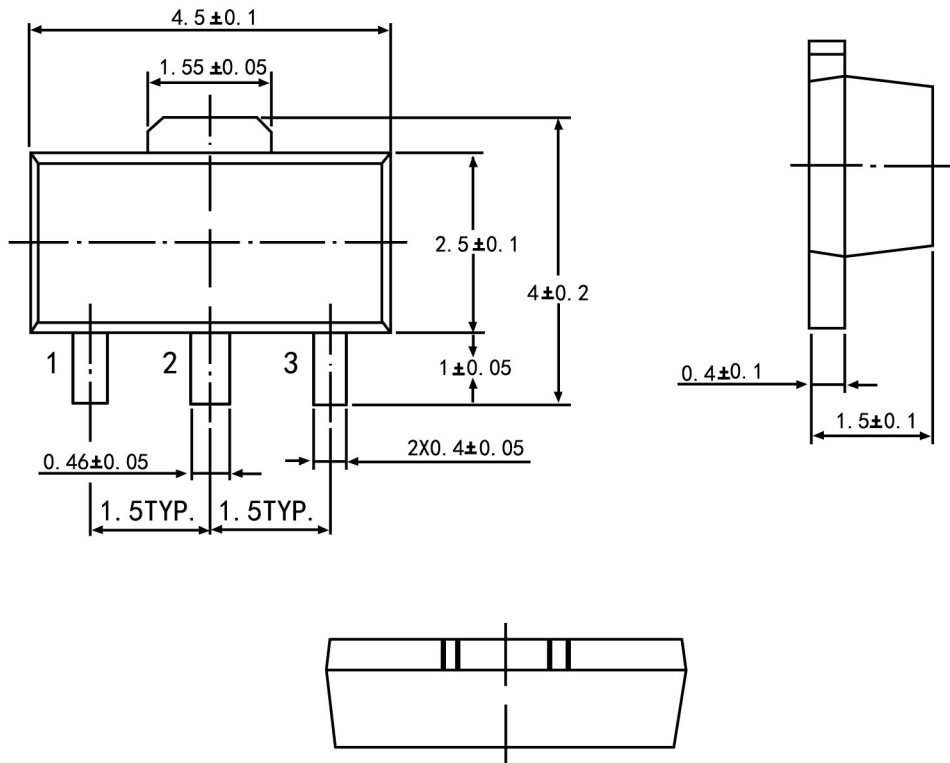
# SOT-89

## 2SD1005



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### 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		