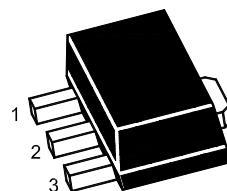


Plastic-Encapsulate Transistors

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_{CBO}	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	$^{\circ}\text{C/W}$
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	$V_{(BR)CBO}$	$I_C=0.1\text{mA}, I_E=0$	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	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$			0.1	μA
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

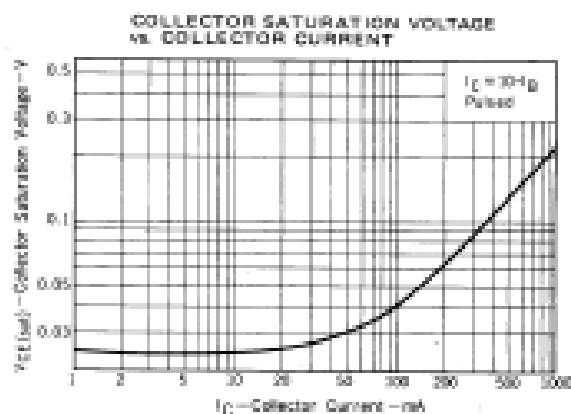
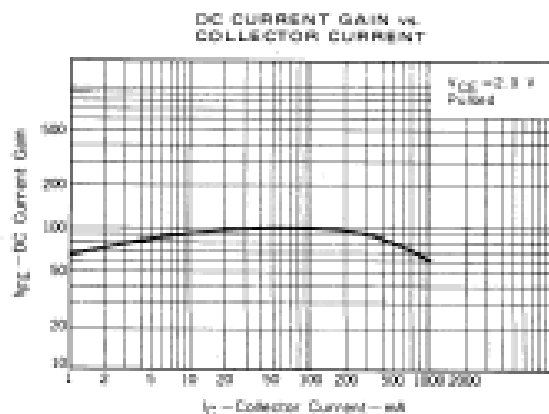
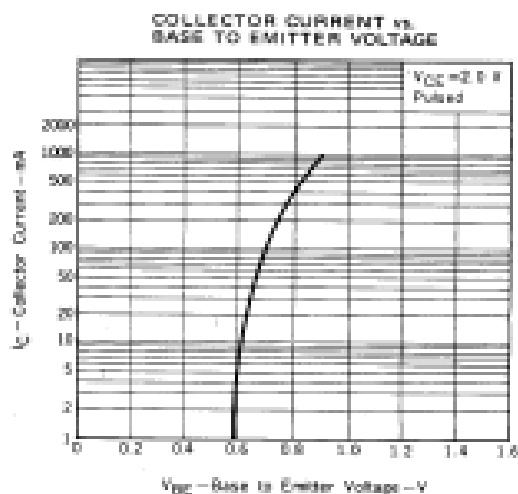
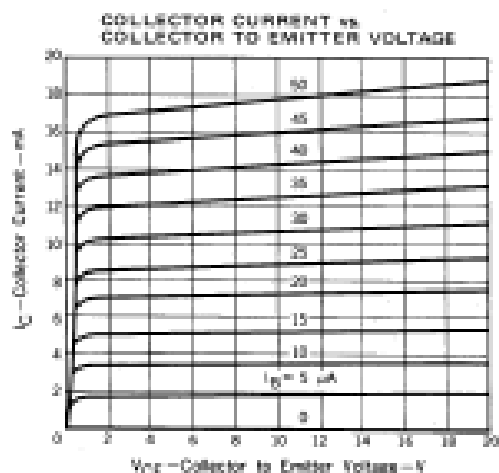
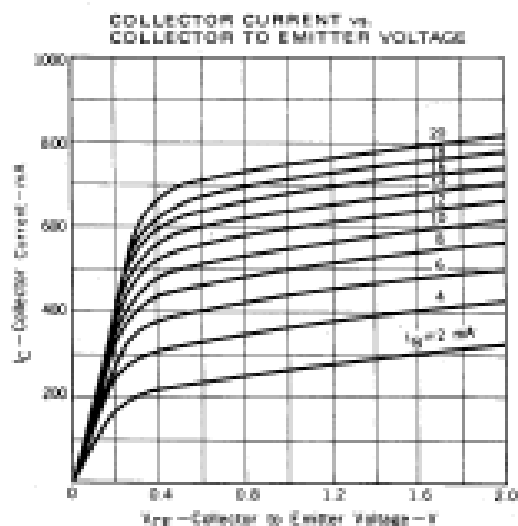
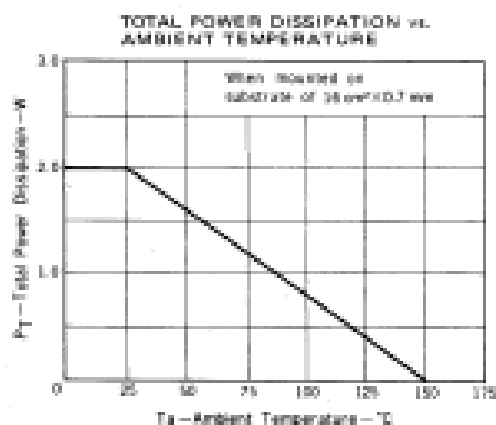
*Pulse test

CLASSIFICATION OF $h_{FE(1)}$

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

2SD1005

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



2SD1005

