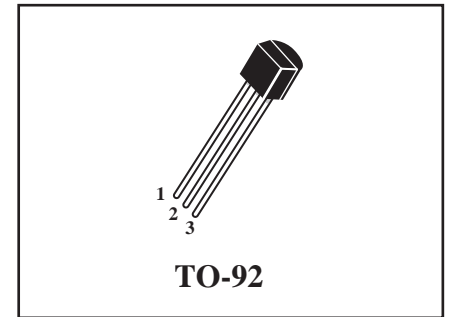
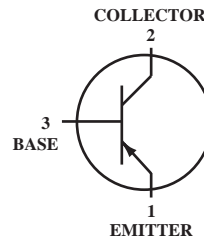


PNP General Purpose Transistor

(Pb) Lead(Pb)-Free



Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Rating	Symbol	1116	1116A	Unit
Collector-Base Voltage	V_{CBO}	-60	-80	V
Collector-Emitter Voltage	V_{CEO}	-50	-60	V
Emitter-Base Voltage	V_{EBO}	-6.0	-6.0	V
Collector Current Continuous	I_C	1000		mA

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Total Device Dissipation Alumina Substrate, $T_A=25^{\circ}\text{C}$	P_D	750	mW
Junction Temperature	T_J	+150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
-----------------	--------	-----	-----	------

OFF CHARACTERISTICS

Collector-Base Breakdown Voltage ($I_C=-100\mu\text{A}$, $I_E=0$)	1116 1116A	$V_{(BR)CBO}$	-60 -80	-	V
Collector-Emitter Breakdown Voltage ($I_C=-1\text{mA}$, $I_B=0$)	1116 1116A	$V_{(BR)CEO}$	-50 -60	-	V
Emitter-Base Breakdown Voltage ($I_E=-100\mu\text{A}$, $I_C=0$)	1116 1116A	$V_{(BR)EBO}$	-6.0	-	V

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted) (Continued)

Characteristics	Symbol	Min	Max	Unit
-----------------	--------	-----	-----	------

OFF CHARACTERISTICS

Collector Cut-off Current $V_{CB}=-60\text{V}, I_E=0$ $V_{CB}=-80\text{V}, I_E=0$	1116 1116A	I_{CBO}	-	-0.1	μA
Emitter Cut-off Current $V_{EB}=-6\text{V}, I_C=0$		I_{EBO}	-	-0.1	μA

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted) (Continued)

Characteristics	Symbol	Min	Typ	Max	Unit
-----------------	--------	-----	-----	-----	------

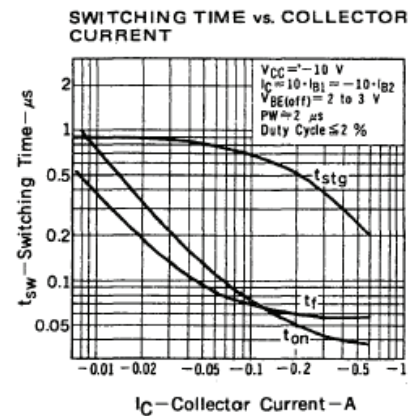
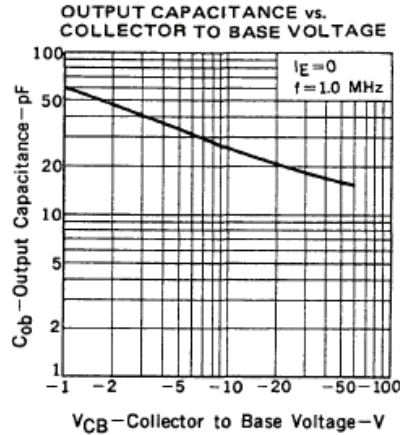
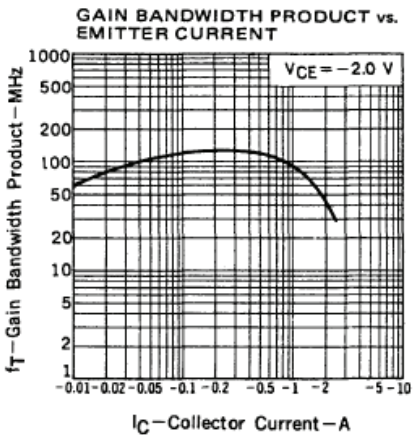
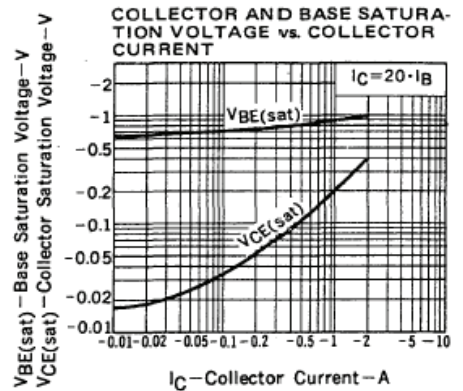
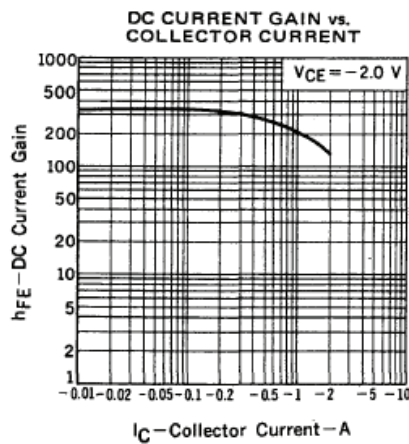
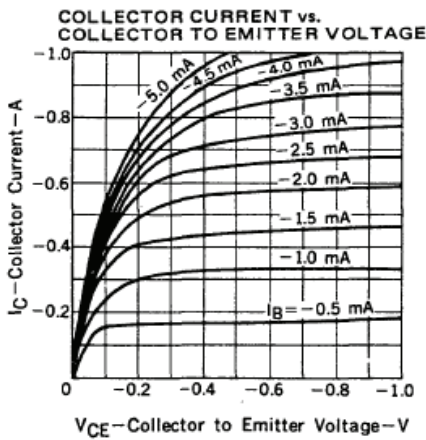
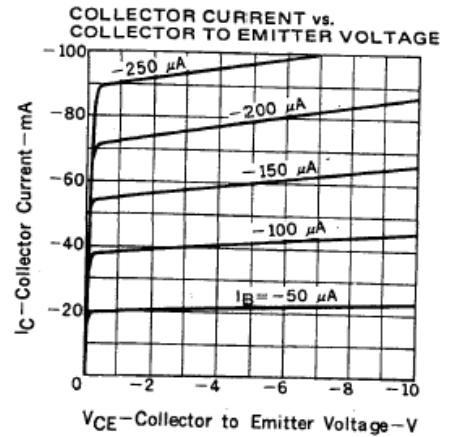
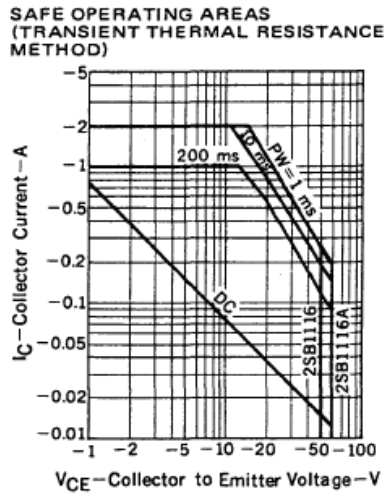
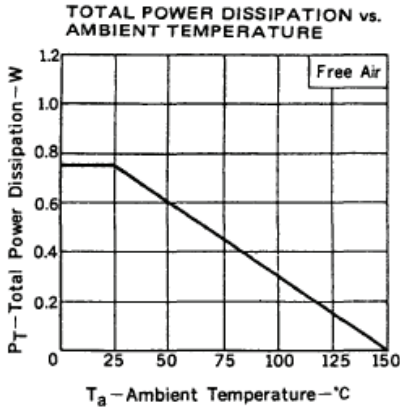
ON CHARACTERISTICS

DC current gain $V_{CE}=-2\text{V}, I_C=-0.1\text{A}$ $V_{CE}=-2\text{V}, I_C=-1\text{A}$	h_{FE}	135 81		600	
Collector emitter saturation voltage $I_C=-1\text{A}, I_B=-50\text{mA}$	$V_{CE(sat)}$	-	-	-0.3	V
Base emitter saturation voltage $I_C=-1\text{A}, I_B=-50\text{mA}$	$V_{BE(sat)}$	-	-	-1.2	V
Base emitter voltage $V_{CE}=-2\text{V}, I_C=-0.05\text{A}$	V_{BE}	-0.6	-	-0.7	V
Transition frequency $V_{CE}=-2\text{V}, I_C=-0.1\text{A}$	f_T	70	-	-	MHz
Transition frequency $V_{CB}=-10\text{V}, I_E=0, f=1\text{MHz}$	C_{ob}	-	25	-	pF
Transition frequency $V_{CC}=-10\text{V}, I_C=-0.1\text{A}, I_{B1}=-I_{B2}=-0.01\text{A}, V_{BE(off)}=2\text{ to }3\text{V}$	t_{on}	-	0.07	-	μS
Transition frequency $V_{CC}=-10\text{V}, I_C=-0.1\text{A}, I_{B1}=-I_{B2}=-0.01\text{A}, V_{BE(off)}=2\text{ to }3\text{V}$	t_s	-	0.7	-	
Transition frequency $V_{CC}=-10\text{V}, I_C=-0.1\text{A}, I_{B1}=-I_{B2}=-0.01\text{A}, V_{BE(off)}=2\text{ to }3\text{V}$	t_f	-	0.07	-	

CLASSIFICATION OF $h_{FE}(1)$

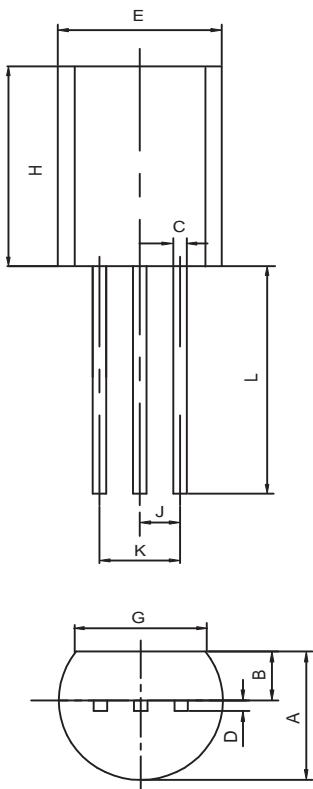
Rank	L	K	U
Range	135-270	200-400	300-600

Typical Characteristics



TO-92 Outline Dimensions

unit:mm



TO-92		
Dim	Min	Max
A	3.30	3.70
B	1.10	1.40
C	0.38	0.55
D	0.36	0.51
E	4.40	4.70
G	3.43	-
H	4.30	4.70
J	1.270TYP	
K	2.44	2.64
L	14.10	14.50