

PNP SILICON EPITAXIAL TRANSISTOR
FOR LOW-FREQUENCY POWER AMPLIFIERS AND MID-SPEED SWITCHING

FEATURES

- Low $V_{CE(sat)}$
 $V_{CE(sat)} = -0.20$ V TYP. ($I_c = -1.0$ A, $I_B = -50$ mA)
- High P_T in small dimension with general-purpose
 $P_T = 0.75$ W, $V_{CEO} = -50/-60$ V, $I_{c(DC)} = -1.0$ A
- Complementary transistor with 2SD1616 and 1616A

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Ratings		Unit
		2SB1116	2SB1116A	
Collector to base voltage	V_{CBO}	-60	-80	V
Collector to emitter voltage	V_{CEO}	-50	-60	V
Emitter to base voltage	V_{EBO}	-6.0		V
Collector current (DC)	$I_{c(DC)}$	-1.0		A
Collector current (pulse)	$I_{c(pulse)}^*$	-2.0		A
Total power dissipation	P_T	0.75		W
Junction temperature	T_j	150		$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150		$^\circ\text{C}$

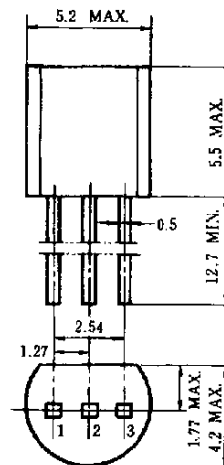
* $PW \leq 10$ ms, duty cycle $\leq 50\%$

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

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = -60$ V, $I_E = 0$			-100	nA
Emitter cutoff current	I_{EBO}	$V_{EB} = -6.0$ V, $I_C = 0$			-100	nA
DC current gain	h_{FE1}^{**}	$V_{CE} = -2.0$ V, $I_C = -100$ mA	135		600/400	
DC current gain	h_{FE2}^{**}	$V_{CE} = -2.0$ V, $I_C = -1.0$ A	81			
DC base voltage	V_{BE}^{**}	$V_{CE} = -2.0$ V, $I_C = -50$ mA	-600	-650	-700	mV
Collector saturation voltage	$V_{CE(sat)}^{**}$	$I_C = -1.0$ A, $I_B = -50$ mA		-0.20	-0.3	V
Base saturation voltage	$V_{BE(sat)}^{**}$	$I_C = -1.0$ A, $I_B = -50$ mA		-0.9	-1.2	V
Output capacitance	C_{ob}	$V_{CB} = -10$ V, $I_E = 0$, $f = 1.0$ MHz		25		pF
Gain bandwidth product	f_T	$V_{CE} = -2.0$ V, $I_C = -100$ mA	70	120		MHz
Turn-on time	t_{on}	$V_{CC} = -10$ V, $I_C = -100$ mA		0.07		μs
Storage temperature	t_{stg}	$I_{B1} = -I_{B2} = -10$ mA,		0.70		μs
Fall time	t_f	$V_{BE(off)} = 2$ to 3 V		0.07		μs

** Pulse test $PW \leq 350$ μs , duty cycle $\leq 2\%$

PACKAGE DRAWING (UNIT: mm)



Electrode Connection

1. Emitter EIAJ : SC-43B
2. Collector JEDEC : TO-92
3. Base IEC : PA33

2SB1116, 1116A

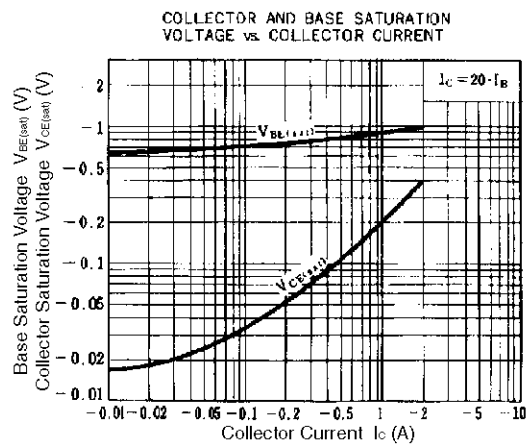
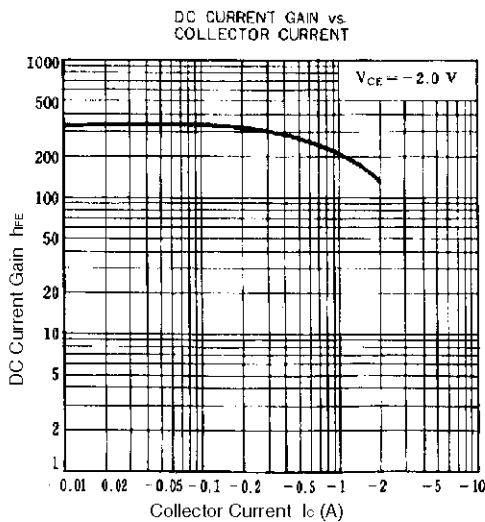
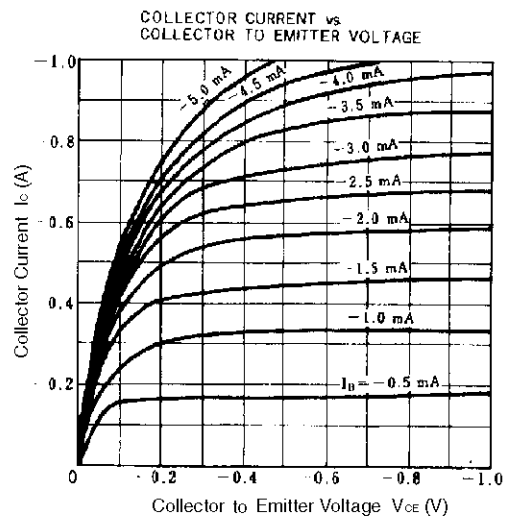
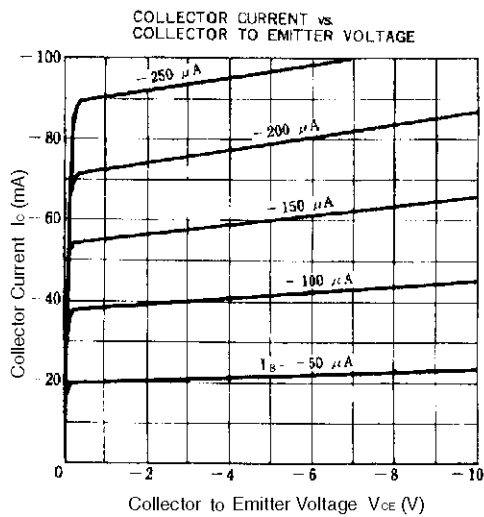
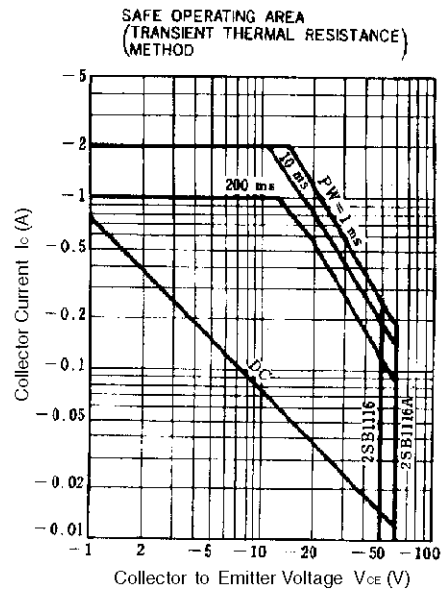
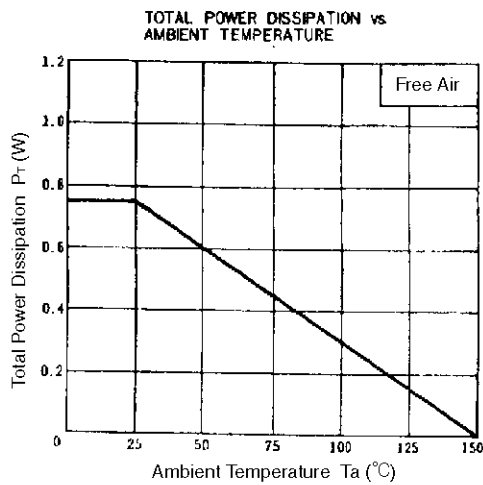
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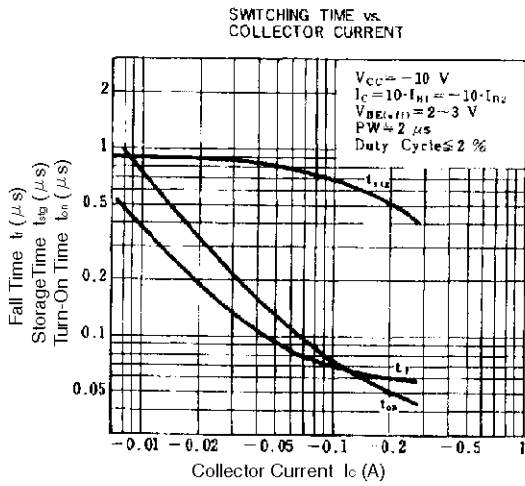
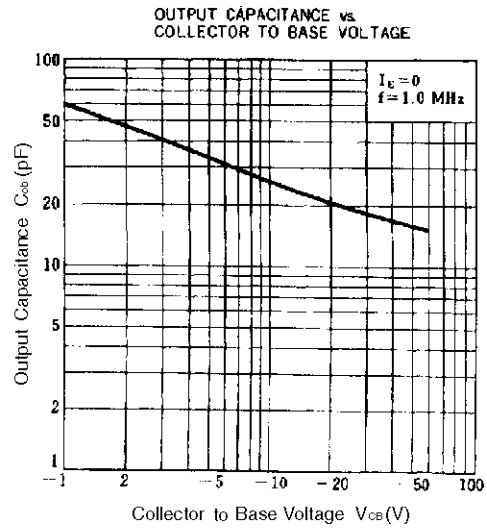
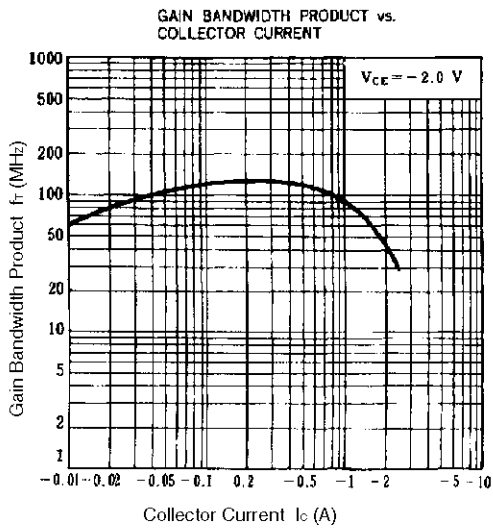
hFE CLASSIFICATION

(The U rank is not available for the 2SB1116A.)

Marking	L	K	U
hFE1	135 to 270	200 to 400	300 to 600

TYPICAL CHARACTERISTICS (Ta = 25°C)





[MEMO]

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