

PNP SILICON TRANSISTORS 2SB1116, 2SB1116A

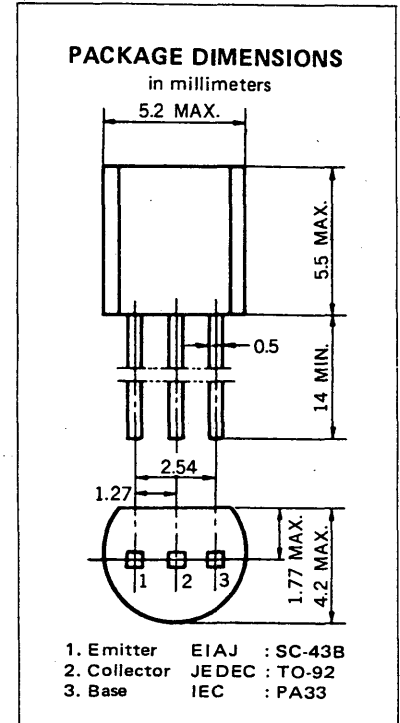
DESCRIPTION The 2SB1116/2SB1116A are designed for use in driver and output stages of AF amplifier, general purpose application.

- FEATURES**
- Low Collector Saturation Voltage.
 $V_{CE(sat)} = -0.20 \text{ V TYP. } (I_C = -1.0 \text{ A, } I_B = -50 \text{ mA})$
 - High Break Down Voltage.
 $V_{CEO} = -50 \text{ V}/-60 \text{ V (2SB1116/2SB1116A)}$
 - High Total Power Dissipation. $P_T = 0.75 \text{ W } (T_a = 25^\circ \text{C})$
 - Complementary to the NEC 2SD1616/2SD1616A NPN Transistor.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures	
Storage Temperature	-55 to +150 °C
Junction Temperature	150 °C Maximum
Maximum Power Dissipation ($T_a = 25^\circ \text{C}$)	
Total Power Dissipation	0.75 W
Maximum Voltages and Currents ($T_a = 25^\circ \text{C}$)	
V_{CBO} Collector to Base Voltage	-60 V/-80 V
V_{CEO} Collector to Emitter Voltage	-50 V/-60 V
V_{EBO} Emitter to Base Voltage	-6.0 V
I_C Collector Current (DC)	-1.0 A
I_C Collector Current (pulse)*	-2.0 A

*PW ≤ 10 ms, Duty Cycle ≤ 50 %



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

2SB1116/2SB1116A

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}^{**}	DC Current Gain	135		600	-	$V_{CE} = -2.0 \text{ V, } I_C = -100 \text{ mA}$
h_{FE2}^{**}	DC Current Gain	81			-	$V_{CE} = -2.0 \text{ V, } I_C = -1.0 \text{ A}$
f_T	Gain Bandwidth Product	70	120		MHz	$V_{CE} = -2.0 \text{ V, } I_C = -100 \text{ mA}$
C_{ob}	Output Capacitance		25		pF	$V_{CB} = -10 \text{ V, } I_E = 0, f = 1.0 \text{ MHz}$
I_{CBO}	Collector Cutoff Current			-100	nA	$V_{CB} = -60 \text{ V}/-80 \text{ V, } I_E = 0$
I_{EBO}	Emitter Cutoff Current			-100	nA	$V_{EB} = -6.0 \text{ V, } I_C = 0$
V_{BE}^{**}	Base to Emitter Voltage	-600		-700	mV	$V_{CE} = -2.0 \text{ V, } I_C = -50 \text{ mA}$
$V_{CE(sat)}^{**}$	Collector Saturation Voltage		-0.2	-0.3	V	$I_C = -1.0 \text{ A, } I_B = -50 \text{ mA}$
$V_{BE(sat)}^{**}$	Base Saturation Voltage		-0.9	-1.2	V	$I_C = -1.0 \text{ A, } I_B = -50 \text{ mA}$
t_{on}	Turn-On Time		0.07		μs	$(V_{CC} = -10 \text{ V, } I_C = -100 \text{ mA})$ $(I_{B1} = -I_{B2} = -10 \text{ mA})$ $V_{BE(off)} = 2 \text{ to } 3 \text{ V}$
t_{stg}	Storage Time		0.70		μs	
t_f	Fall Time		0.07		μs	

**Pulsed PW ≤ 350 μs, Duty Cycle ≤ 2 %

Classification of h_{FE1}

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

Test Conditions: $V_{CE} = -2.0 \text{ V, } I_C = -100 \text{ mA}$

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

