

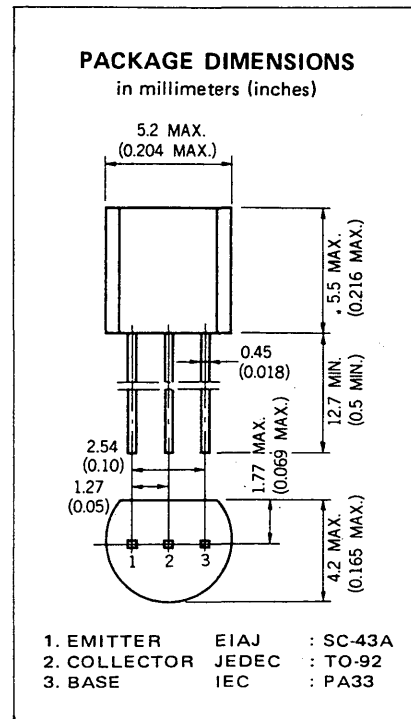
DESCRIPTION The 2SB1300 is designed for use in driver and output stages of audio frequency amplifiers.

- FEATURES**
- Low Collector Saturation Voltage
 $V_{CE(sat)} : -0.42 \text{ V TYP. } (I_C = -3.0 \text{ A, } I_B = -0.15 \text{ A})$
 - High DC Current Gain
 $h_{FE} : 300 \text{ TYP. } (V_{CE} = -2.0 \text{ V, } I_C = -100 \text{ mA})$
 - High Total Power Dissipation $P_T : 0.75 \text{ W } (T_a = 25^\circ \text{C})$
 - Complementary to The NEC 2SD1951 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	-20 V
V_{CEO} Collector to Emitter Voltage	-16 V
V_{EBO} Emitter to Base Voltage	-6.0 V
$I_{C(DC)}$ Collector Current	-3.0 A
$I_{C(pulse)}$ *Collector Current	-5.0 A

*PW ≤ 10 ms, Duty Cycle ≤ 50 %



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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}	DC Current Gain	135	300	600	-	$V_{CE} = -2.0 \text{ V, } I_C = -100 \text{ mA}$
h_{FE2}	DC Current Gain	90			-	$V_{CE} = -2.0 \text{ V, } I_C = -2.0 \text{ A}$
f_T	Gain Bandwidth Product	100	140		MHz	$V_{CE} = -10 \text{ V, } I_E = 50 \text{ mA}$
C_{ob}	Output Capacitance		60		pF	$V_{CB} = -10 \text{ V, } I_E = 0, f = 1.0 \text{ MHz}$
I_{CBO}	Collector Cutoff Current			-100	nA	$V_{CB} = -20 \text{ V, } I_E = 0$
I_{EBO}	Emitter Cutoff Current			-100	nA	$V_{EB} = -6.0 \text{ V, } I_C = 0$
V_{BE}	Base to Emitter Voltage	-600	-660	-700	mV	$V_{CE} = -2.0 \text{ V, } I_C = -100 \text{ mA}$
$V_{CE(sat)1}$	Collector Saturation Voltage		-0.15	-0.20	V	$I_C = -1.0 \text{ A, } I_B = -0.05 \text{ A}$
$V_{CE(sat)2}$	Collector Saturation Voltage		-0.28	-0.35	V	$I_C = -2.0 \text{ A, } I_B = -0.1 \text{ A}$
$V_{CE(sat)3}$	Collector Saturation Voltage		-0.42	-0.50	V	$I_C = -3.0 \text{ A, } I_B = -0.15 \text{ A}$
$V_{BE(sat)}$	Base Saturation Voltage		-0.95	-1.2	V	$I_C = -2.0 \text{ A, } I_B = -0.1 \text{ A}$

Classification of h_{FE}

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

