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# 2SC458, 2SC2308

Silicon NPN Epitaxial

# HITACHI

ADE-208-1043 (Z)  
1st. Edition  
Mar. 2001

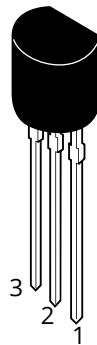
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## Application

- Low frequency amplifier
- Complementary pair with 2SA1029 and 2SA1030

## Outline

TO-92 (1)



1. Emitter  
2. Collector  
3. Base

**Absolute Maximum Ratings** ( $T_a = 25^{\circ}\text{C}$ )

<b>Item</b>	<b>Symbol</b>	<b>2SC458</b>	<b>2SC2308</b>	<b>Unit</b>
Collector to base voltage	VCBO	30	55	V
Collector to emitter voltage	VCEO	30	50	V
Emitter to base voltage	VEBO	5	5	V
Collector current	IC	100	100	mA
Emitter current	IE	-100	-100	mA
Collector power dissipation	PC	200	200	mW
Junction temperature	Tj	150	150	°C
Storage temperature	Tstg	-55 to +150	-55 to +150	°C

Electrical Characteristics (T<sub>a</sub> = 25°C)

## 2SC458 2SC2308

Item	Symbol	Min	Typ	Max	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	V <sub>(BR)CBO</sub>	30	—	55	—	—	—	V	I <sub>C</sub> = 10 μA, I <sub>E</sub> = 0
Collector to emitter breakdown voltage	V <sub>(BR)CEO</sub>	30	—	50	—	—	—	V	I <sub>C</sub> = 1 mA, R <sub>BE</sub> = ∞
Emitter to base breakdown voltage	V <sub>(BR)EBO</sub>	5	—	5	—	—	—	V	I <sub>E</sub> = 10 μA, I <sub>C</sub> = 0
Collector cutoff current	I <sub>CBO</sub>	—	0.5	—	—	—	—	μA	V <sub>CB</sub> = 18 V, I <sub>E</sub> = 0
Emitter cutoff current	I <sub>EBO</sub>	—	0.5	—	—	—	—	μA	V <sub>EB</sub> = 2 V, I <sub>C</sub> = 0
DC current transfer ratio	h <sub>FE</sub>	100	500	100	—	—	—	—	V <sub>CE</sub> = 12 V, I <sub>C</sub> = 2 mA
Collector to emitter saturation voltage	V <sub>CE(sat)</sub>	—	0.2	—	—	—	—	V	I <sub>C</sub> = 10 mA, I <sub>B</sub> = 1 mA
Base to emitter voltage	V <sub>BE</sub>	0.67	0.75	0.67	—	—	—	V	V <sub>CE</sub> = 12 V, I <sub>C</sub> = 2 mA
Gain bandwidth product	f <sub>T</sub>	230	—	230	—	—	—	MHz	V <sub>CE</sub> = 12 V, I <sub>C</sub> = 2 mA
Collector output capacitance	C <sub>ob</sub>	1.8	3.5	1.8	—	—	—	pF	V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f = 1 MHz
Noise figure	N <sub>F</sub>	4	—	4	—	—	—	dB	V <sub>CE</sub> = 6 V, I <sub>C</sub> = 0.1 mA, f = 1 kHz, R <sub>g</sub> = 500 Ω
Small signal input impedance	h <sub>ie</sub>	16.5	—	16.5	—	—	—	kΩ	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 0.1 mA, f = 270 Hz
Small signal voltage feedback ratio	h <sub>re</sub>	70	—	70	—	—	—	—	—
Small signal current transfer ratio	h <sub>fe</sub>	130	—	130	—	—	—	μS	—
Small signal output admittance	h <sub>oe</sub>	11.0	—	11.0	—	—	—	—	—

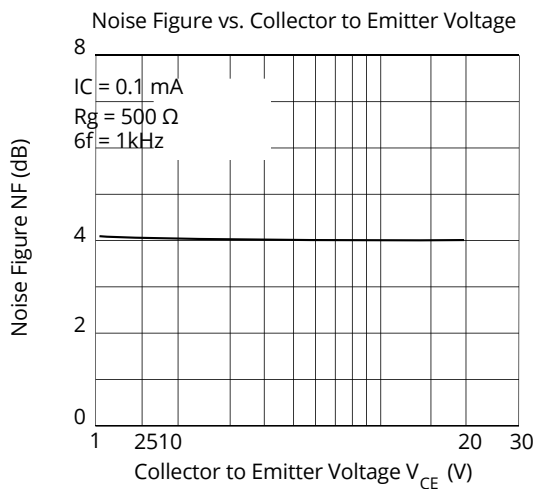
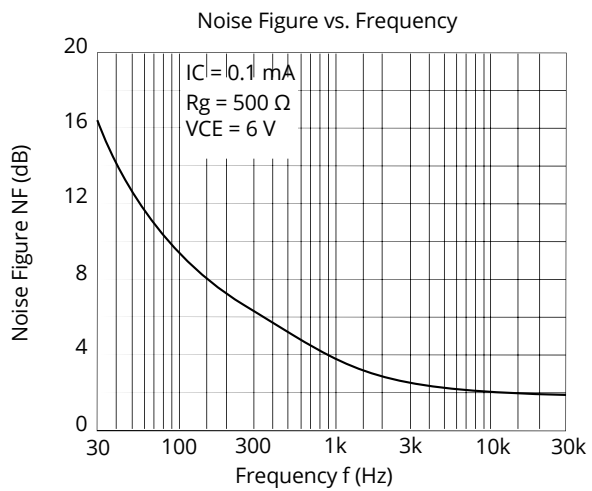
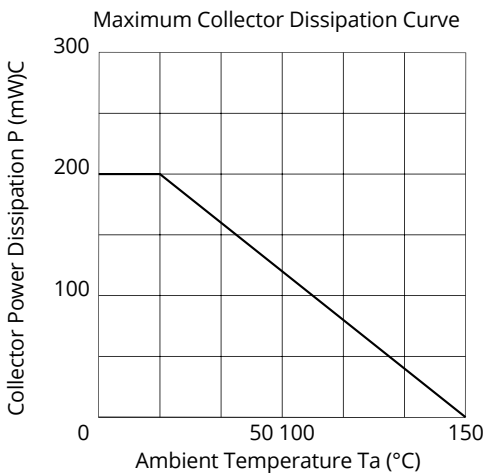
Note: 1. The 2SC458 and 2SC2308 are grouped by h<sub>FE</sub> as follows.

**B C D**

2SC458 100 to 200 160 to 320 250 to 500

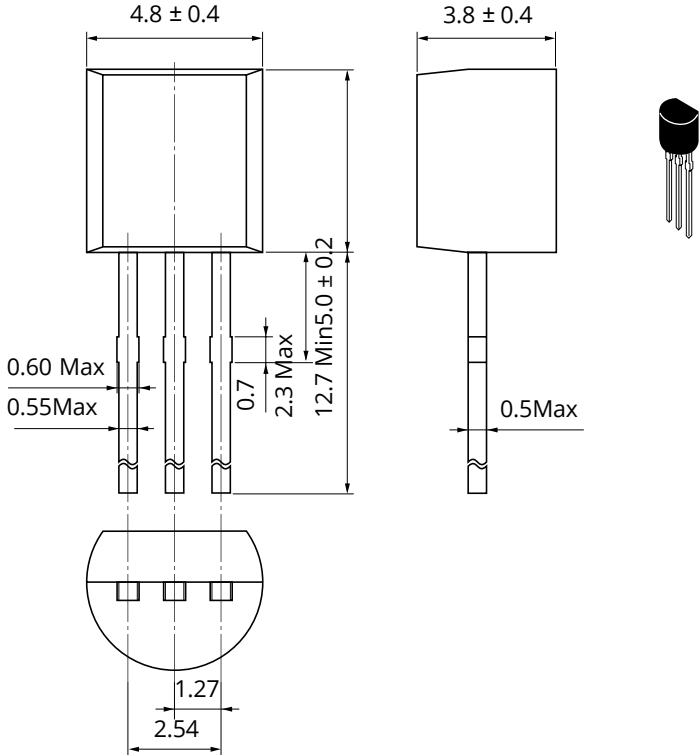
2SC2308 100 to 200 160 to 320

See characteristic curves of 2SC458 (LG) and 2SC2310 except for the followings.



Package Dimensions

As of January, 2001  
Unit: mm



Hitachi Code	TO-92 (1)
JEDEC	Conform
EIAJ	S
Mass (reference value)	Conform s 0.25 g

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