To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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Keep safety first in your circuit designs!

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2SC458, 2SC2308

Silicon NPN Epitaxial

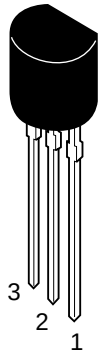
ADE-208-1043 (Z)
1st. Edition
Mar. 2001

Application

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

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	2SC458	2SC2308	Unit
Collector to base voltage	V_{CBO}	30	55	V
Collector to emitter voltage	V_{CEO}	30	50	V
Emitter to base voltage	V_{EBO}	5	5	V
Collector current	I_C	100	100	mA
Emitter current	I_E	–100	–100	mA
Collector power dissipation	P_C	200	200	mW
Junction temperature	Tj	150	150	°C
Storage temperature	Tstg	–55 to +150	–55 to +150	°C

Electrical Characteristics (Ta = 25°C)

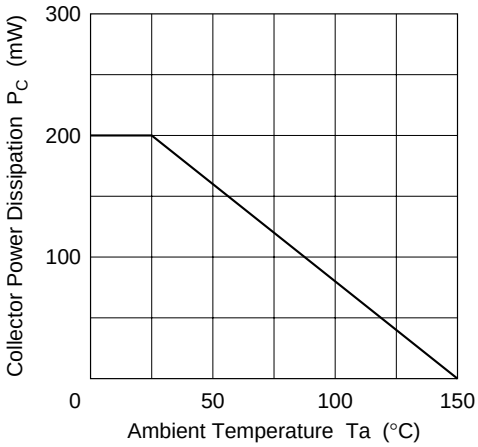
Item	Symbol	2SC458			2SC2308			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	55	—	—	V	I_C = 10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	30	—	—	50	—	—	V	I_C = 1 mA, R_{BE} =
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	5	—	—	V	I_E = 10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	0.5	—	—	0.5	µA	V_{CB} =18 V, I_E = 0
Emitter cutoff current	I_{EBO}	—	—	0.5	—	—	0.5	µA	V_{EB} = 2 V, I_C = 0
DC current transfer ratio	h_{FE}*[1]	100	—	500	100	—	320		V_{CE} = 12 V, I_C = 2 mA
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.2	—	—	0.2	V	I_C = 10 mA, I_B = 1 mA
Base to emitter voltage	V_{BE}	—	0.67	0.75	—	0.67	0.75	V	V_{CE} = 12 V, I_C = 2 mA
Gain bandwidth product	f_T	—	230	—	—	230	—	MHz	V_{CE} = 12 V, I_C = 2 mA
Collector output capacitance	Cob	—	1.8	3.5	—	1.8	3.5	pF	V_{CB} = 10 V, I_E = 0, f = 1 MHz
Noise figure	NF	—	4	10	—	4	10	dB	V_{CE} = 6 V, I_C = 0.1 mA, f = 1 kHz, R_g = 500 Ω
Small signal input impedance	h_{ie}	—	16.5	—	—	16.5	—	kΩ	V_{CE} = 5V, I_C = 0.1mA, f = 270 Hz
Small signal voltage feedback ratio	h_{re}	—	70	—	—	70	—	$\times 10^{-6}$	
Small signal current trancefer ratio	h_{fe}	—	130	—	—	130	—		
Small signal output admittance	h_{oe}	—	11.0	—	—	11.0	—	µS	

Note: 1. The 2SC458 and 2SC2308 are grouped by h_{FE} as follows.

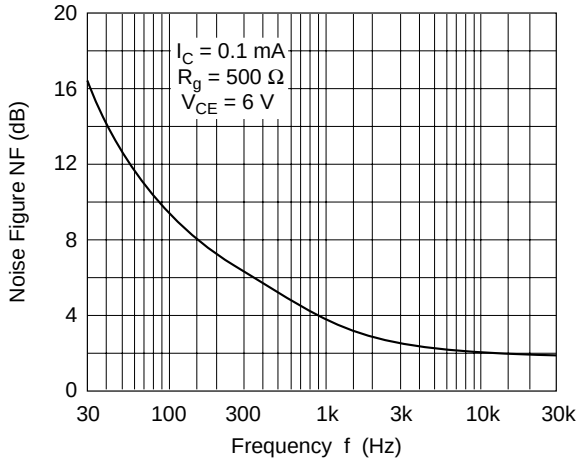
	B	C	D
2SC458	100 to 200	160 to 320	250 to 500
2SC2308	100 to 200	160 to 320	—

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

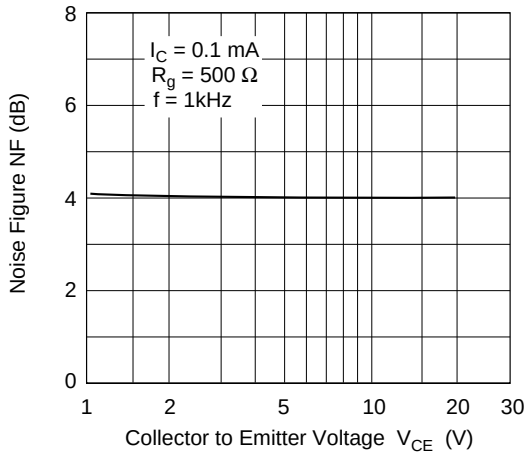
Maximum Collector Dissipation Curve



Noise Figure vs. Frequency



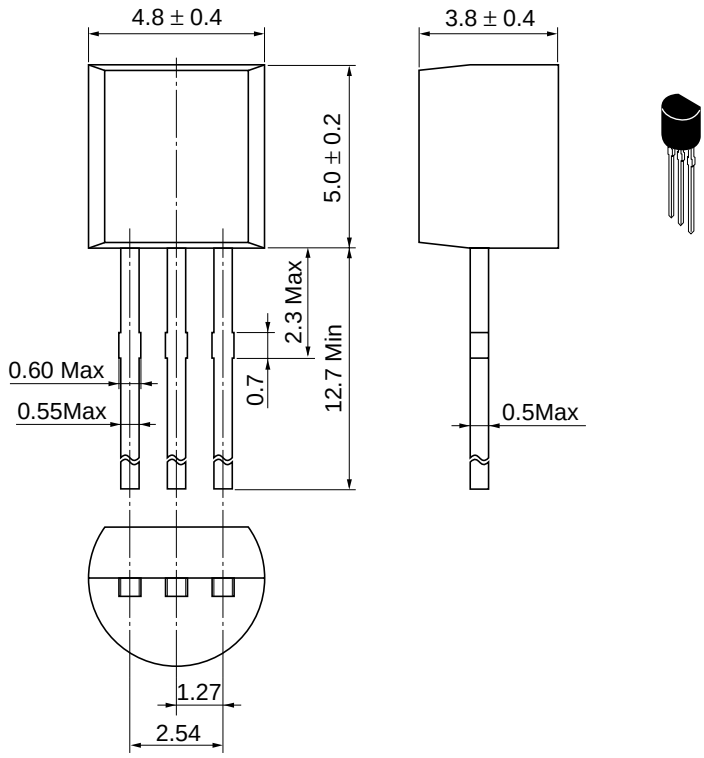
Noise Figure vs. Collector to Emitter Voltage



Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	TO-92 (1)
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	0.25 g

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