2SC458, 2SC2308

Silicon NPN Epitaxial

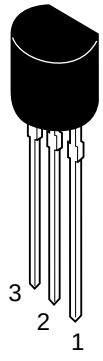
HITACHI

Application

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

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

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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)

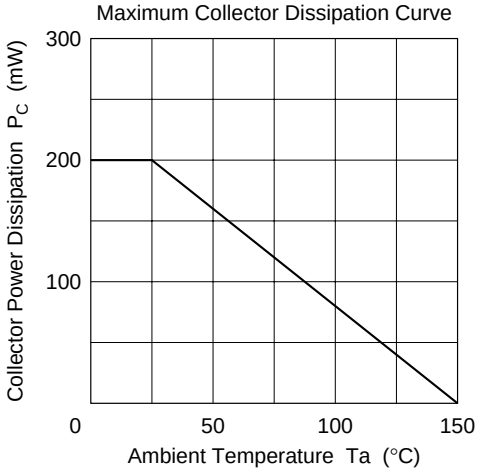
Item	Symbol	2SC458			2SC2308			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	55	—	—	V	I_C = 10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	30	—	—	50	—	—	V	I_C = 1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	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.

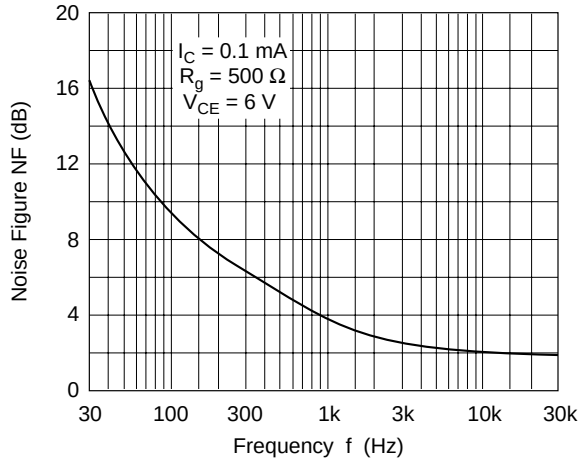
	B	C	D
2SC458	100 to 200	160 to 320	250 to 500
2SC2308	100 to 200	160 to 320	—

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

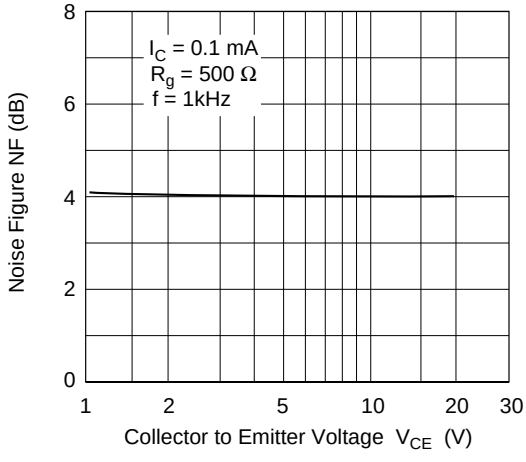
Maximum Collector Dissipation Curve



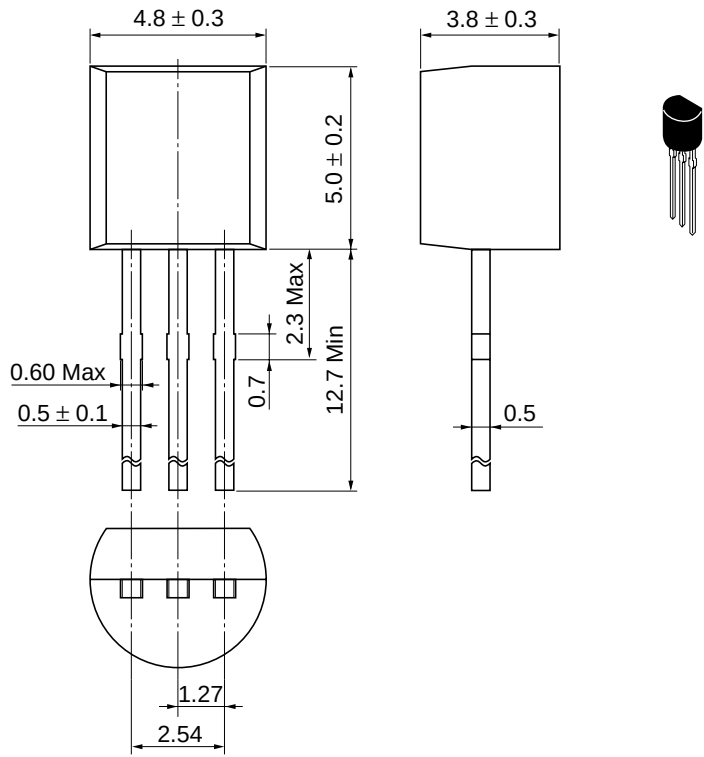
Noise Figure vs. Frequency



Noise Figure vs. Collector to Emitter Voltage



Unit: mm



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

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