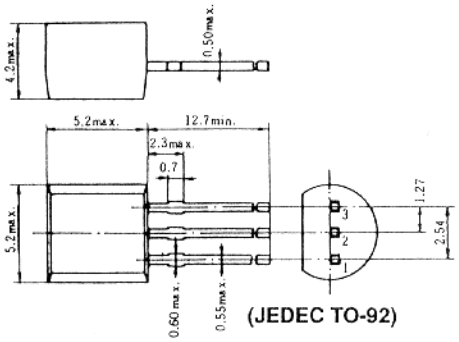
HITACHI

2SC458, 2SC2308

SILICON NPN EPITAXIAL

LOW FREQUENCY AMPLIFIER
Complementary pair with 2SA1029 and 2SA1030



(JEDEC TO-92)

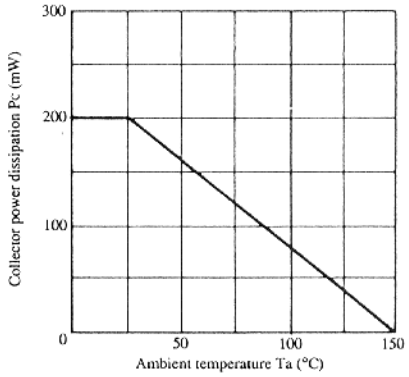
1. Emitter
2. Collector
3. Base

(Dimensions in mm)

■ 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	T_j	150	150	°C
Storage temperature	T_{stg}	−55 to +150	−55 to +150	°C

MAXIMUM COLLECTOR DISSIPATION CURVE



■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

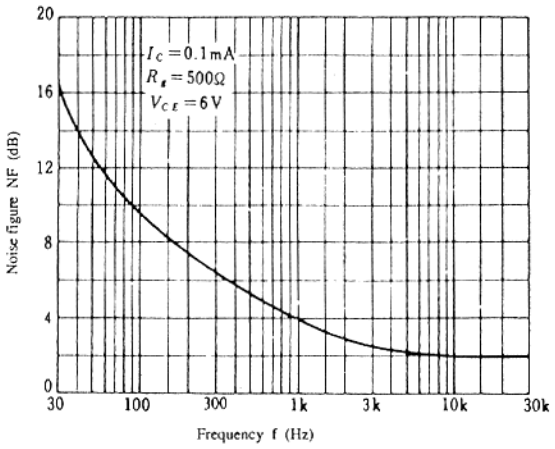
Item	Symbol	Test Condition	2SC458			2SC2308			Unit
			min.	typ.	max.	min.	typ.	max.	
Collector to base breakdown voltage	$V_{(BR)CBO}$	I_C = 10μA, I_E = 0	30	—	—	55	—	—	V
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	I_C = 1mA, R_{BE} = ∞	30	—	—	50	—	—	V
Emitter to base breakdown voltage	$V_{(BR)EBO}$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

* 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.

NOISE FIGURE VS. FREQUENCY



NOISE FIGURE VS. COLLECTOR TO EMITTER VOLTAGE