
2SC458 (LG), 2SC2310

Silicon NPN Epitaxial

HITACHI

Application

- Low frequency low noise amplifier
- Complementary pair with 2SA1031 and 2SA1032

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

2SC458 (LG), 2SC2310

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

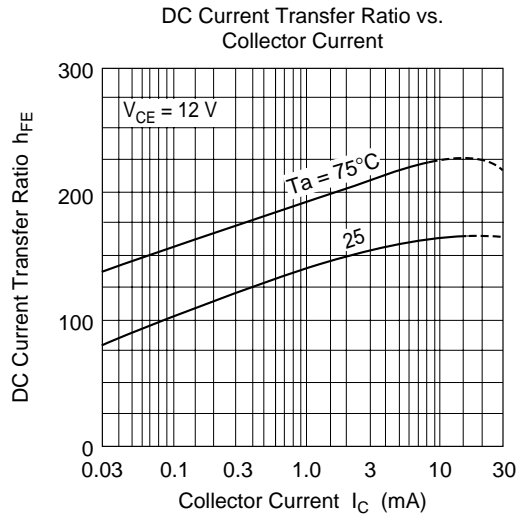
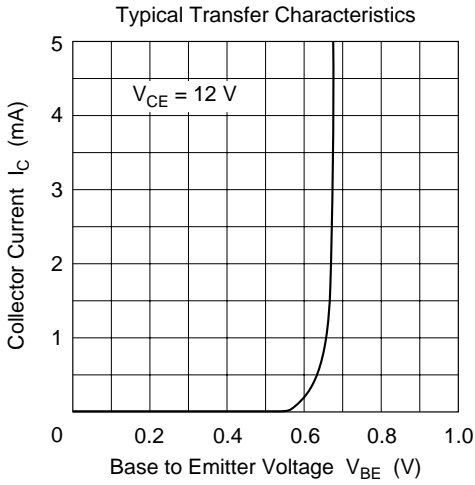
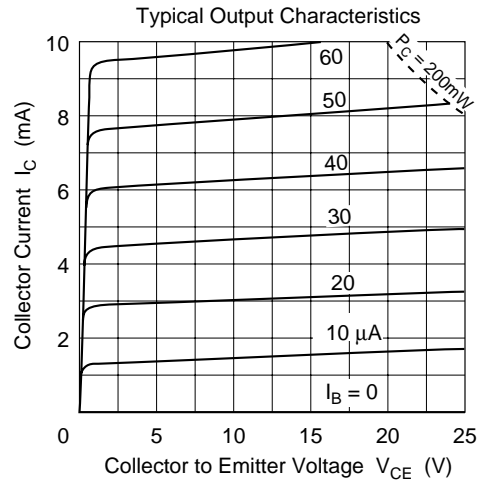
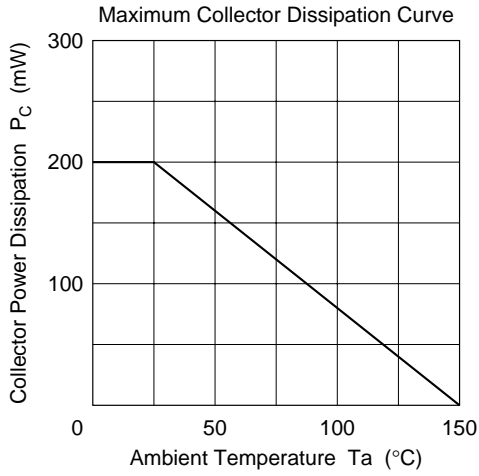
Item	Symbol	2SC458 (LG)	2SC2310	Unit
Collector to base voltage	V_{CBO}	30	55	V
Collector to emitter voltage	V_{CEO}	30	50	V
Emitter to base voltage	V_{EBO}	5	5	V
Collector current	I_{C}	100	100	mA
Emitter current	I_{E}	-100	-100	mA
Collector power dissipation	P_{C}	200	200	mW
Junction temperature	T_{j}	150	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (Ta = 25°C)

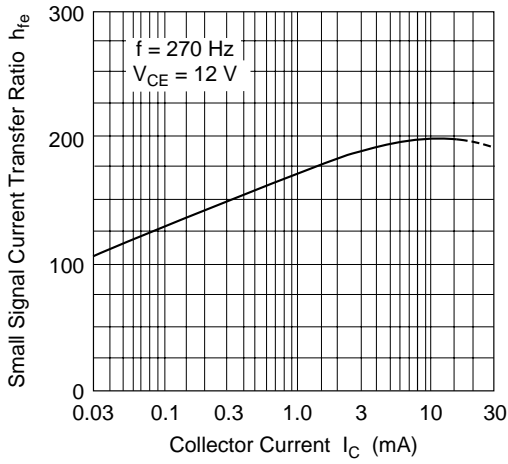
Item	Symbol	2SC458 (LG)			2SC2310			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	55	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	30	—	—	50	—	—	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	5	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	—	—	0.5	μA	$V_{CB} = 18 \text{ V}, I_E = 0$
Emitter cutoff current	I_{EBO}	—	—	0.5	—	—	0.5	μA	$V_{EB} = 2 \text{ V}, I_C = 0$
DC current transfer ratio	h_{FE}^{*1}	100	—	500	100	—	320		$V_{CE} = 12 \text{ V}, I_C = 2 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.2	—	—	0.2	V	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$
Base to emitter voltage	V_{BE}	—	0.67	0.75	—	0.67	0.75	V	$V_{CE} = 12 \text{ V}, I_C = 2 \text{ mA}$
Gain bandwidth product	f_T	—	230	—	—	230	—	MHz	$V_{CE} = 12 \text{ V}, I_C = 2 \text{ mA}$
Collector output capacitance	Cob	—	1.8	3.5	—	1.8	3.5	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$
Noise figure	NF	—	3	5	—	3	5	dB	$V_{CE} = 6 \text{ V}, I_C = 0.1 \text{ mA}, f = 120 \text{ Hz}, R_g = 500 \Omega$
Small signal input impedance	h_{ie}	—	16.5	—	—	16.5	—	k Ω	$V_{CE} = 5 \text{ V}, I_C = 0.1 \text{ mA}, f = 270 \text{ Hz}$
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	

Note: 1. The 2SC458 (LG) and 2SC2310 are grouped by h_{FE} as follows.

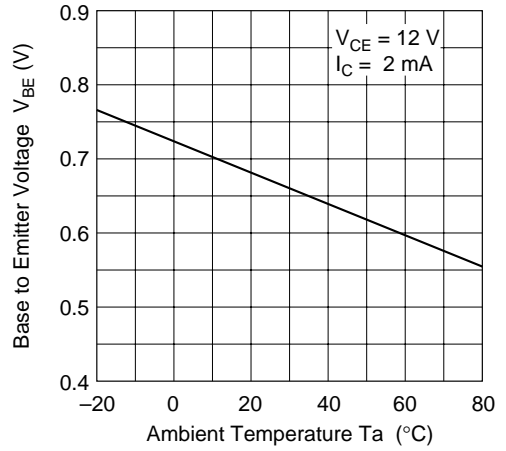
	B	C	D
2SC458 (LG)	100 to 200	160 to 320	250 to 500
2SC2310	100 to 200	160 to 320	—



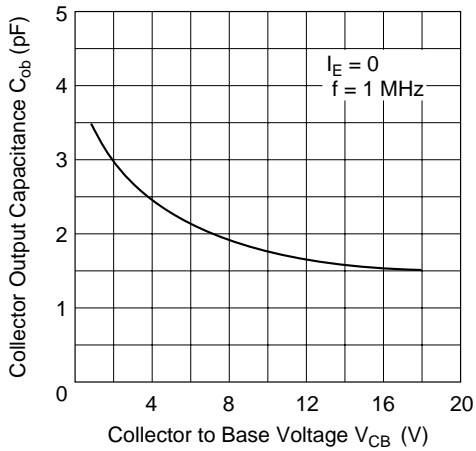
Small Signal Current Transfer Ratio vs. Collector Current



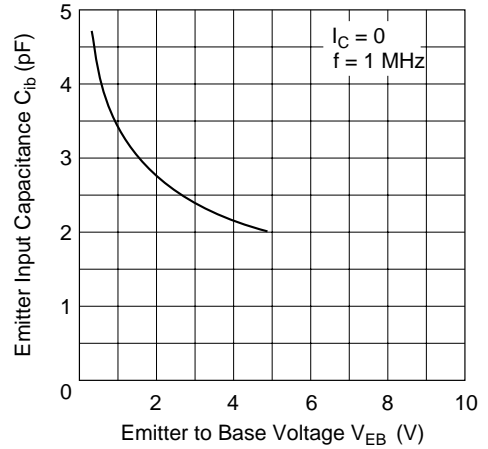
Base to Emitter Voltage vs. Ambient Temperature

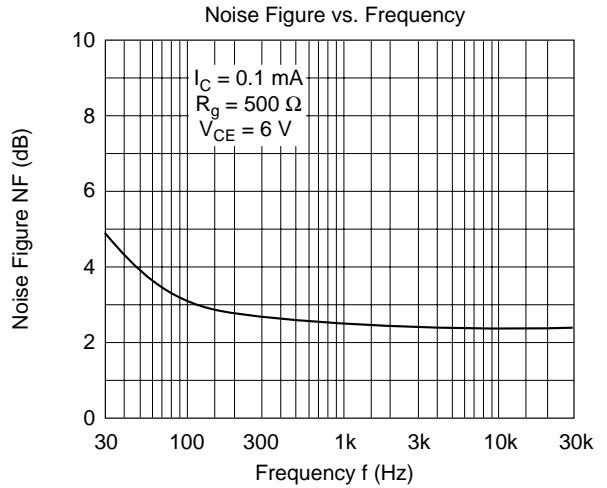
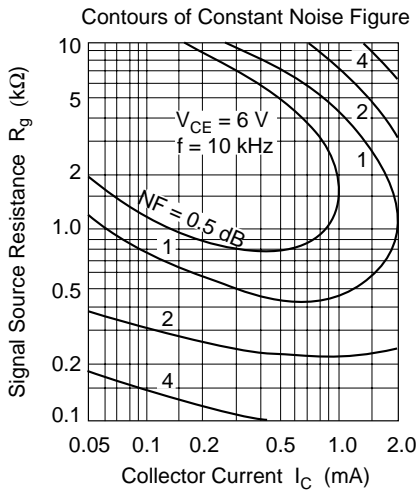
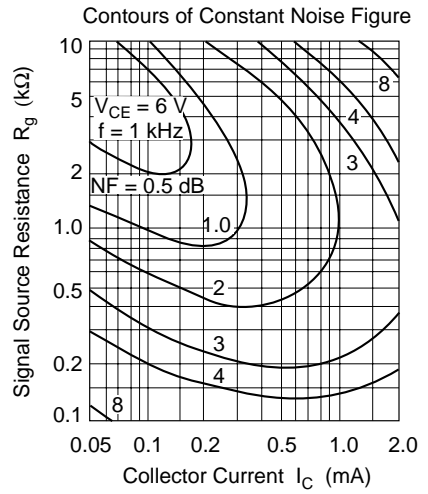
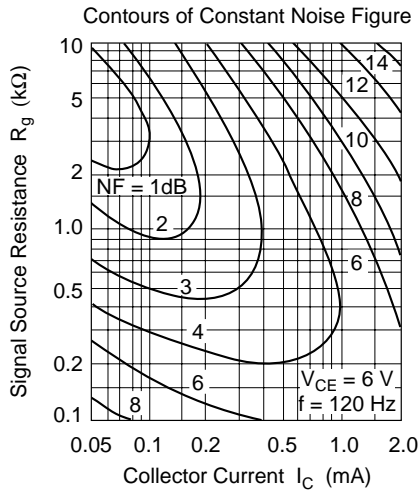


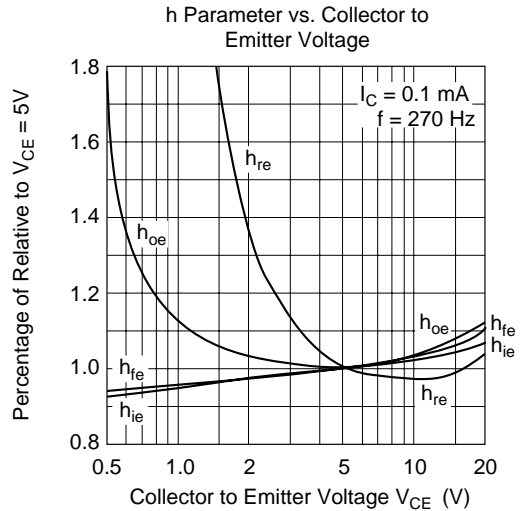
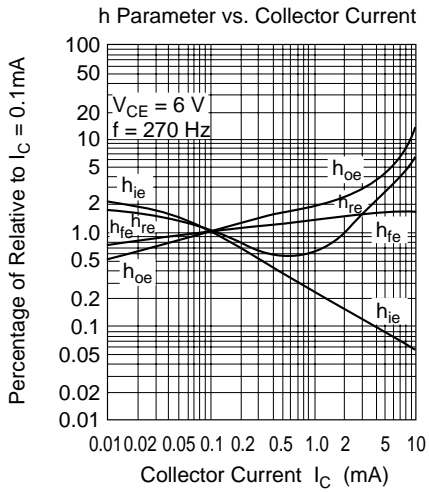
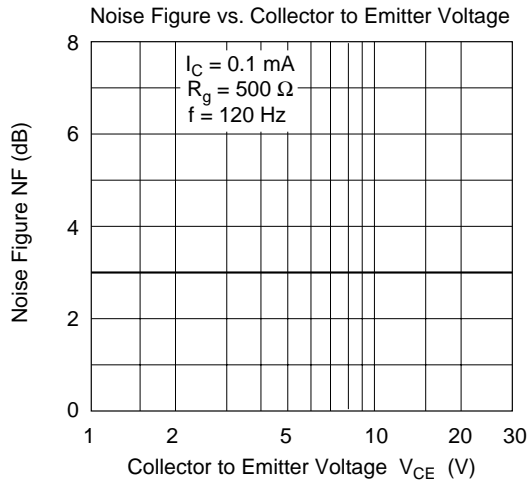
Collector Output Capacitance vs. Collector to Base Voltage

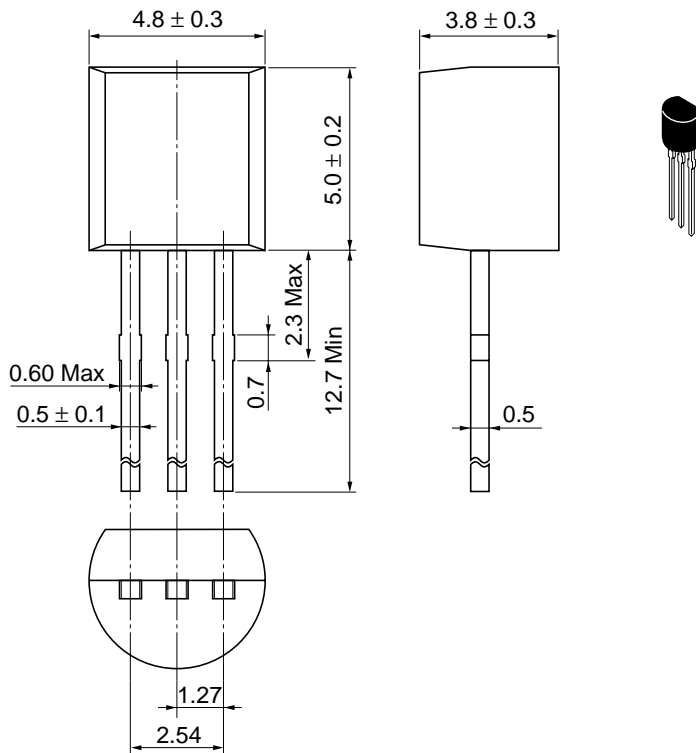


Emitter Input Capacitance vs. Emitter to Base Voltage









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

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