
2SC458 (LG), 2SC2310

Silicon NPN Epitaxial

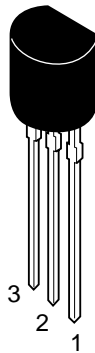
HITACHI

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 (Ta = 25°C)

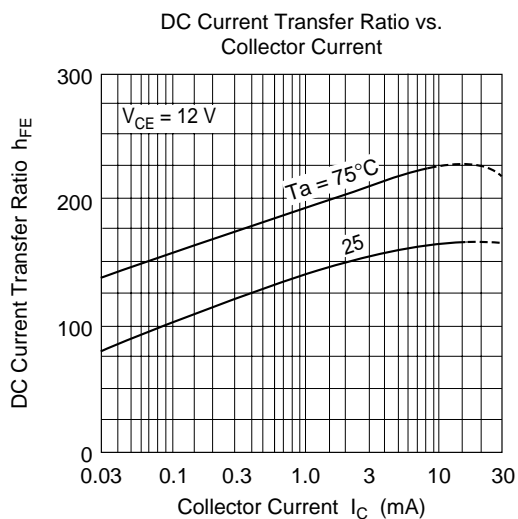
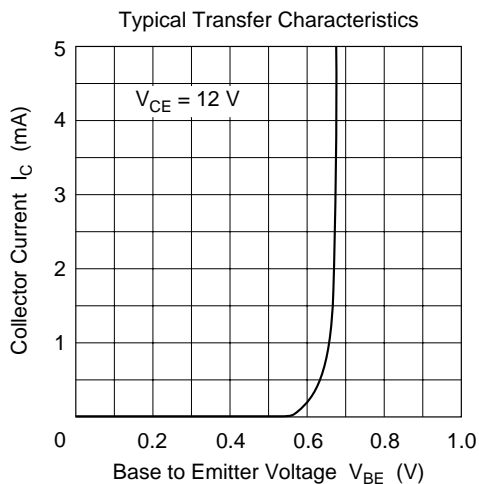
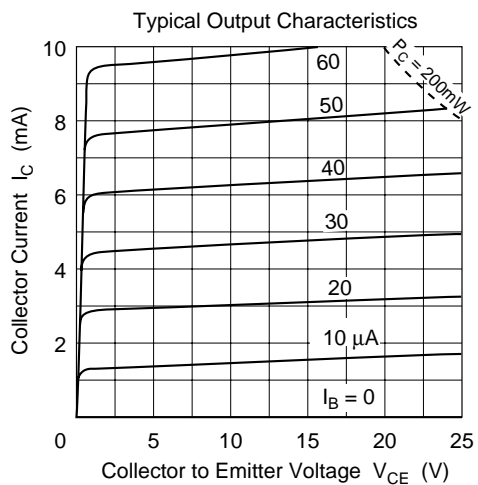
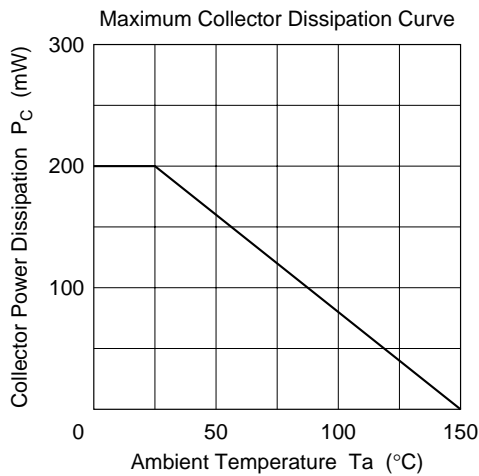
Item	Symbol	2SC458 (LG)	2SC2310	Unit
Collector to base voltage	V _{CBO}	30	55	V
Collector to emitter voltage	V _{CEO}	30	50	V
Emitter to base voltage	V _{EBO}	5	5	V
Collector current	I _C	100	100	mA
Emitter current	I _E	−100	−100	mA
Collector power dissipation	P _C	200	200	mW
Junction temperature	T _j	150	150	°C
Storage temperature	T _{stg}	−55 to +150	−55 to +150	°C

Electrical Characteristics (Ta = 25°C)

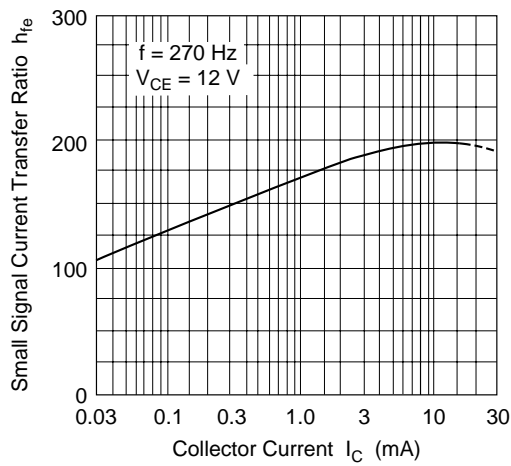
Item	Symbol	2SC458 (LG)			2SC2310			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	55	—	—	V	$I_C = 10\text{ }\mu\text{A}$, $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	30	—	—	50	—	—	V	$I_C = 1\text{ mA}$, $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	5	—	—	V	$I_E = 10\text{ }\mu\text{A}$, $I_C = 0$
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	$V_{CE} = 6\text{ V}$, $I_C = 0.1\text{ mA}$, $f = 120\text{ Hz}$, $R_g = 500\text{ }\Omega$
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.

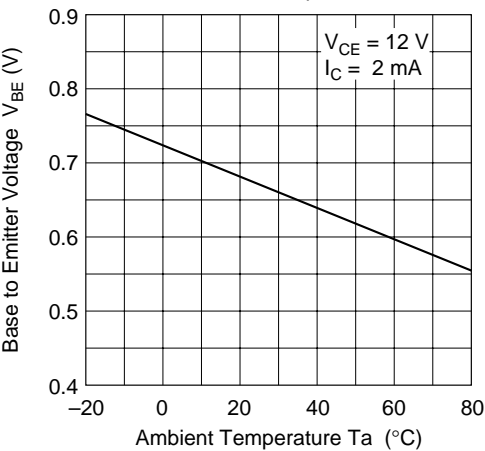
	B	C	D
2SC458 (LG)	100 to 200	160 to 320	250 to 500
2SC2310	100 to 200	160 to 320	—



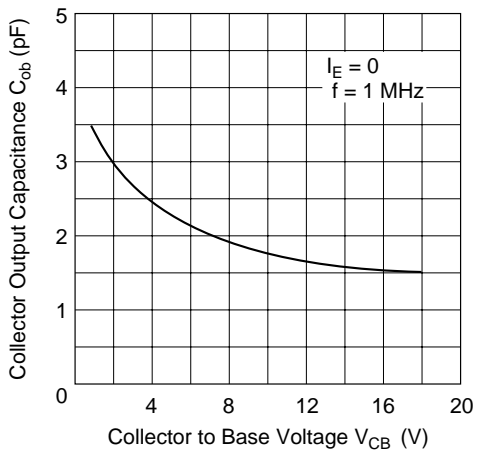
Small Signal Current Transfer Ratio vs.
Collector Current



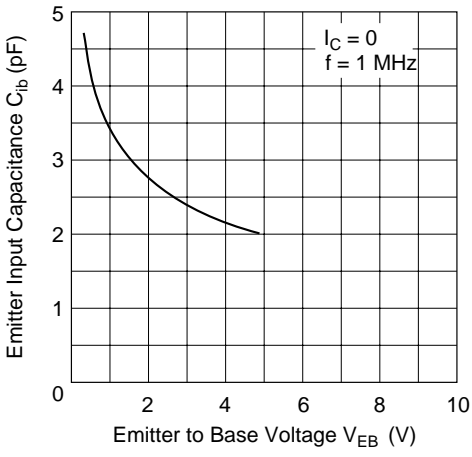
Base to Emitter Voltage vs.
Ambient Temperature

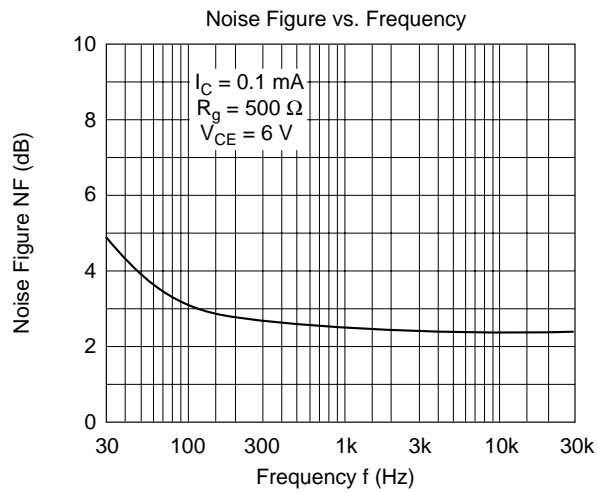
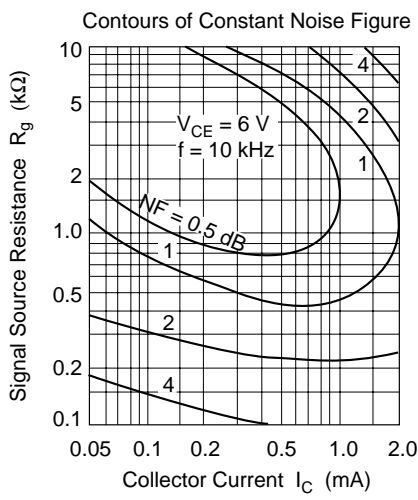
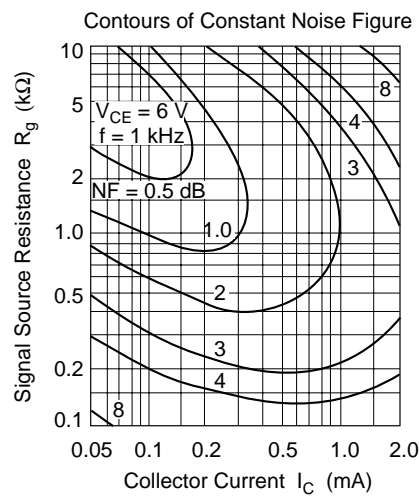
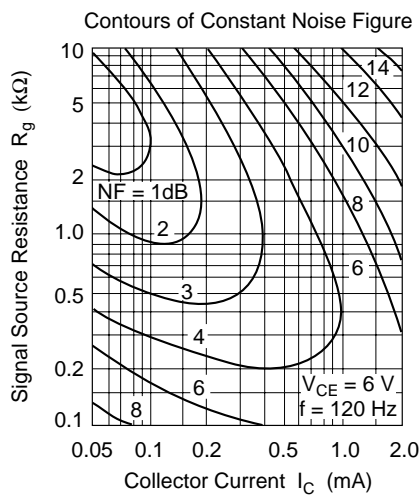


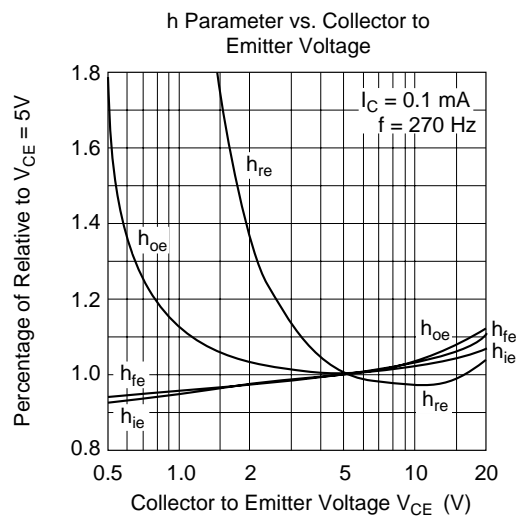
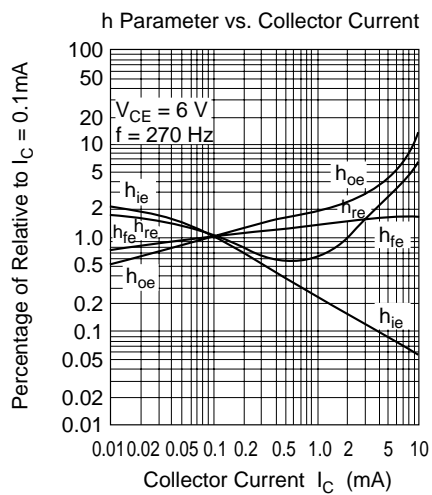
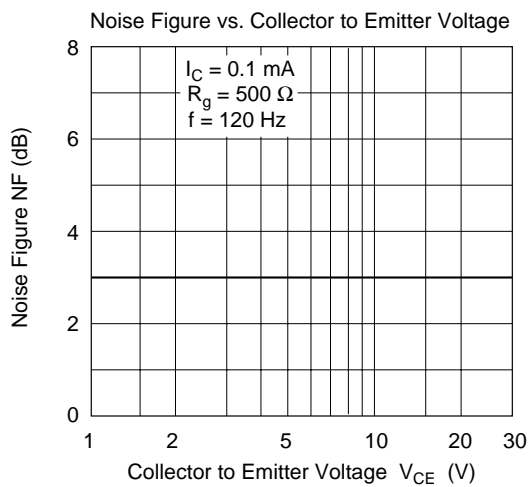
Collector Output Capacitance vs.
Collector to Base Voltage

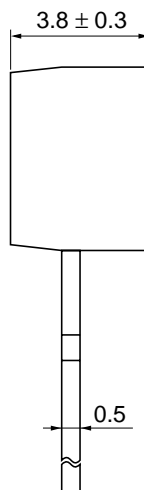
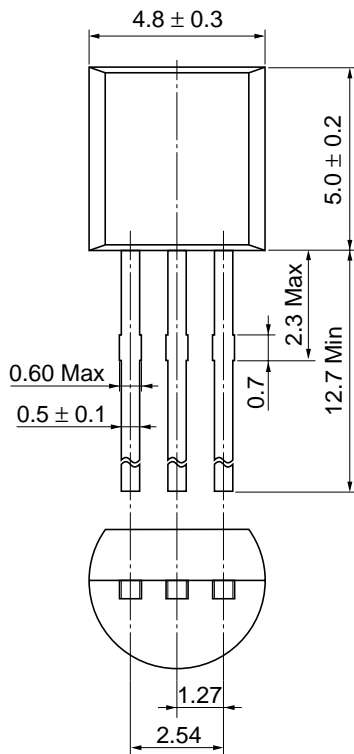


Emitter Input Capacitance vs.
Emitter to Base Voltage









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

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HITACHI

Hitachi, Ltd.

Semiconductor & Integrated Circuits.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

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For further information write to:

Hitachi Semiconductor (America) Inc. 179 East Tasman Drive, San Jose, CA 95134 Tel: <1> (408) 433-1990 Fax: <1> (408) 433-0223	Hitachi Europe GmbH Electronic components Group Dornacher Straße 3 D-85622 Feldkirchen, Munich Germany Tel: <49> (89) 9 9180-0 Fax: <49> (89) 9 29 30 00 Hitachi Europe Ltd. Electronic Components Group. Whitebrook Park Lower Cookham Road Maidenhead Berkshire SL6 8YA, United Kingdom Tel: <44> (1628) 585000 Fax: <44> (1628) 778322
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Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 049318
Tel: 535-2100
Fax: 535-1533

Hitachi Asia Ltd.
Taipei Branch Office
3F, Hung Kuo Building, No.167,
Tun-Hwa North Road, Taipei (105)
Tel: <886> (2) 2718-3666
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.
Group III (Electronic Components)
7/F., North Tower, World Finance Centre,
Harbour City, Canton Road, Tsim Sha Tsui,
Kowloon, Hong Kong
Tel: <852> (2) 735 9218
Fax: <852> (2) 730 0281
Telex: 40815 HITEC HX

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