2SA1190

Silicon PNP Epitaxial

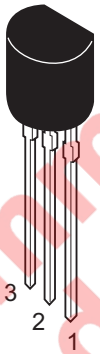
REJ03G0640-0200
(Previous ADE-208-1012)
Rev.2.00
Aug.10.2005

Application

- Low frequency low noise amplifier
- Complementary pair with 2SC2855 and 2SC2856

Outline

RENESAS Package code: PRSS0003DA-A
(Package name: TO-92 (1))



1. Emitter
2. Collector
3. Base

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	–90	V
Collector to emitter voltage	V_{CEO}	–90	V
Emitter to base voltage	V_{EBO}	–5	V
Collector current	I_C	–100	mA
Emitter current	I_E	100	mA
Collector power dissipation	P_C	400	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Electrical Characteristics

(Ta = 25°C)

Item	Symbol	2SA1190			Unit	Test conditions
		Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	–90	—	—	V	I_C = –10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	–90	—	—	V	I_C = –1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	–5	—	—	V	I_E = –10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	–0.1	µA	V_{CB} = –70 V, I_E = 0
Emitter cutoff current	I_{EBO}	—	—	–0.1	µA	V_{EB} = –2 V, I_C = 0
DC current trnsfer ratio	h_{FE}*[1]	250	—	800		V_{CE} = –12 V, I_C = –2 mA*[2]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	–0.05	–0.15	V	I_C = –10 mA, I_B = –1 mA*[2]
Base to emitter saturation voltage	$V_{BE(sat)}$	—	–0.7	–1.0	V	
Gain bandwidth product	f_T	—	130	—	MHz	V_{CE} = –6 V, I_C = –10 mA
Collector output capacitance	Cob	—	3.2	—	pF	V_{CB} = –10 V, I_E = 0, f = 1 MHz
Noise figure	NF	—	0.15	1.5	dB	V_{CE} = –6 V, I_C = –0.1 mA, R_g = 10 kΩ, f = 1 kHz
		—	0.2	2.0	dB	V_{CE} = –6 V, I_C = –0.1 mA, R_g = 10 kΩ, f = 10 Hz
Noise voltage referred to input	e_n	—	0.7	—	nV/√Hz	V_{CB} = –6 V, I_C = –10 mA, Rg = 0, f = 1 kHz

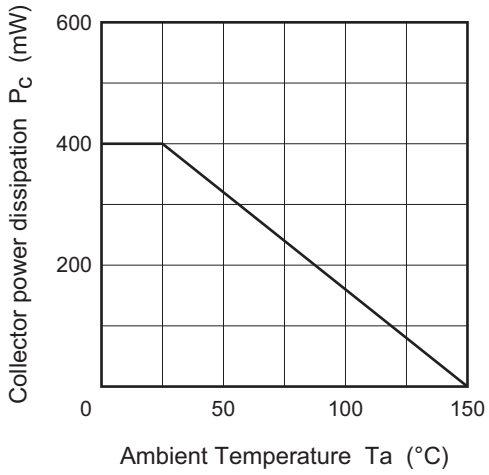
Notes: 1. The 2SA1190 and 2SA1191 are grouped by h_{FE} as follows.

2. Pulse test

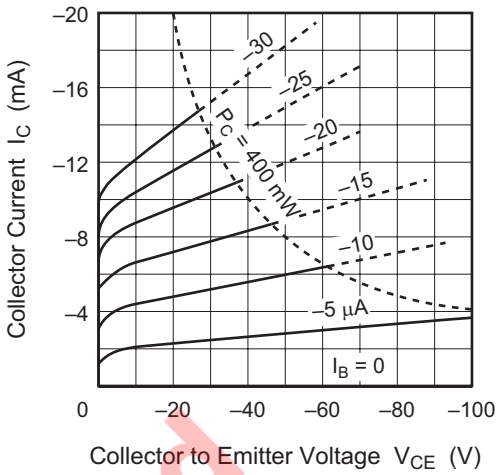
D	E
250 to 500	400 to 800

Main Characteristics

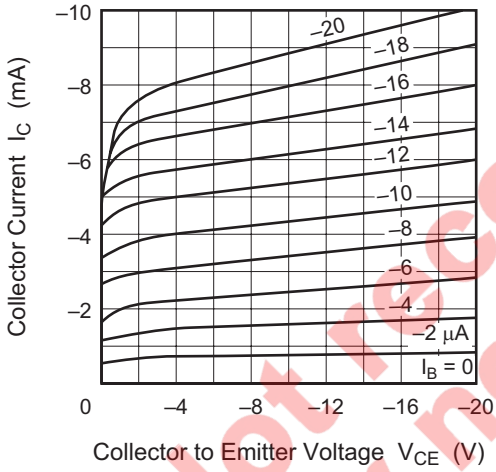
Maximum Collector Dissipation Curve



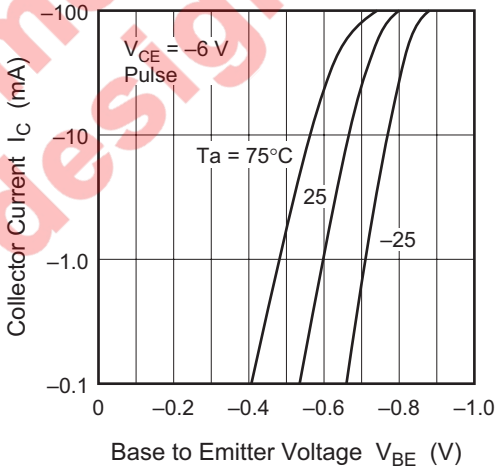
Typical Output Characteristics (1)



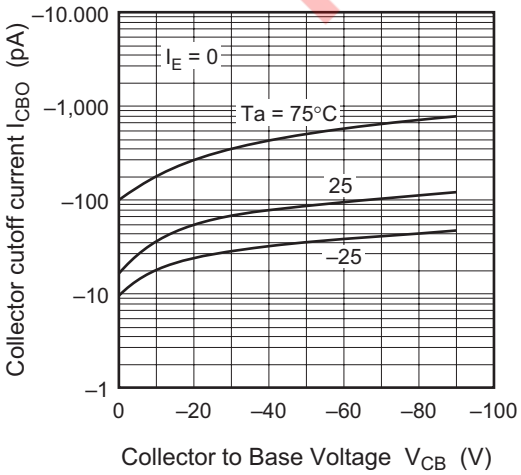
Typical Output Characteristics (2)



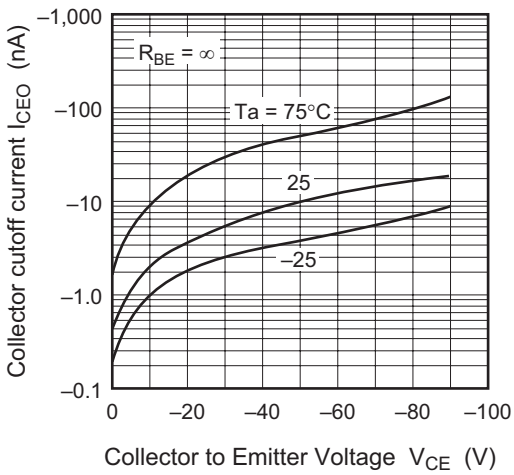
Typical Transfer Characteristics



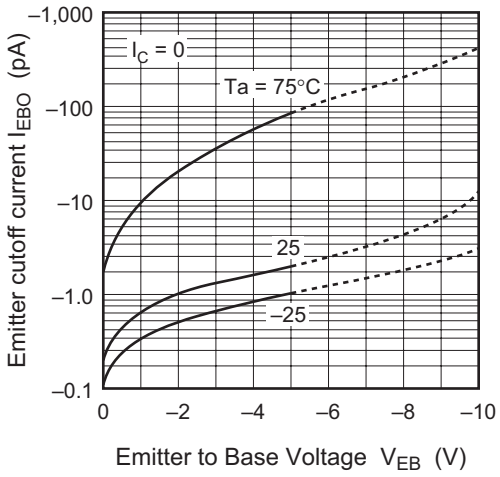
Collector Cutoff Current vs. Collector to Base Voltage



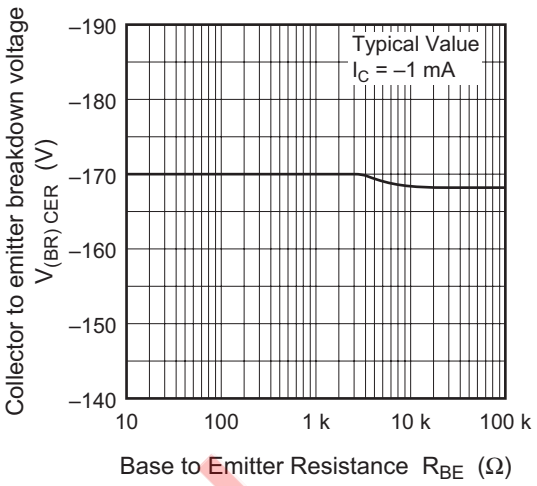
Collector Cutoff Current vs. Collector to Emitter Voltage



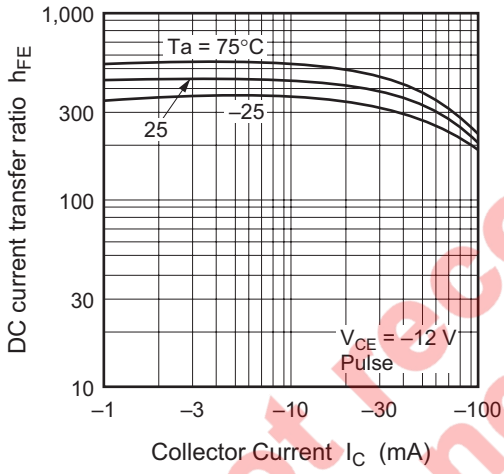
Emitter Cutoff Current vs.
Emitter to Base Voltage



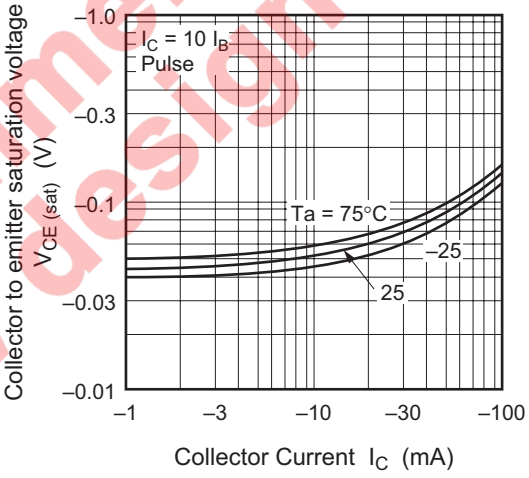
Collector to Emitter Breakdown Voltage vs.
Base to Emitter Resistance



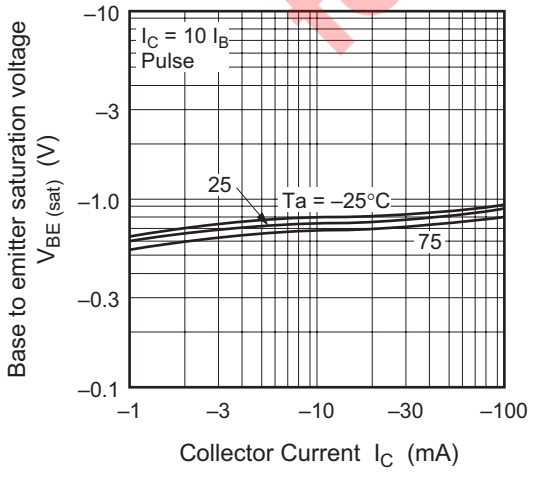
DC Current Transfer Ratio vs.
Collector Current



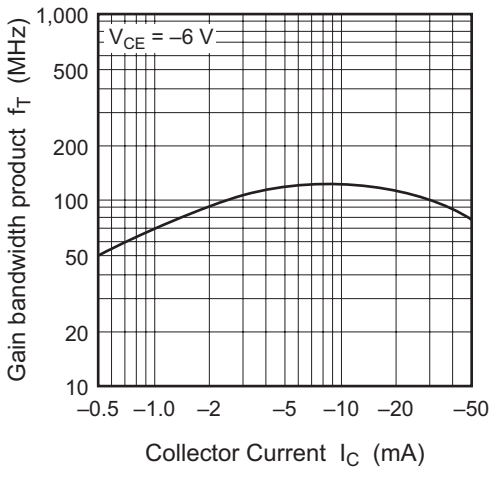
Collector to Emitter Saturation Voltage vs.
Collector Current



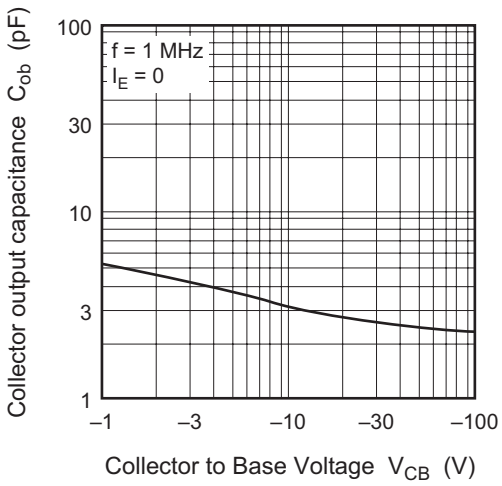
Base to Emitter Saturation Voltage vs.
Collector Current



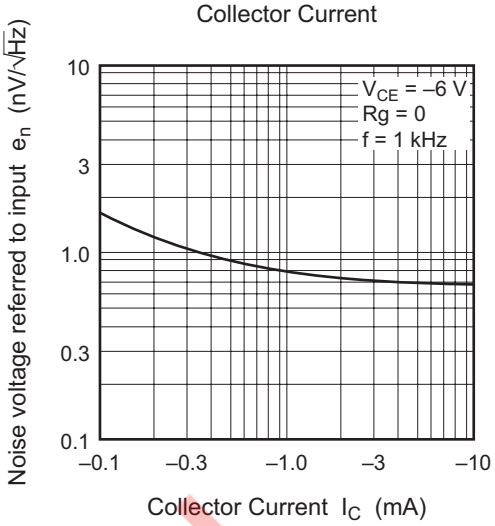
Gain Bandwidth Product vs.
Collector Current



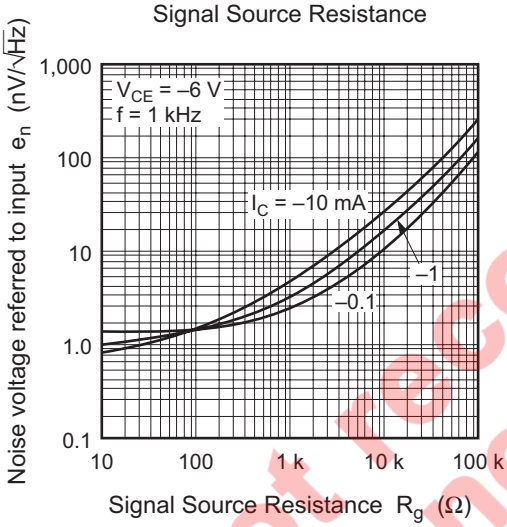
Collector Output Capacitance vs. Collector to Base Voltage



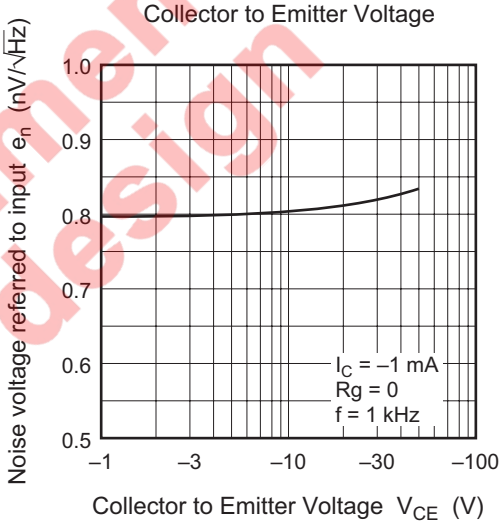
Noise Voltage referred to Input vs. Collector Current



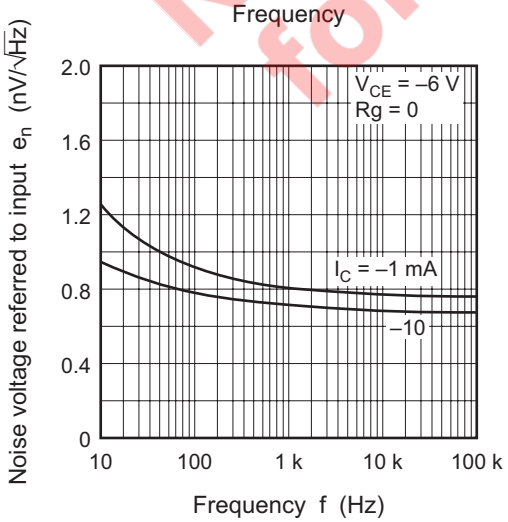
Noise Voltage referred to Input vs. Signal Source Resistance



Noise Voltage referred to Input vs. Collector to Emitter Voltage



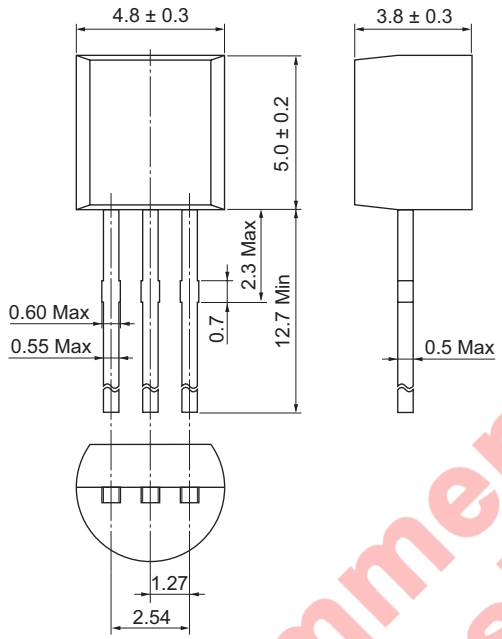
Noise Voltage referred to Input vs. Frequency



Package Dimensions

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
SC-43A	PRSS0003DA-A	TO-92(1) / TO-92(1)V	0.25g

Unit: mm



Ordering Information

Part Name	Quantity	Shipping Container
2SA1190DTZ-E 2SA1190ETZ-E	2500	Hold Box, Radial Taping

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

Renesas Technology Corp. Sales Strategic Planning Div. Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan

RENESAS SALES OFFICES

http://www.renesas.com

Refer to "**http://www.renesas.com/en/network**" for the latest and detailed information.

Renesas Technology America, Inc.
450 Holger Way, San Jose, CA 95134-1368, U.S.A
Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

Renesas Technology Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

Renesas Technology Hong Kong Ltd.
7th Floor, North Tower, World Finance Centre, Harbour City, 1 Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2730-6071

Renesas Technology Taiwan Co., Ltd.
10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

Renesas Technology (Shanghai) Co., Ltd.
Unit2607 Ruijing Building, No.205 Maoming Road (S), Shanghai 200020, China
Tel: <86> (21) 6472-1001, Fax: <86> (21) 6415-2952

Renesas Technology Singapore Pte. Ltd.
1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: <65> 6213-0200, Fax: <65> 6278-8001

Renesas Technology Korea Co., Ltd.
Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea
Tel: <82> 2-796-3115, Fax: <82> 2-796-2145

Renesas Technology Malaysia Sdn. Bhd.
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510

Colophon .3.0