To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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2SA1083, 2SA1084, 2SA1085

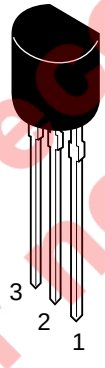
Silicon PNP Epitaxial

Application

- Low frequency low noise amplifier
- Complementary pair with 2SC2545, 2SC2546 and 2SC2547

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

Absolute Maximum Ratings (Ta = 25°C)

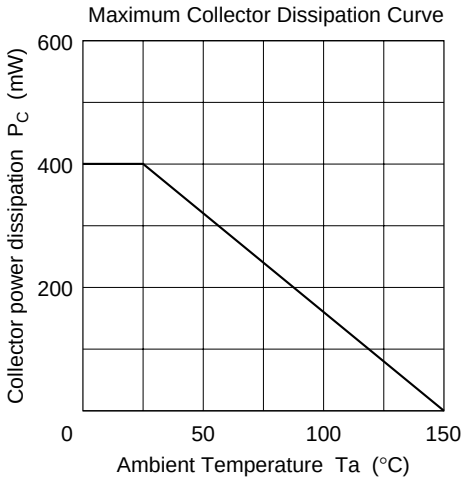
Item	Symbol	2SA1083	2SA1084	2SA1085	Unit
Collector to base voltage	V_{CBO}	–60	–90	–120	V
Collector to emitter voltage	V_{CEO}	–60	–90	–120	V
Emitter to base voltage	V_{EBO}	–5	–5	–5	V
Collector current	I_C	–100	–100	–100	mA
Emitter current	I_E	100	100	100	mA
Collector power dissipation	P_C	400	400	400	mW
Junction temperature	Tj	150	150	150	°C
Storage temperature	Tstg	–55 to +150	–55 to +150	–55 to +150	°C

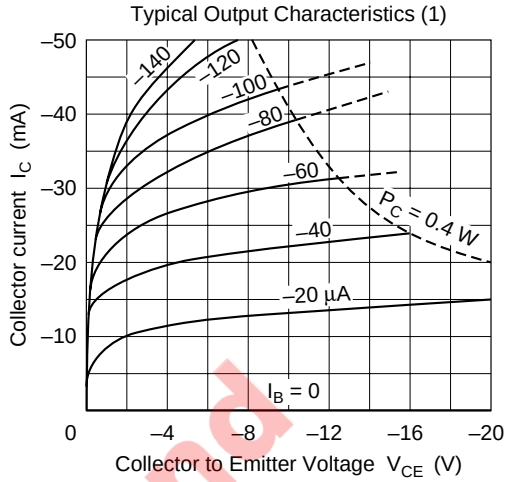
Electrical Characteristics (Ta = 25°C)

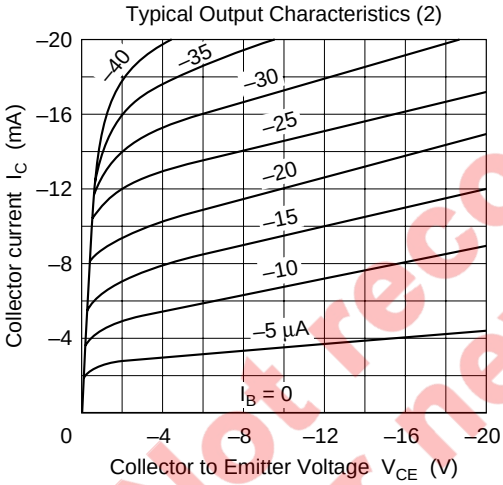
Item	Symbol	2SA1083 Min	2SA1083 Typ	2SA1083 Max	2SA1084 Min	2SA1084 Typ	2SA1084 Max	2SA1085 Min	2SA1085 Typ	2SA1085 Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	–60	—	—	–90	—	—	–120	—	—	V	I_C = –10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	–60	—	—	–90	—	—	–120	—	—	V	I_C = –1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	–5	—	—	–5	—	—	–5	—	—	V	I_E = –10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	–0.1	—	—	–0.1	—	—	–0.1	µA	V_{CB} = –50 V, I_E = 0
Emitter cutoff current	I_{EBO}	—	—	–0.1	—	—	–0.1	—	—	–0.1	µA	V_{EB} = –2 V, I_C = 0
DC current transfer ratio	h_{FE}*1	250	—	800	250	—	800	250	—	800		V_{CE} = –12 V, I_C = –2 mA
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	–0.2	—	—	–0.2	—	—	–0.2	V	I_C = –10 mA, I_B = –1 mA
Base to emitter voltage	V_{BE}	—	–0.6	—	—	–0.6	—	—	–0.6	—	V	V_{CE} = –12 V, I_C = –2 mA
Gain bandwidth product	f_T	—	90	—	—	90	—	—	90	—	MHz	V_{CE} = –12 V, I_C = –2 mA
Collector output capacitance	Cob	—	3.5	—	—	3.5	—	—	3.5	—	pF	V_{CB} = –10 V, I_E = 0, f = 1 MHz
Noise voltage reffered to input	e_n	—	0.5	—	—	0.5	—	—	0.5	—	nV/√Hz	V_{CE} = –6V, I_C = –10 mA, f = 1 kHz, R_g = 0, Δf = 1Hz

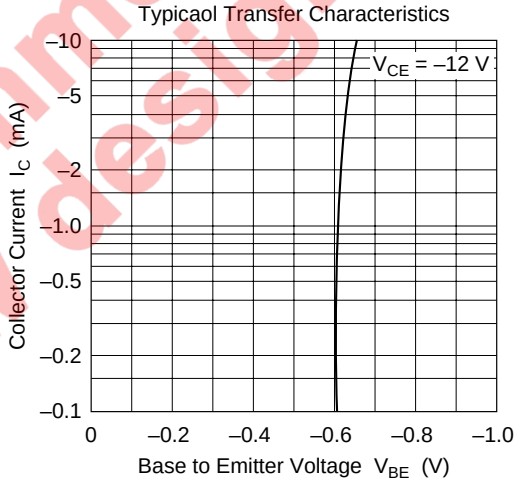
Note: 1. The 2SA1083, 2SA1084 and 2SA1085 are grouped by h_{FE} as follows.

D	E
250 to 500	400 to 800

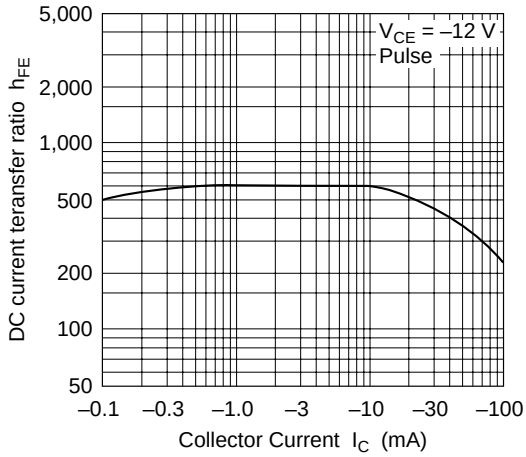




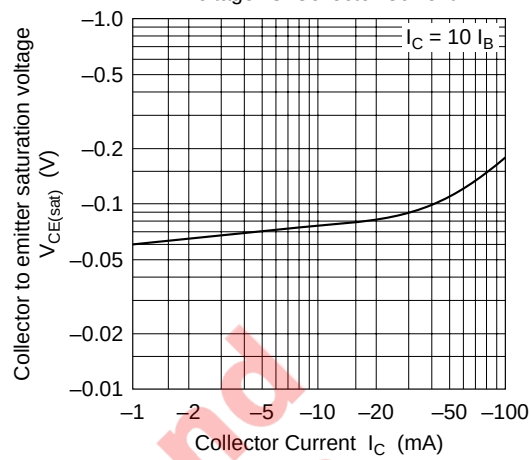




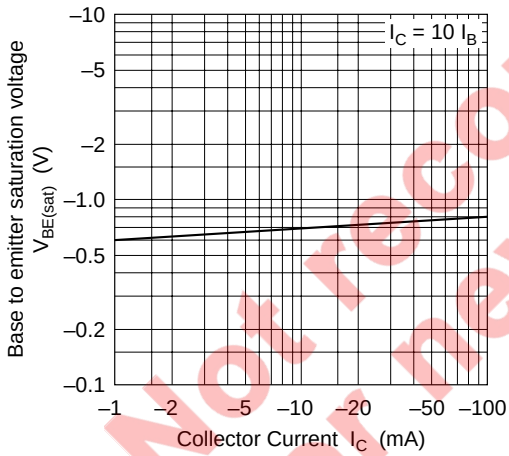
DC Current Transfer Ratio vs. Collector Current



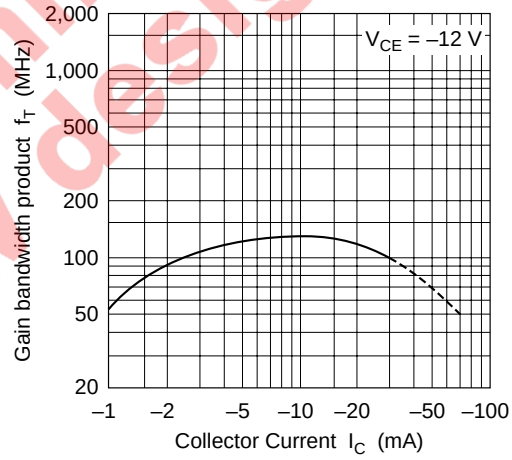
Collector to Emitter Saturation Voltage vs. Collector Current



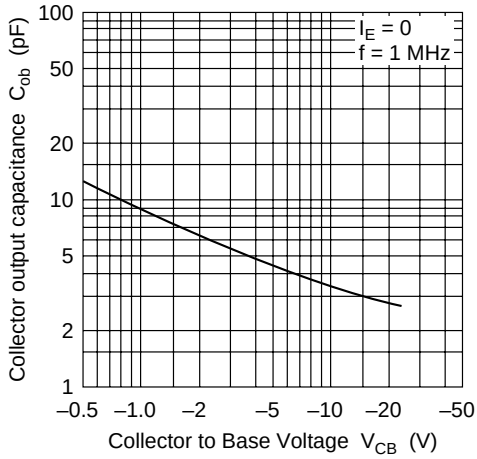
Base to Emitter Saturation Voltage vs. Collector Current



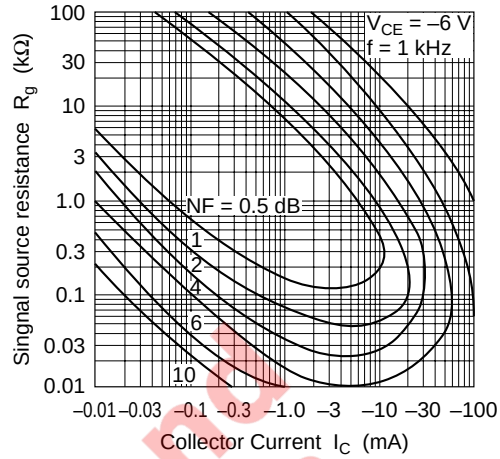
Gain Bandwidth Product vs. Collector Current



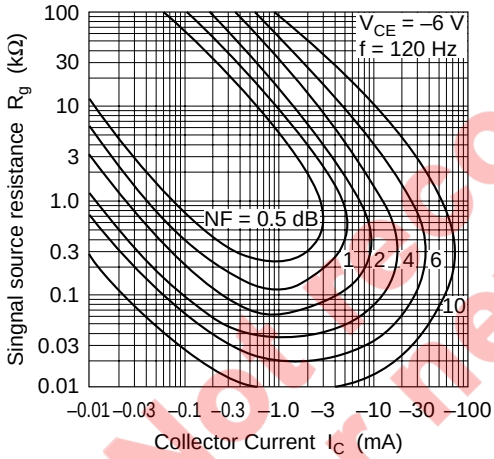
Collector Output Capacitance vs. Collector to Base Voltage



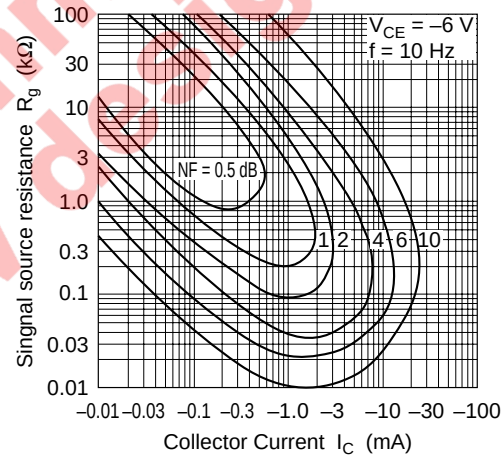
Contours of Constant Noise Figure (1)



Contours of Constant Noise Figure (2)



Contours of Constant Noise Figure (3)



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