To all our customers

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

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2SA1031, 2SA1032

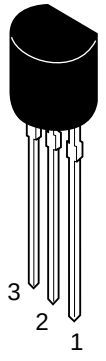
Silicon PNP Epitaxial

Application

- Low frequency low noise amplifier
- Complementary pair with 2SC458 (LG) and 2SC2310

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	2SA1031	2SA1032	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	300	300	mW
Junction temperature	Tj	150	150	°C
Storage temperature	Tstg	–55 to +150	–55 to +150	°C

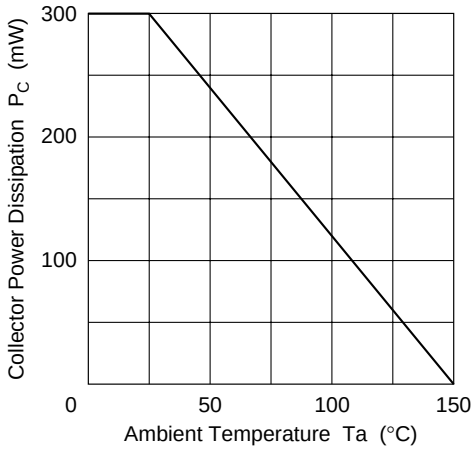
Electrical Characteristics (Ta = 25°C)

Item	Symbol	2SA1031			2SA1032			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	–30	—	—	–55	—	—	V	I_C = –10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	–30	—	—	–50	—	—	V	I_C = –1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	–5	—	—	–5	—	—	V	I_E = –10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	–0.5	—	—	–0.5	µA	V_{CB} = –18 V, I_E = 0
Emitter cutoff current	I_{EBO}	—	—	–0.5	—	—	–0.5	µA	V_{EB} = –2 V, I_C = 0
DC current trnsfer ratio	h_{FE}*[1]	100	—	500	100	—	320		V_{CE} = –12 V, I_C = –2 mA
Base to emitter voltage	V_{BE}	—	—	–0.8	—	—	–0.8	V	V_{CE} = –12 V, I_C = –2 mA
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	–0.2	—	—	–0.2	V	I_C = –10 mA, I_B = –1 mA
Gain bandwidth product	f_T	200	280	—	200	280	—	MHz	V_{CE} = –12 V, I_C = –2 mA
Collector output capacitance	Cob	—	3.3	4.0	—	3.3	4.0	pF	V_{CB} = –10 V, I_E = 0, f = 1 MHz
Noise figure	NF	—	—	5	—	—	5	dB	V_{CE} = –6 V, I_C = –0.1 mA, R_g = 500 Ω, f = 120 Hz

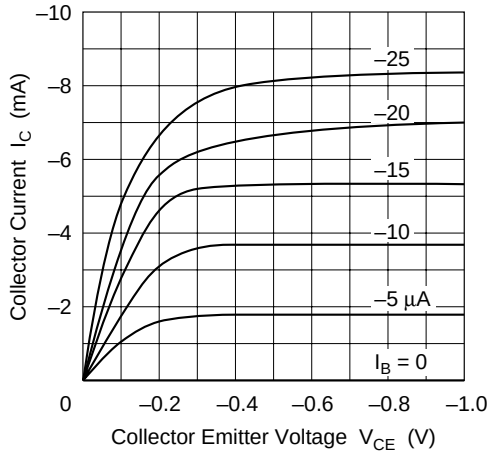
Note: 1. The 2SA1031 and 2SA1032 are grouped by h_{FE} as follows.

	B	C	D
2SA1031	100 to 200	160 to 320	250 to 500
2SA1032	100 to 200	160 to 320	—

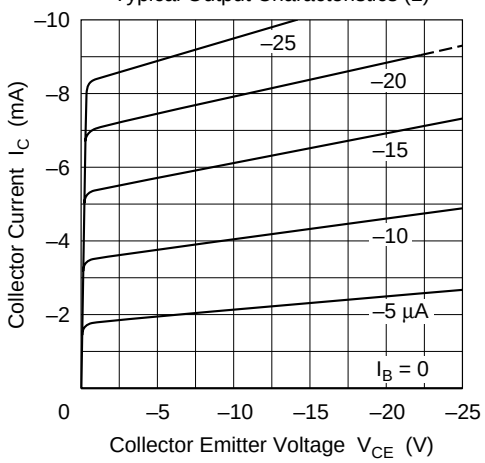
Maximum Collector Dissipation Curve



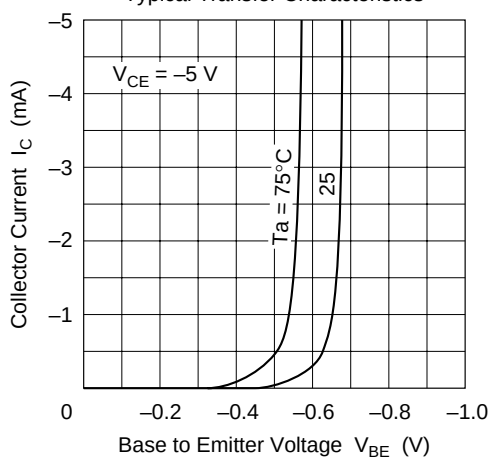
Typical Output Characteristics (1)



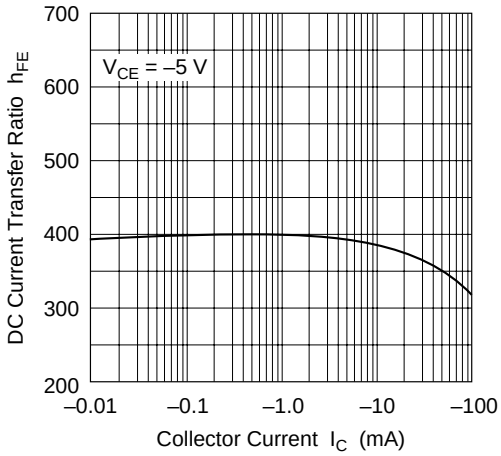
Typical Output Characteristics (2)



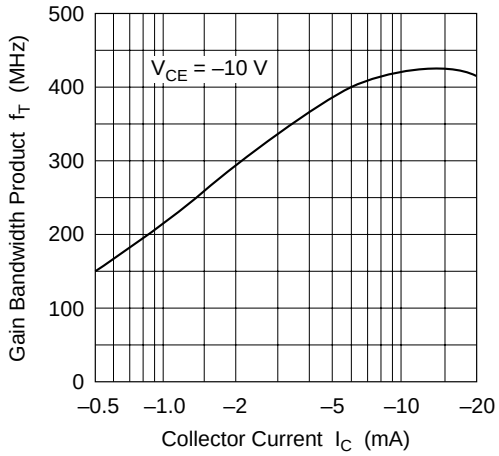
Typical Transfer Characteristics



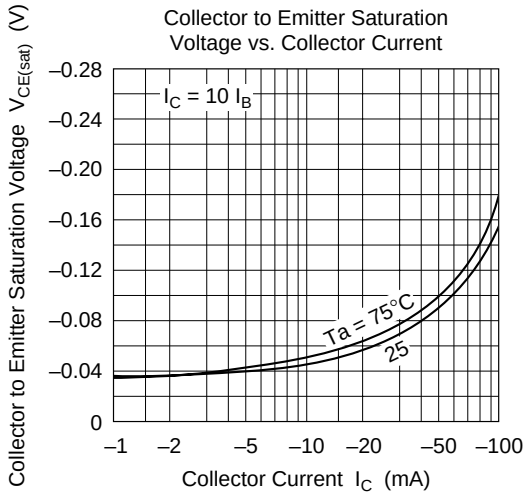
DC Current Transfer Ratio vs. Collector Current



Gain Bandwidth Product vs. Collector Current



Collector to Emitter Saturation Voltage vs. Collector Current



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