To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

EOL announced Product

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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To all our customers

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The semiconductor operations of Mitsubishi Electric and Hitachi were transferred to Renesas Technology Corporation on April 1st 2003. These operations include microcomputer, logic, analog and discrete devices, and memory chips other than DRAMs (flash memory, SRAMs etc.) Accordingly, although Hitachi, Hitachi, Ltd., Hitachi Semiconductors, and other Hitachi brand names are mentioned in the document, these names have in fact all been changed to Renesas Technology Corp. Thank you for your understanding. Except for our corporate trademark, logo and corporate statement, no changes whatsoever have been made to the contents of the document, and these changes do not constitute any alteration to the contents of the document itself.

Renesas Technology Home Page: http://www.renesas.com

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

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2SC1881(K)

Silicon NPN Triple Diffused

ADE-208-882 (Z)
1st. Edition
September 2000

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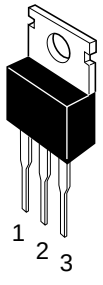
Application

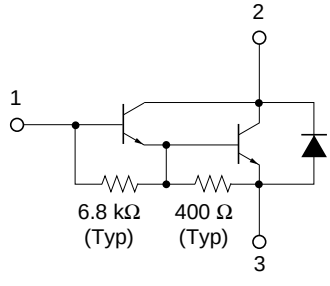
High gain amplifier power switching

Outline

TO-220AB



1. Base
2. Collector (Flange)
3. Emitter



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	60	V
Collector to emitter voltage	V_{CEO}	60	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	3	A
Collector peak current	$I_{C(peak)}$	6	A
Collector power dissipation	P_C*[1]	30	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. Value at T_C = 25°C.

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	60	—	—	V	I_C = 50 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	I_E = 50 mA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	0.2	mA	V_{CB} = 60 V, I_E = 0
	I_{CEO}	—	—	0.4	mA	V_{CE} = 30 V, R_{BE} = ∞
DC current transfer ratio	h_{FE}	1000	—	—		V_{CE} = 1.5 V, I_C = 1.5 A*[1]
		500	—	—		V_{CE} = 1.5 V, I_C = 2.5 A*[1]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.2	V	I_C = 2.5 A, I_B = 20 mA*[1]
Turn on time	t_{on}	—	1	—	µs	V_{CC} = 11 V, I_C = 2 A,
Turn off time	t_{off}	—	5	—	µs	I_{B1} = −I_{B2} = 8 mA

Note: 1. Pulse test.

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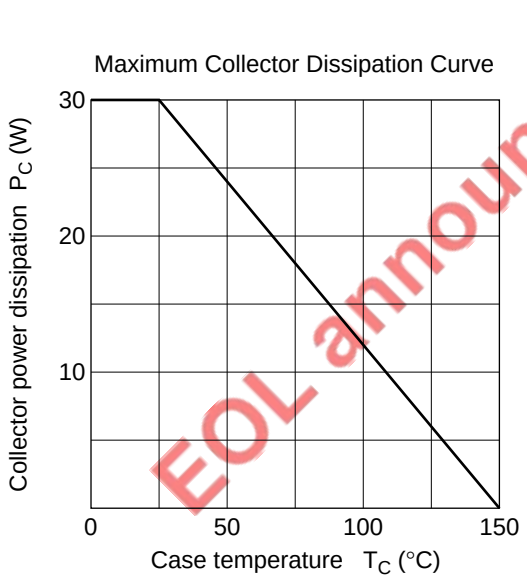
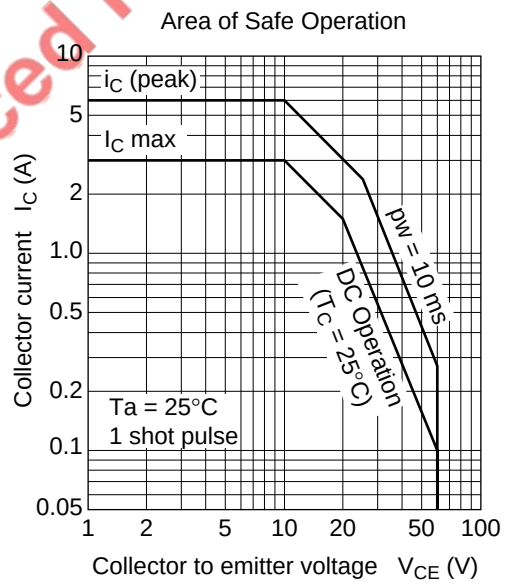
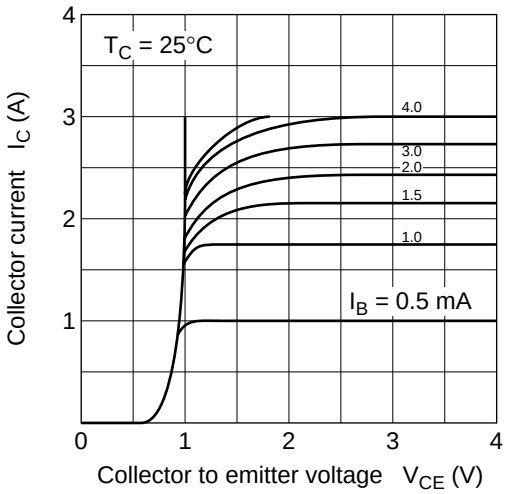
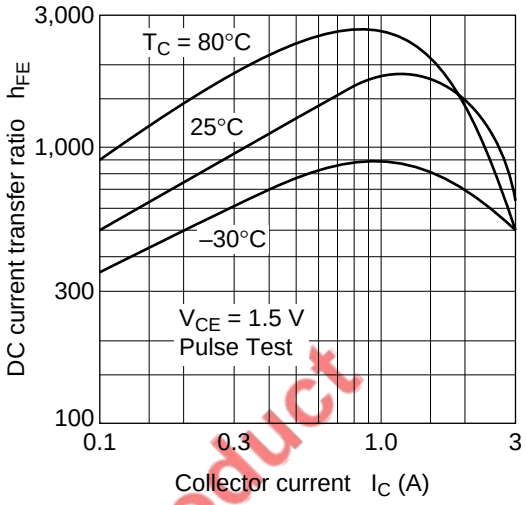




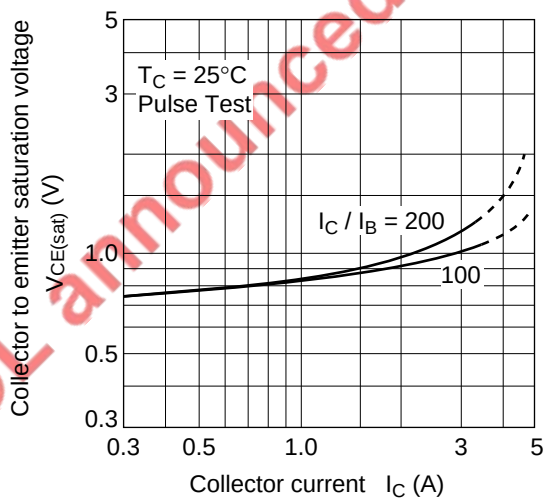
Typical Output Characteristics



DC Current Transfer Ratio
vs. Collector Current



Collector to Emitter Saturation Voltage
vs. Collector Current



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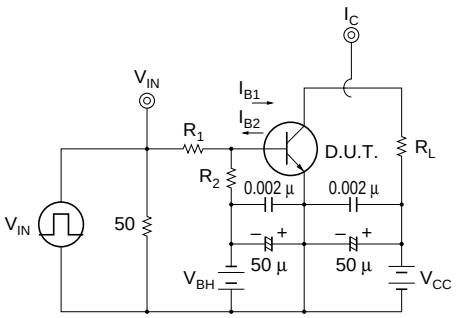
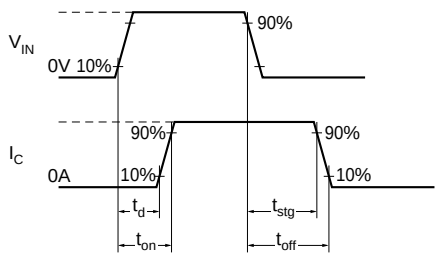
Switching Time Test Circuit



t_r, $t_f \leq 10$ ns
pw ≥ 100 µs
duty ratio ≤ 10%

Unit R : Ω
C : F

Response Waveform



I_C	I_{B1}	I_{B2}	V_{CC}	V_{BB}	V_{IN}	R_L	R_1	R_2
A	mA	mA	V	V	V	Ω	Ω	Ω
2	8	–8	11	–4	7.2	5	620	910

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