

To all our customers

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

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Keep safety first in your circuit designs!

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Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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2SC1881(K)

Silicon NPN Triple Diffused

RENESAS

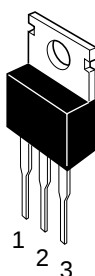
ADE-208-882 (Z)
1st. Edition
September 2000

Application

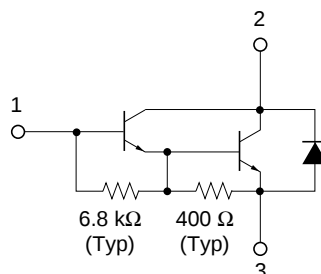
High gain amplifier power switching

Outline

TO-220AB



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



Absolute Maximum Ratings (T_a = 25°C)

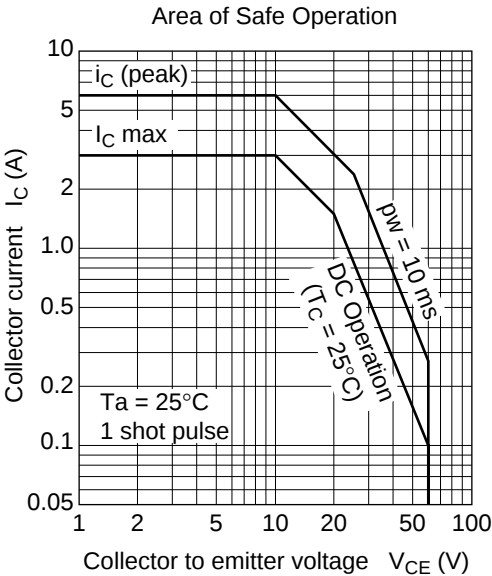
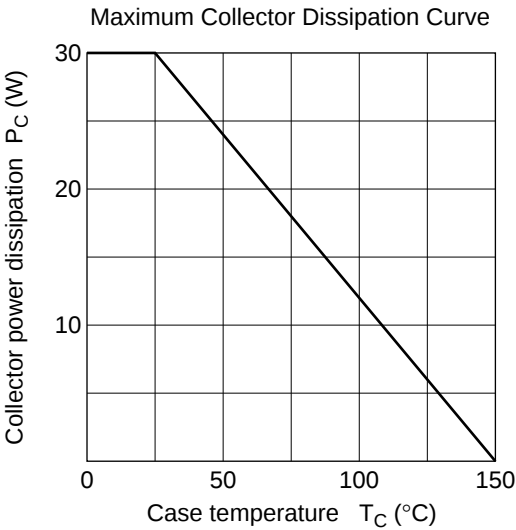
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	60	V
Collector to emitter voltage	V_{CEO}	60	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	3	A
Collector peak current	$I_{C(peak)}$	6	A
Collector power dissipation	P_C^{*1}	30	W
Junction temperature	T_j	150	°C
Storage temperature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

Note: 1. Value at $T_c = 25^\circ\text{C}$.

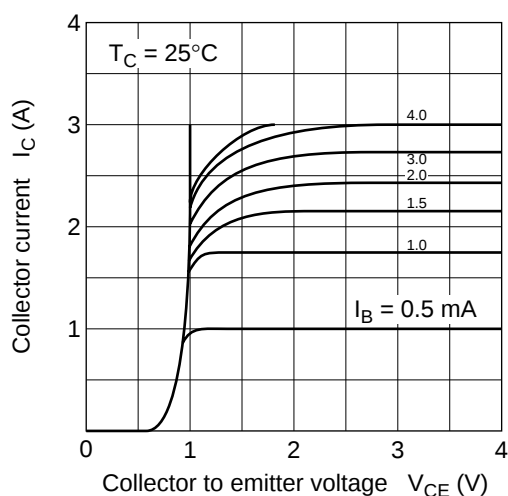
Electrical Characteristics (Ta = 25°C)

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

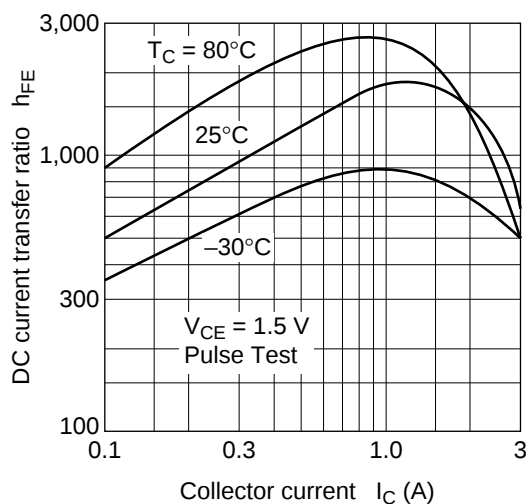
Note: 1. Pulse test.



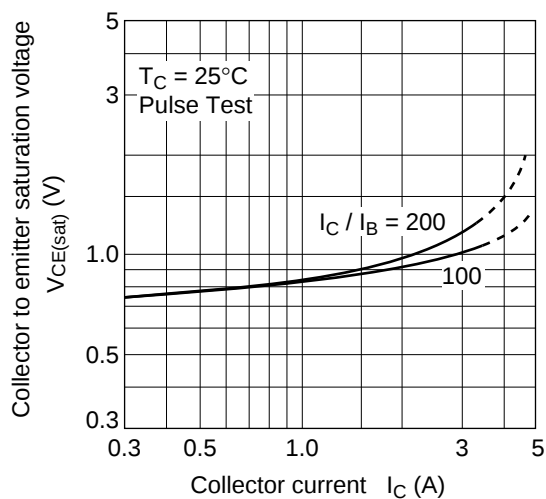
Typical Output Characteristics



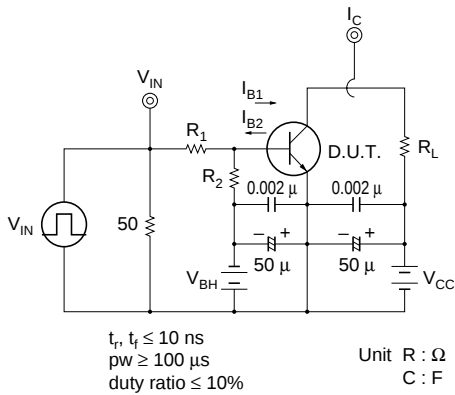
DC Current Transfer Ratio vs. Collector Current



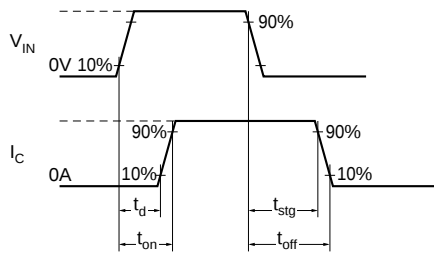
Collector to Emitter Saturation Voltage vs. Collector Current



Switching Time Test Circuit



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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