

To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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

April 1st, 2010
Renesas Electronics Corporation

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

Send any inquiries to <http://www.renesas.com/inquiry>.

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SILICON POWER TRANSISTOR

NTB601

LOW FREQUENCY AMPLIFIER AND LOW SPEED SWITCHING
PNP SILICON EPITAXIAL DARLINGTON TRANSISTOR

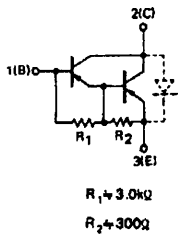
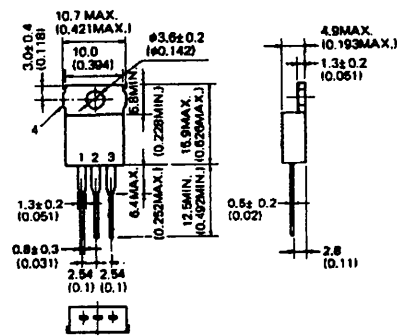
Industrial Use

DESCRIPTION

Suitable for hammer driver, pulse motor driver and relay driver applications.

PACKAGE DIMENSIONS

in millimeters (inches)



1. Base (B)
2. Collector (C)
3. Emitter (E)
4. Fin (Collector)

FEATURES

- Operates from IC without predriver.
- Low collector saturation voltage.
- For complementary use with type NTD560.
- Similar to TIP125~127.

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents (Ta = 25°C)

Collector to Base Voltage	VCBO	-100	V
Collector to Emitter Voltage	VCER(SUS)	-100	V
	VCEX(SUS)	-100	V
	VCEO(SUS)	-100	V
Emitter to Base Voltage	VEBO	-7.0	V
Continuous Collector Current	IC(DC)	-5.0	A
Peak Collector Current	IC(pulse)*	-8.0	A
Continuous Base Current	IB(DC)	-0.5	A

Maximum Power Dissipations

Total Power Dissipation (Ta=25°C)	PT	2.0	W
(Tc=25°C)	PT	50	W

Maximum Temperatures

Junction Temperature	TJ	150	°C
Storage Temperature	Tstg	-55 to +150	°C

Lead Temperature:

1/8 inch from case for 10 seconds	TL	260	°C
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Thermal Resistances

Junction to Ambient	Rth(j-a)	62.5	°C/W
Junction to Case	Rth(j-c)	2.5	°C/W

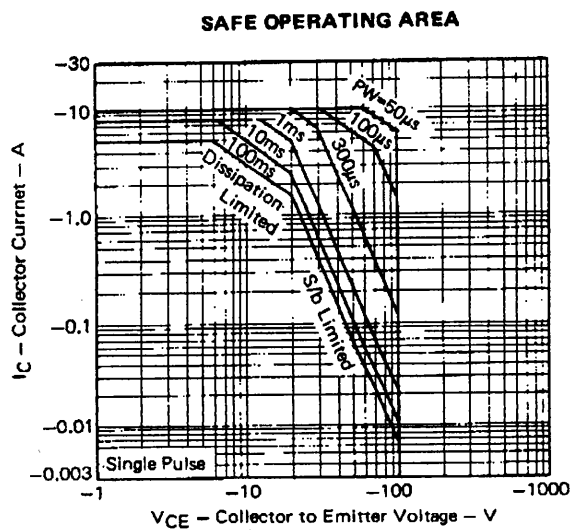
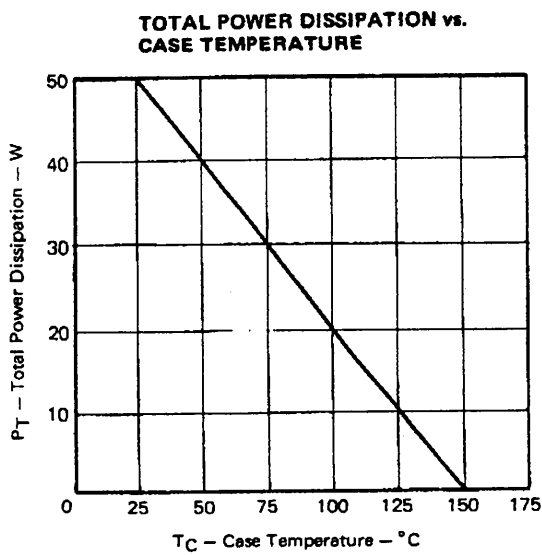
* Pulsed PW ≤ 10ms, duty cycle ≤ 50%.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

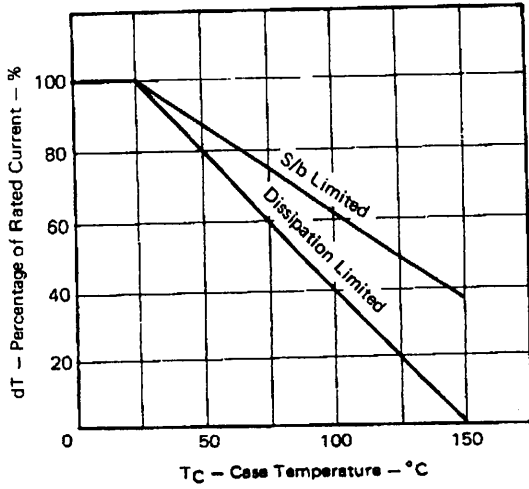
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector to Emitter Sustaining Voltage	V _{CEO(SUS)}	-100			V	I _C = -0.2A, I _B = 0
	V _{CER(SUS)}	-100			V	I _C = -0.2A, R _{BE} = 51Ω
	V _{CEx(SUS)}	-100			V	I _C = -0.2A, I _B = -I _E = -2mA
Collector Cutoff Current	I _{CBO}			-1.0	μA	V _{CB} = -100V, I _E = 0
				-500	μA	V _{CB} = -100V, I _E = 0, T _C = 125°C
Collector Cutoff Current	I _{CEO}			-10	μA	V _{CE} = -50V, I _B = 0
Emitter Cutoff Current	I _{EBO}			-3.0	mA	V _{EB} = -5.0V, I _C = 0
DC Current Gain	h _{FE}	2000	4000	15000		V _{CE} = -2.0V, I _C = -3.0A*
Collector Saturation Voltage	V _{CE(sat)}			-1.5	V	I _C = -3.0A, I _B = -0.3A*
Base Saturation Voltage	V _{BE(sat)}			-2.0	V	

*Pulsed PW ≤ 350 μs, duty cycle ≤ 2%

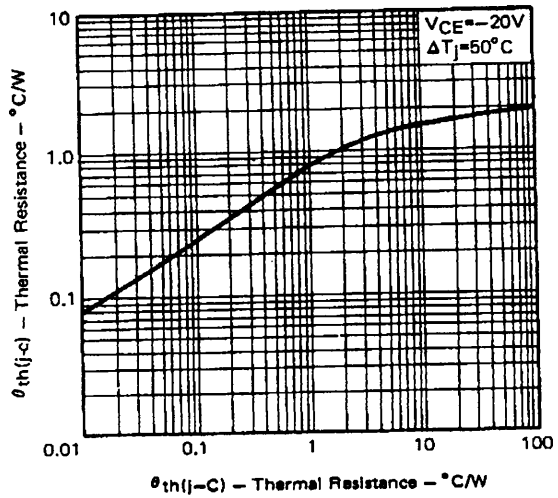
TYPICAL CHARACTERISTICS (Ta = 25°C)



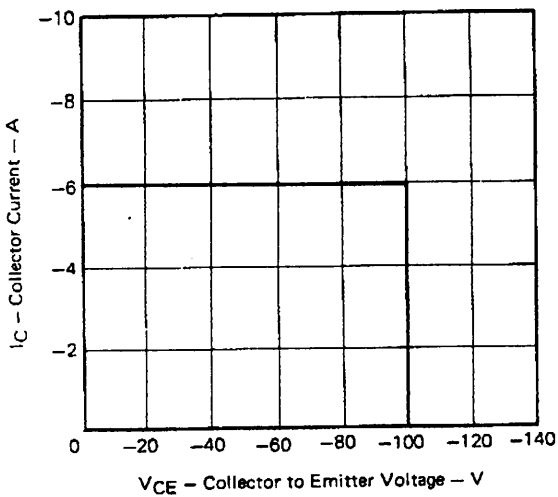
DERATING CURVE OF SAFE OPERATING AREAS



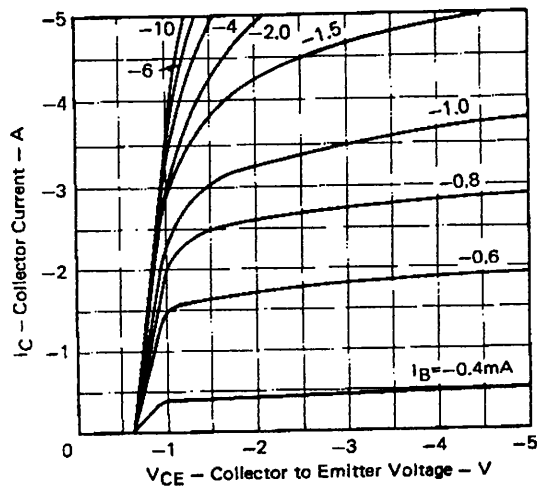
TRANSIENT THERMAL RESISTANCE



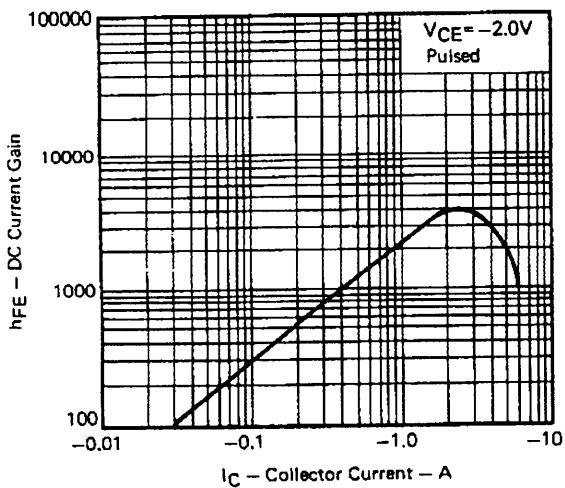
REVERSE BIAS SAFE OPERATING AREAS



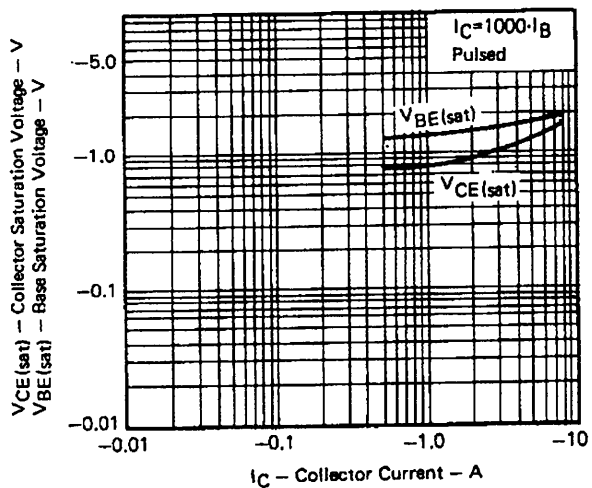
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



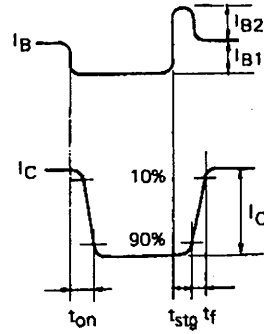
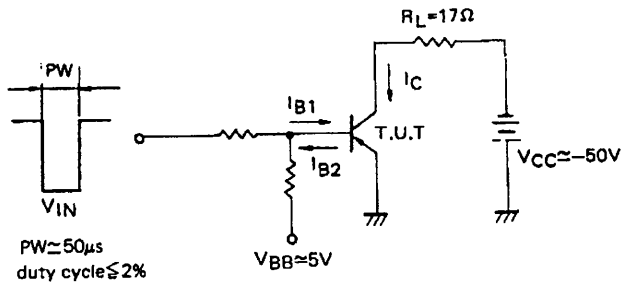
DC CURRENT GAIN vs. COLLECTOR CURRENT



BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



SWITCHING TIME (t_{on} , t_{stg} , t_f) TEST CIRCUIT



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