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)

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RENESAS

Phase-out/Discontinued

Silicon Transistor

2SA1988

PNP SILICON TRANSISTOR
POWER AMPLIFIER

DESCRIPTION
The 2SA1988 is PNP Silicon Power Transistor that designed for audio frequency power amplifier.

FEATURES
- High Voltage VCEO = –200 V
- DC Current Gain hFE = 70 to 200
- TO-3P Package

ORDERING INFORMATION

Type Number	Package
2SA1988	MP-88

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

Collector to Base Voltage	V_{CBO}	–200	V
Collector to Emitter Voltage	V_{CEO}	–200	V
Emitter to Base Voltage	V_{EBO}	–5.0	V
Collector Current (DC)	$I_{C\ (DC)}$	–7.0	A
Collector Current (pulse)	$I_{C\ (pulse)}$ *1	–10	A
Total Power Dissipantion	P_2 *2	100	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	–55 to +150	°C

*1 PW ≤ 300 μs, Duty Cycle ≤ 10 %

*2 T_C = 25 °C

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Printed in Japan

The mark <R> shows major revised points.
The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what." field.

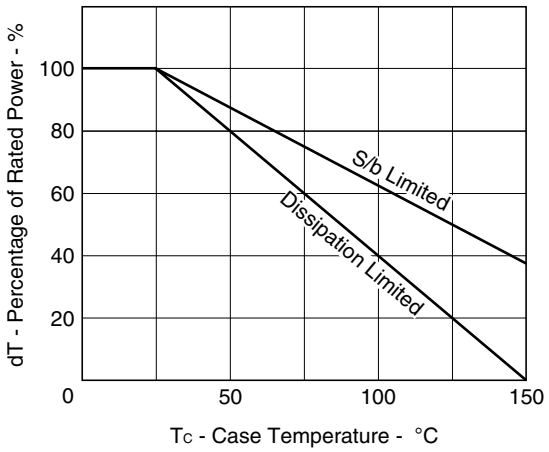
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			–50	μA	V_{CB} = –200 V, I_E = 0
Emitter Cutoff Current	I_{EBO}			–50	μA	V_{EB} = –3.0 V, I_C = 0
DC Current Gain	h_{FE1}	70		200	–	V_{CE} = –5.0 V, I_C = –1.0 A *
DC Current Gain	h_{FE2}	20			–	V_{CE} = –5.0 V, I_C = –3.5 A *
Collector Saturation Voltage	$V_{CE\ (sat)}$		–0.6	–2.0	V	I_C = –5.0 A, I_B = –0.5 A *
Base Saturation Voltage	$V_{BE\ (sat)}$		–1.3	–2.0	V	I_C = –5.0 A, I_B = –0.5 A *
Gain Band width Product	f_T		40		MHz	V_{CE} = –5.0 V, I_C = –1.0 mA
Output Capacitance	C_{ob}		270		pF	V_{CB} = –10 V, I_E = 0, f = 1.0 MHz

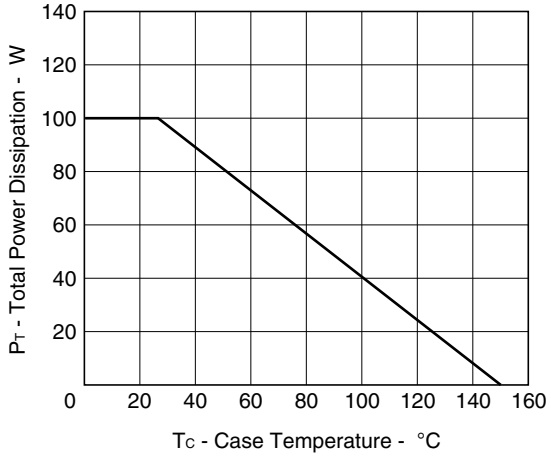
* Pulse Test PW ≤ 350 μs, Duty Cycle ≤ 2 %

TYPICAL CHARACTERISTICS (T_A = 25 °C)

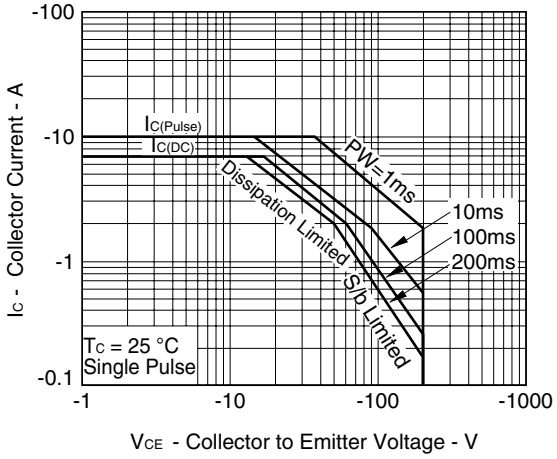
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



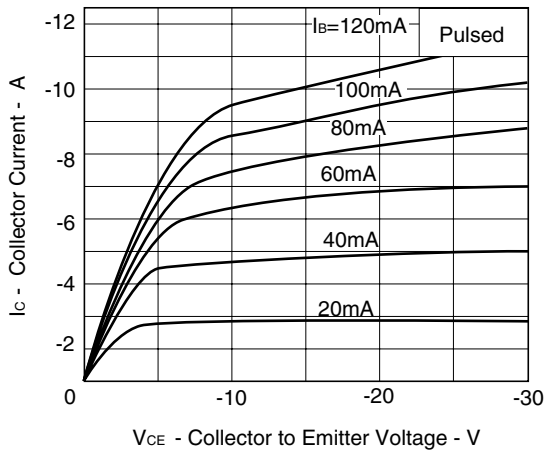
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



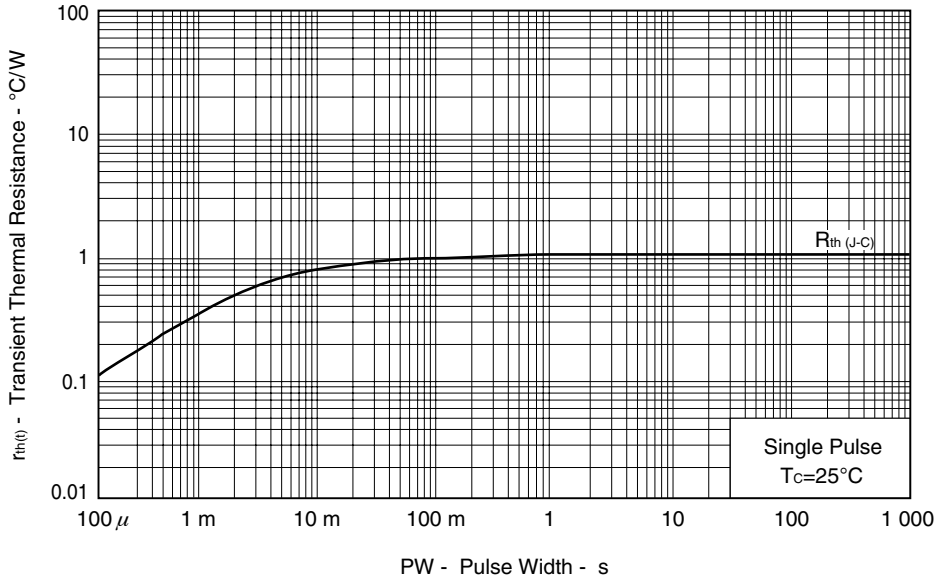
FORWARD BIAS SAFE OPERATING AREA



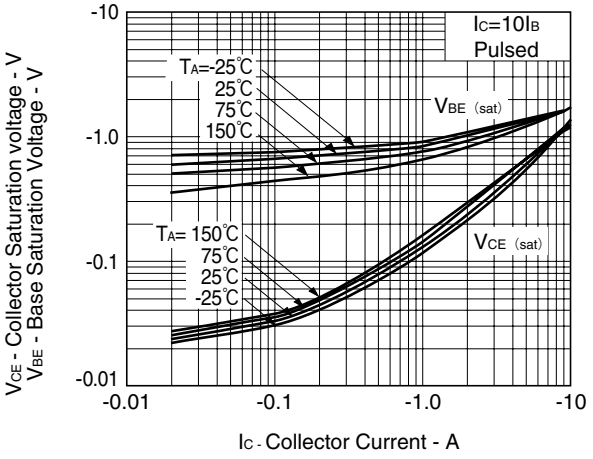
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



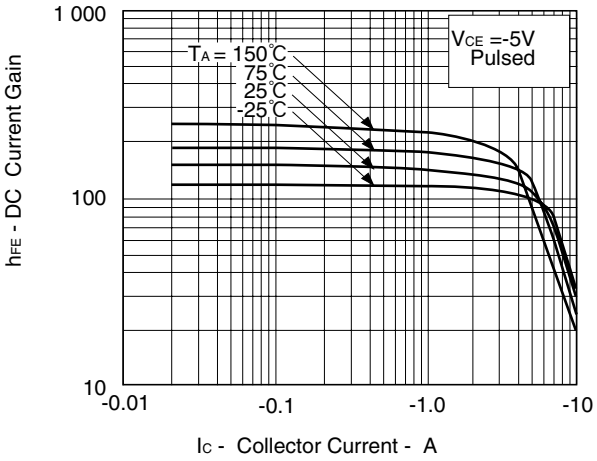
TRANSIENT THERMAL RESISTANCE vs. PULSE WIDTH



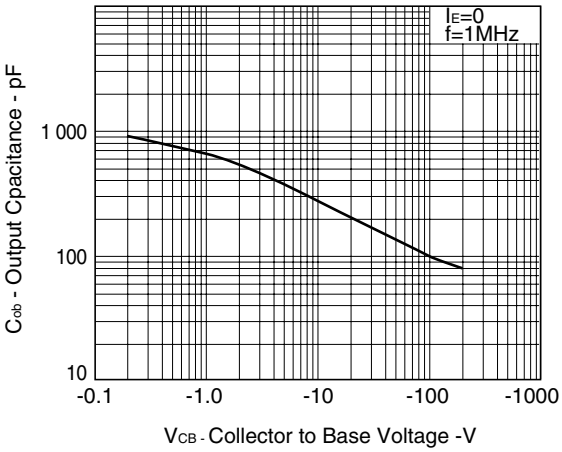
COLLECTOR SATURATION VOLTAGE AND
BASE SATURATION VOLTAGE
VS COLLECTOR CURRENT



DC CURRENT GAIN VS
COLLECTOR CURRENT

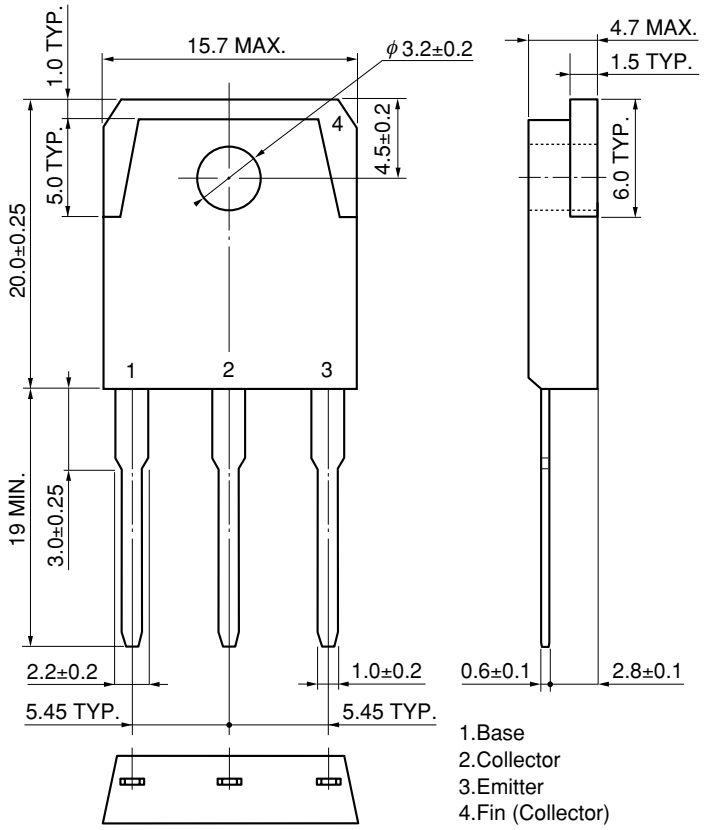


OUTOPUT CAPASITANCE VS
COLLECTOR TO BASE VOLTAGE



PACKAGE DRAWING (Unit: mm)

<R> TO-3P (MP-88)



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