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

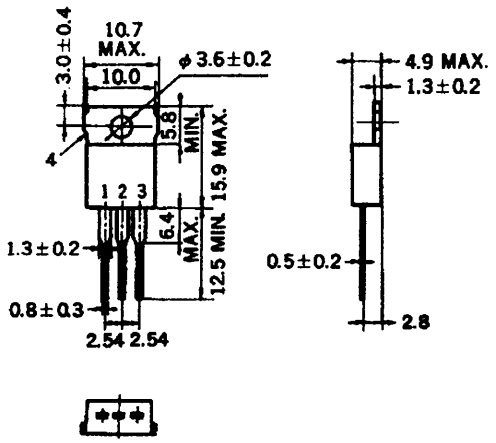
SILICON POWER TRANSISTOR

NTD288

AUDIO FREQUENCY POWER AMPLIFIER AND LOW SPEED SWITCHING NPN SILICON TRIPLE DIFFUSED TRANSISTOR

PACKAGE DIMENSIONS

in millimeters



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

DESCRIPTION

The NTD288 is silicon triple diffused transistor suited for the output stage of 15 to 20 watts audio amplifier, voltage regulator and vertical output use of B/W TV application.

FEATURES

- High voltage ratings V_{CEO} = 60 V
- Wide safe-operating area.
- High f_T

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents (T_a = 25 °C)			
Collector to Base Voltage	V_{CBO}	80	V
Collector to Emitter Voltage	V_{CEO}	60	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current (DC)	$I_{C(DC)}$	3.0	A
Collector Current (pulse)	$I_{C(pulse)}$*	6.0	A
Base Current (DC)	$I_{B(DC)}$	0.6	A
Maximum Power Dissipations			
Total Power Dissipation			
at 25 °C Case Temperature	$P_{T(T_C = 25\,°C)}$	20	W
at 25 °C Ambient Temperature	$P_{T(T_a = 25\,°C)}$	1.5	W
Maximum Temperatures			
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

*PW ≦ 10 ms, Duty Cycle ≦ 50 %

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			10	μA	V_{CB} = 60 V, I_E = 0
Emitter Cutoff Current	I_{EBO}			10	μA	V_{EB} = 3.0 V, I_C = 0
DC Current Gain	h_{FE1}	20	70			V_{CE} = 5.0 V, I_C = 20 mA *
DC Current Gain	h_{FE2}	40	100	200		V_{CE} = 5.0 V, I_C = 500 mA *
Collector Saturation Voltage	$V_{CE(sat)}$		1.0	2.0	V	I_C = 2.0 A, I_B = 0.4 A *
Base Saturation Voltage	$V_{BE(sat)}$		0.9	2.0	V	I_C = 2.0 A, I_B = 0.4 A *
Gain Bandwidth Product	f_T		35		MHz	V_{CE} = 5.0 V, I_C = 0.1 A
Output Capacitance	C_{ob}		55		pF	V_{CB} = 10 V, I_E = 0, f = 1.0 MHz

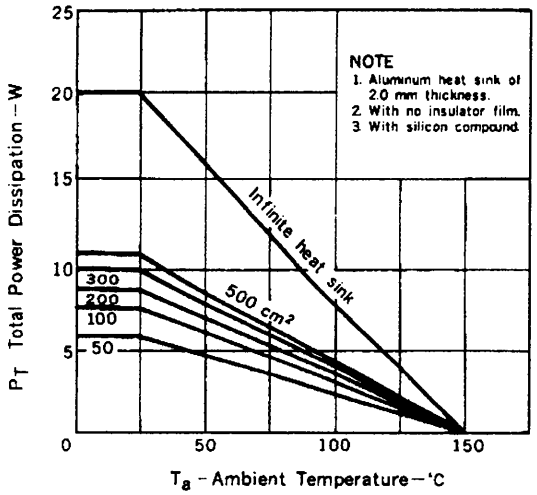
*Pulse Test PW ≦ 350 μs, Duty Cycle ≦ 2 %

h_{FE2} Classification / M : 40 – 80 L : 60 – 120 K : 100 – 200

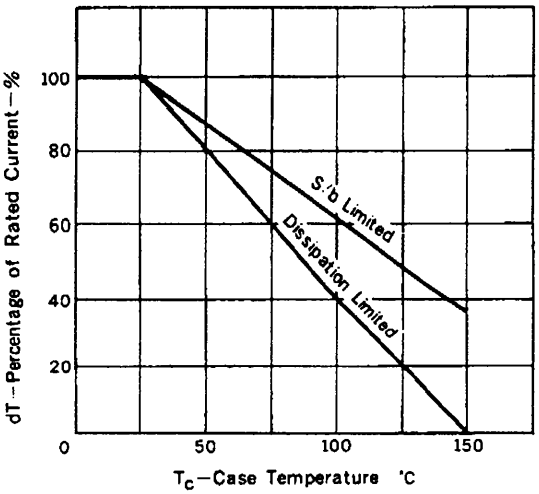
NEC Corporation

TYPICAL CHARACTERISTICS (T_a = 25 °C)

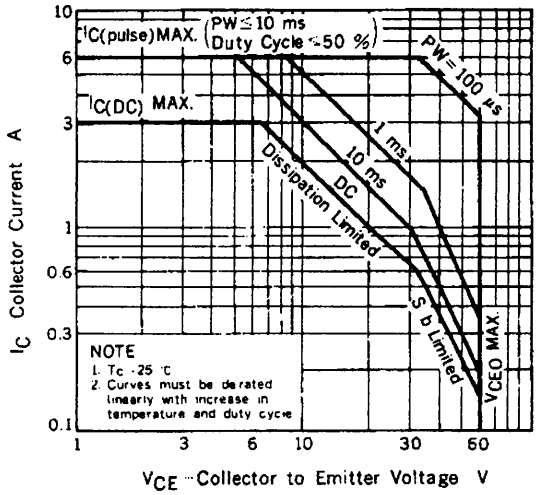
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



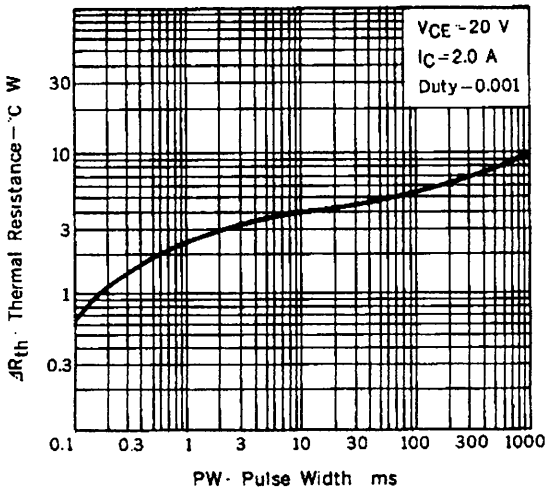
DERATING CURVE OF SAFE OPERATING AREAS



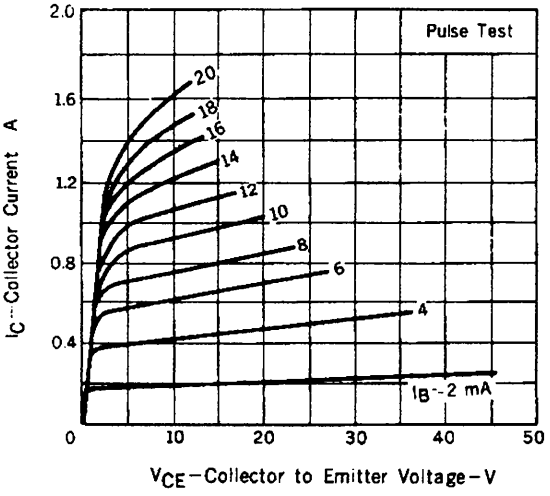
SAFE OPERATING AREAS



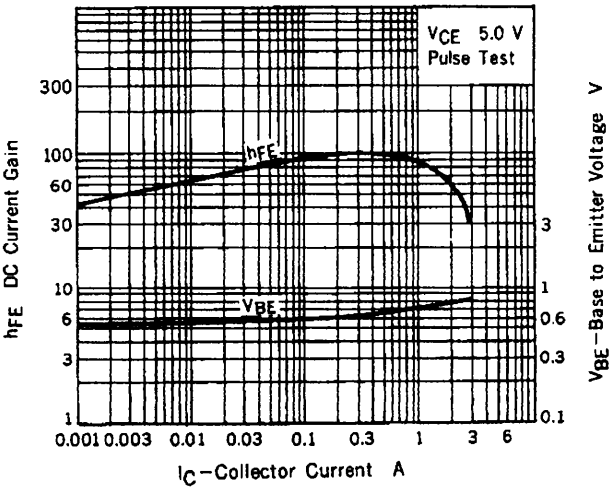
TRANSIENT THERMAL RESISTANCE



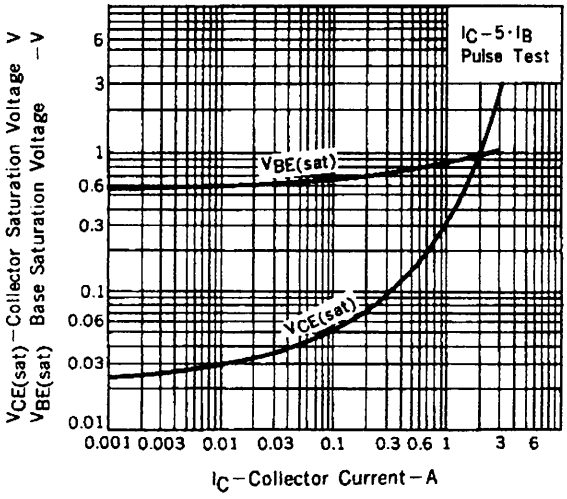
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



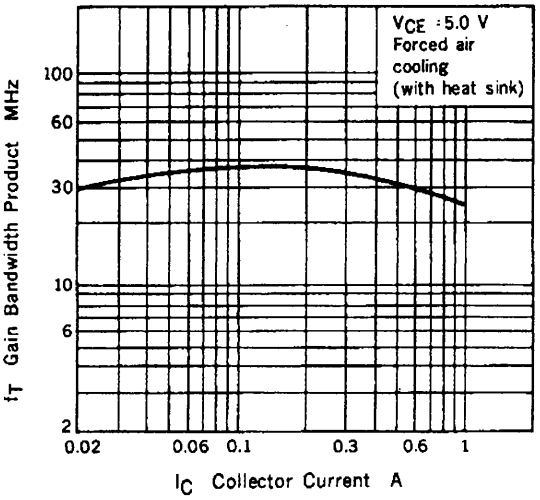
DC CURRENT GAIN AND BASE TO EMITTER VOLTAGE vs. COLLECTOR CURRENT



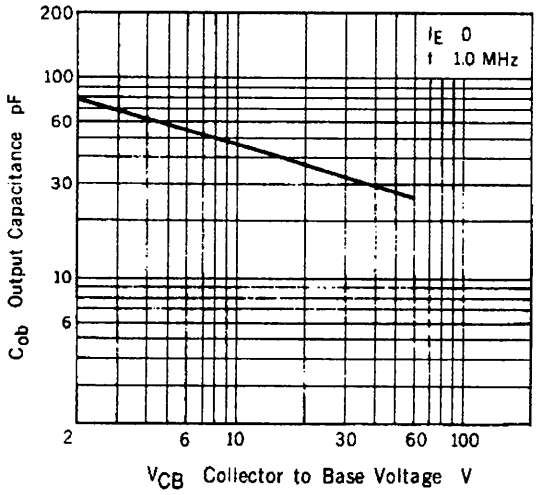
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



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TC—1536
OCT.—31—83M
Printed in Japan