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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PRELIMINARY SPECIFICATION

RENESAS

SILICON POWER TRANSISTOR

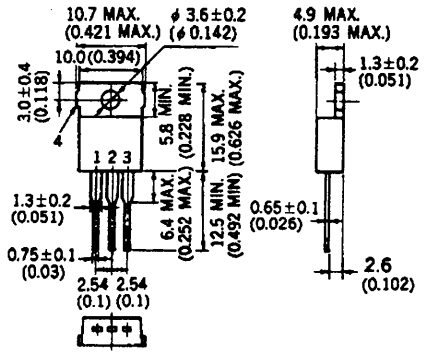
NTD1162

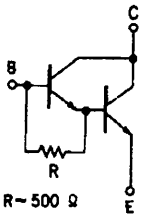
HIGH VOLTAGE HIGH CURRENT SWITCHING
NPN SILICON TRIPLE DIFFUSED DARLINGTON TRANSISTOR
INDUSTRIAL USE

DESCRIPTION

Suitable for transistor ignitor and motor driver applications.

PACKAGE DIMENSIONS
in millimeters (inches)





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

JEDEC : TO-220AB

FEATURES

- High voltage switching.
- Low collector saturation voltage.

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents (Ta = 25 ° C)			
Collector to Emitter Voltage	V_{CBO}, V_{CES}	500	V
Collector to Emitter Sustaining Voltage	$V_{CEO(SUS)}$	300	V
Collector to Emitter Sustaining Voltage	$V_{CEX(SUS)}$	300	V
Emitter to Base Voltage	V_{EBO}	10	V
Continuous Collector Current	$I_{C(DC)}$	5	A
Peak Collector Current	$I_{C(pulse)}$*	10	A
Continuous Base Current	$I_{B(DC)}$	0.5	A
Maximum Power Dissipations			
Total Power Dissipation	$P_{T(Tc=25\,°C)}$	50	W
Total Power Dissipation	$P_{T(Ta=25\,°C)}$	1.85	W
Maximum Temperatures			
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	−55 to +150	°C
Lead Temperature			
3.18 mm(1/8 inch) from case for 10 s.	T_L	260	°C
Thermal Resistances			
Junction to Case	$R_{th(j-c)}$	2.5	°C/W
Junction to Ambient	$R_{th(j-a)}$	67.6	°C/W

*Pulsed PW ≦ 1 ms, duty cycle ≦ 10 %

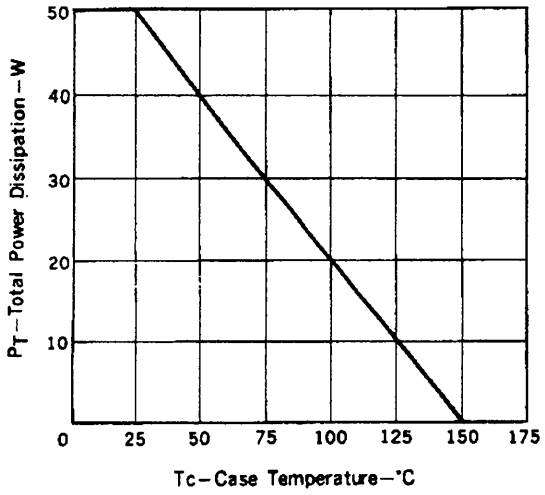
ELECTRICAL CHARACTERISTICS (Ta = 25 °C unless otherwise noted.)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector to Emitter Sustaining Voltage	$V_{CEO(SUS)}$	300			V	I_C = 1.5 A, L = 10 mH
Collector Cutoff Current	I_{CBO1}			10	μA	V_{CB} = 400 V, I_E = 0
	I_{CBO2}			1.0	mA	V_{CB} = 400 V, I_E = 0, Ta = 125 °C
Emitter to Collector Voltage	V_{ECO}	10			V	I_C = 1 mA
DC Current Gain	h_{FE1}	400	1000	3000		V_{CE} = 2.0 V, I_C = 2 A *
	h_{FE2}	100				V_{CE} = 2.0 V, I_C = 3 A *
Collector Saturation Voltage	$V_{CE(sat)}$			1.5	V	I_C = 2 A, I_B = 5 mA *
Base Saturation Voltage	$V_{BE(sat)}$			2.0	V	
Turn On Time	t_{on}		1.0		μs	I_C = 3 A, I_{B1} = −I_{B2} = 30 mA, V_{CC} ≒ 150 V, R_L = 50 Ω
Storage Time	t_{stg}		12		μs	
Fall Time	t_f		6		μs	

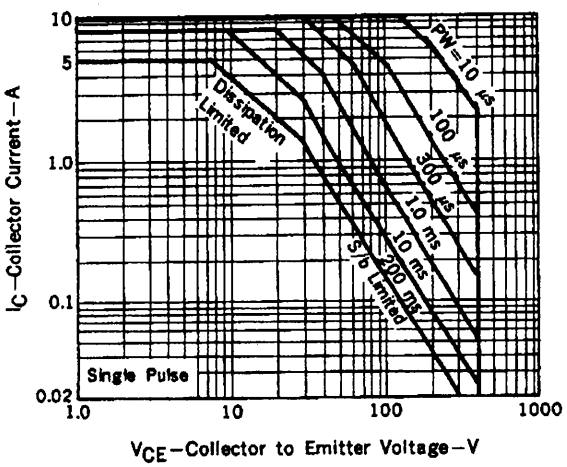
*Pulsed PW ≦ 350 μs, duty cycle ≦ 2 %

TYPICAL CHARACTERISTICS (Ta = 25 °C)

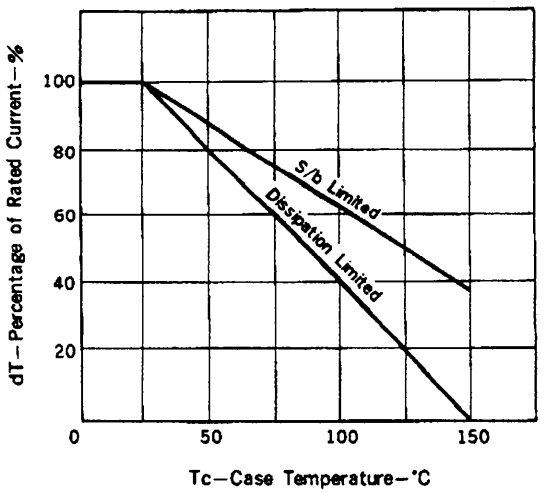
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



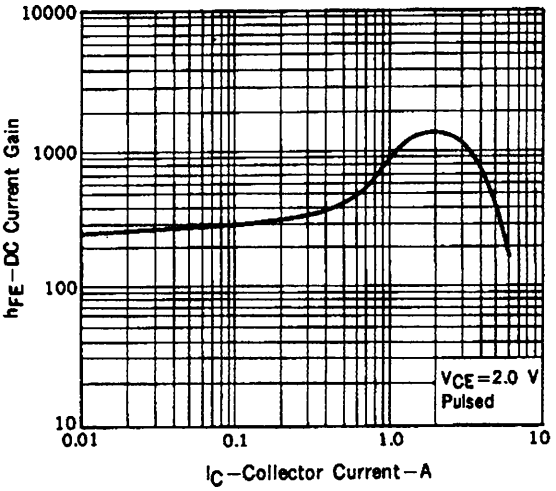
FORWARD BIAS SAFE OPERATING AREAS



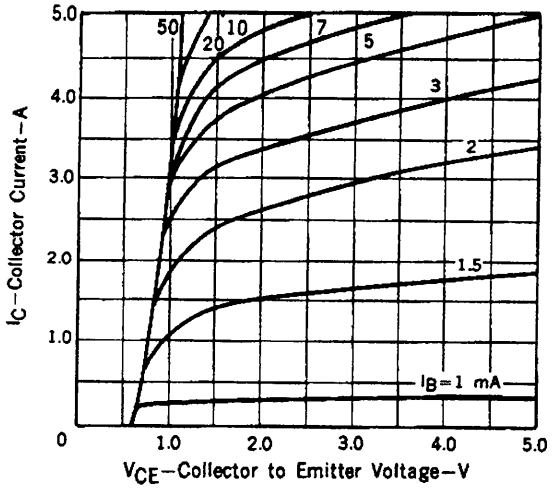
DERATING CURVE OF SAFE OPERATING AREAS



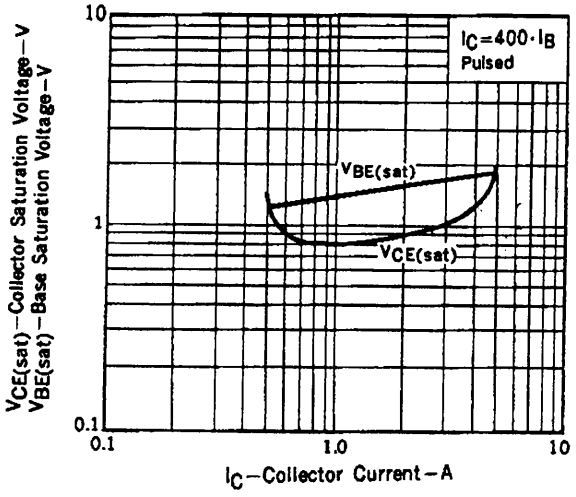
DC CURRENT GAIN vs. COLLECTOR CURRENT



COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



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