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.

RENESAS

RENESAS

SILICON POWER TRANSISTOR
2SC3632-Z

NPN SILICON EPITAXIAL TRANSISTOR

DESCRIPTION

The 2SC3632-Z is designed for High Voltage Switching, especially in Hybrid Integrated Circuits.

FEATURES

- High Voltage V_{CEO} = 600 V
- High Speed t_f < 0.5 μs
- Complement to 2SA1413-Z

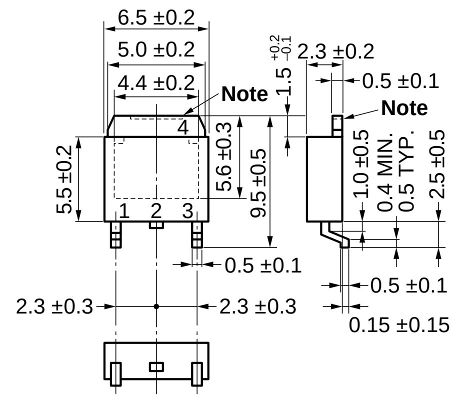
ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Collector to Base Voltage	V_{CBO}	600	V
Collector to Emitter Voltage	V_{CEO}	600	V
Emitter to Base Voltage	V_{EBO}	7	V
Collector Current (DC)	$I_{C(DC)}$	1	A
Collector Current (pulse) Note 1	$I_{C(pulse)}$	2	A
Total Power Dissipation (T_A = 25°C) Note 2	P_T	2.0	W
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	–55 to +150	°C

Notes 1. PW ≤ 10 ms, Duty Cycle ≤ 50%

2. When mounted on ceramic substrate of 7.5 cm^2 × 0.7 mm

<R> **PACKAGE DRAWING (Unit: mm)**



TO-252 (MP-3Z)

1. Base
2. Collector
3. Emitter
4. Collector Fin

Note The depth of notch at the top of the fin is from 0 to 0.2 mm.

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Not all products and/or types are available in every country. Please check with an NEC Electronics sales representative for availability and additional information.

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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}			10	μA	V_{CB} = 600 V, I_E = 0
Emitter Cutoff Current	I_{EBO}			10	μA	V_{EB} = 7.0 V, I_C = 0
DC Current Gain	h_{FE1}*	30	55	120		V_{CE} = 5.0 V, I_C = 100 mA
DC Current Gain	h_{FE2}*	5	7			V_{CE} = 5.0 V, I_C = 500 mA
Collector Saturation Voltage	$V_{CE(sat)}$*		0.35	1.0	V	I_C = 400 mA, I_B = 80 mA
Base Saturation Voltage	$V_{BE(sat)}$*		0.9	1.2	V	I_C = 400 mA, I_B = 80 mA
Gain Bandwidth Product	f_T		30		MHz	V_{CE} = 5.0 V, I_E = –50 mA
Output Capacitance	C_{ob}		14		pF	V_{CB} = 10 V, I_E = 0, f = 1.0 MHz
Turn-on Time	t_{on}		0.1	0.5	μs	I_C = 0.5 A, R_L = 500 Ω
Storage Time	t_{stg}		4.0	5.0	μs	I_{B1} = –I_{B2} = 0.1 A
Fall Time	t_f		0.2	0.5	μs	V_{CC} = 250 V

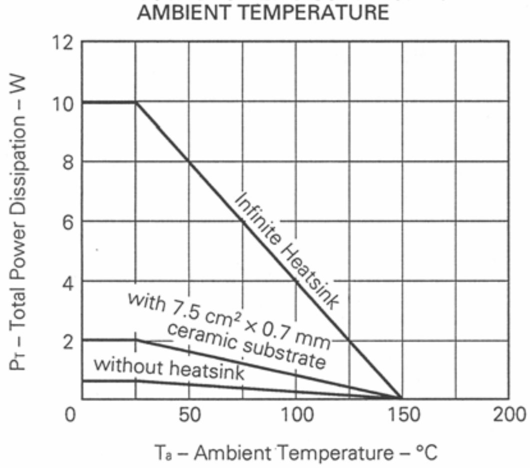
* Pulsed: PW ≦ 350 μs, Duty Cycle ≦ 2 %

h_{FE} Classification

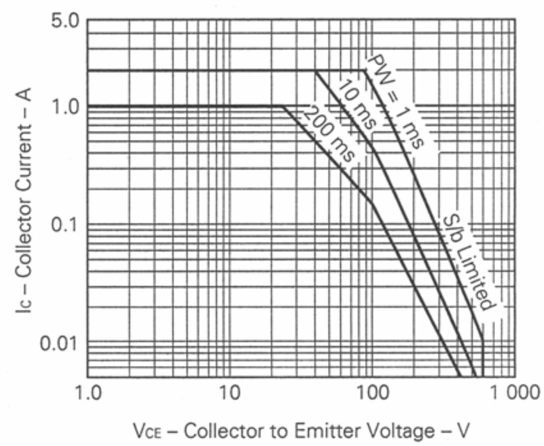
MARKING	M	L	K
h_{FE1}	30 to 60	40 to 80	60 to 120

TYPICAL CHARACTERISTICS (T_a = 25 °C)

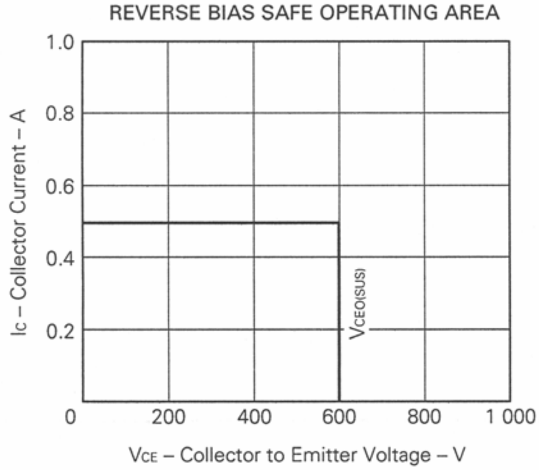
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



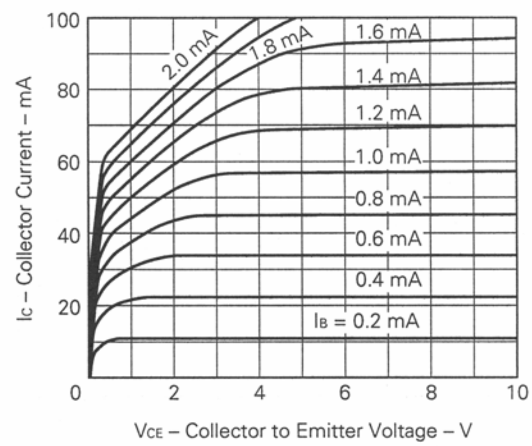
FORWARD BIAS SAFE OPERATING AREA



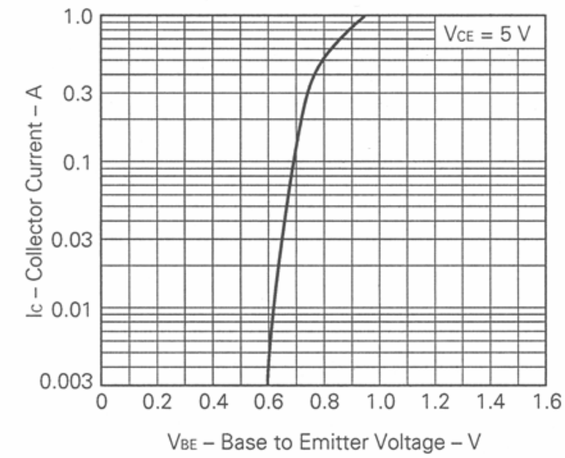
REVERSE BIAS SAFE OPERATING AREA



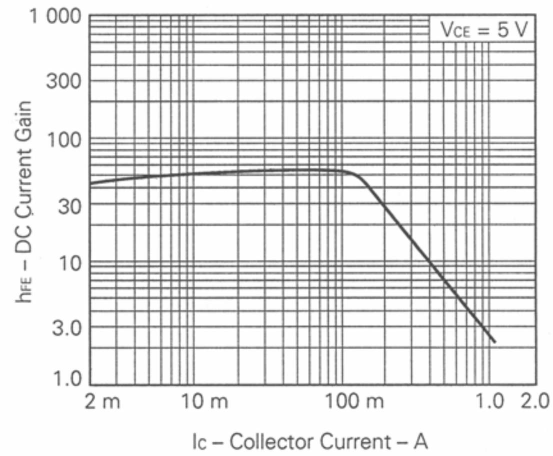
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



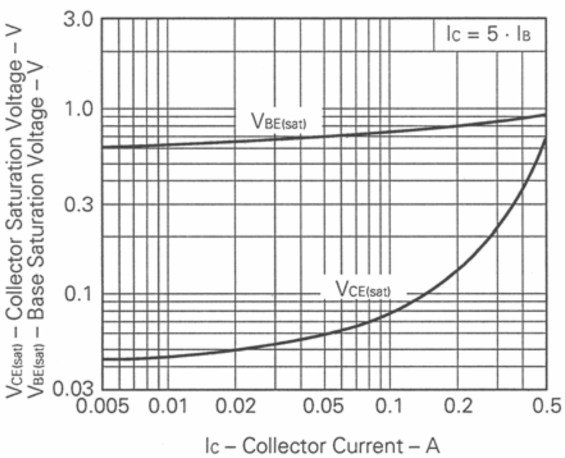
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



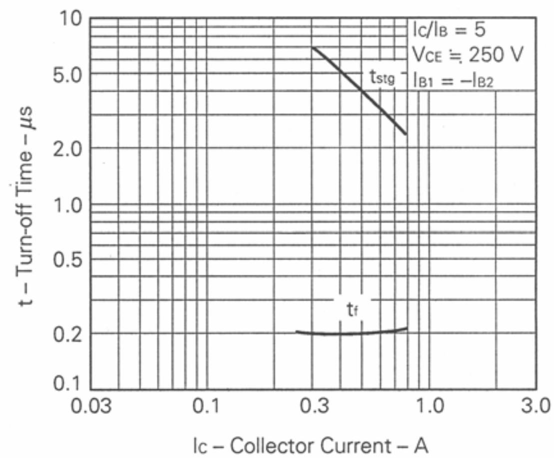
DC CURRENT GAIN vs. COLLECTOR CURRENT



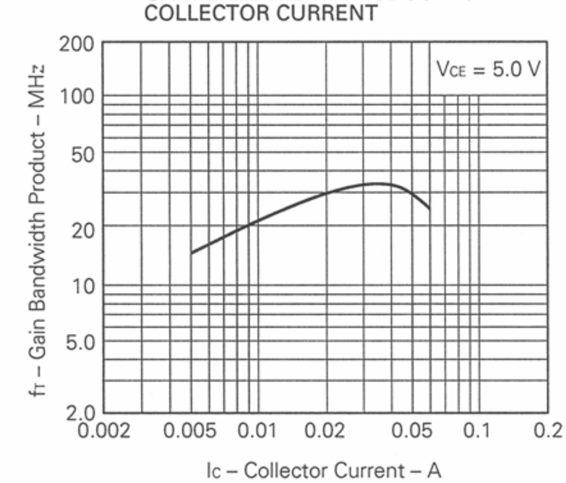
COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



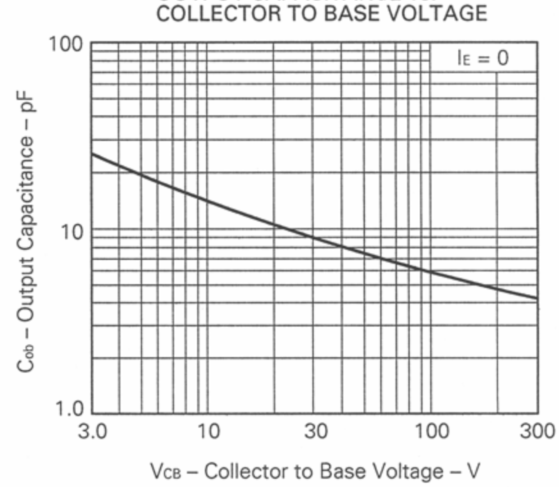
TURN OFF TIME vs. COLLECTOR CURRENT

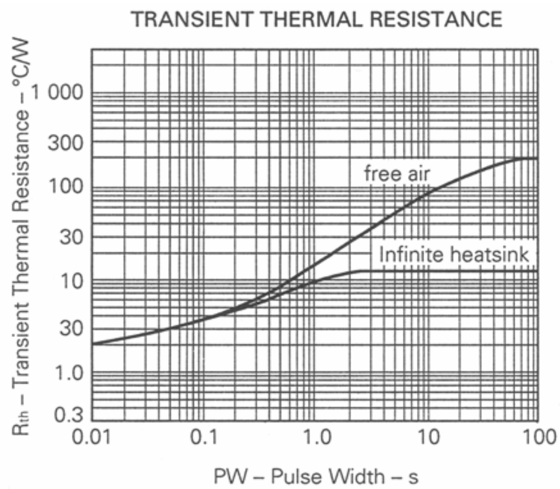


GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE




TRANSIENT THERMAL RESISTANCE
Rth – Transient Thermal Resistance – °C/W
1 000
300
100
30
10
30
1.0
0.3
0.01
0.1
1.0
10
100
PW – Pulse Width – s
free air
Infinite heatsink