

To our customers,

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## Old Company Name in Catalogs and Other Documents

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

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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

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# DATA SHEET



# 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  $V_{CE0} = 600\text{ V}$
- High Speed  $t_f < 0.5\ \mu\text{s}$
- Complement to 2SA1413-Z

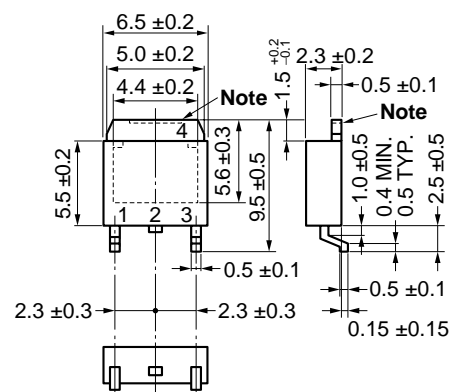
### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

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) <sup>Note 1</sup>	$I_{C(pulse)}$	2	A
Total Power Dissipation ( $T_A = 25^\circ\text{C}$ ) <sup>Note 2</sup>	$P_T$	2.0	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

**Notes 1.**  $PW \leq 10\text{ ms}$ , Duty Cycle  $\leq 50\%$

**2.** When mounted on ceramic substrate of  $7.5\text{ cm}^2 \times 0.7\text{ mm}$

### <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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**ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C)**

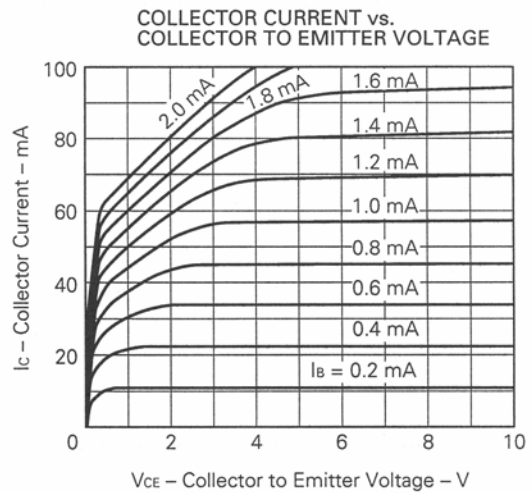
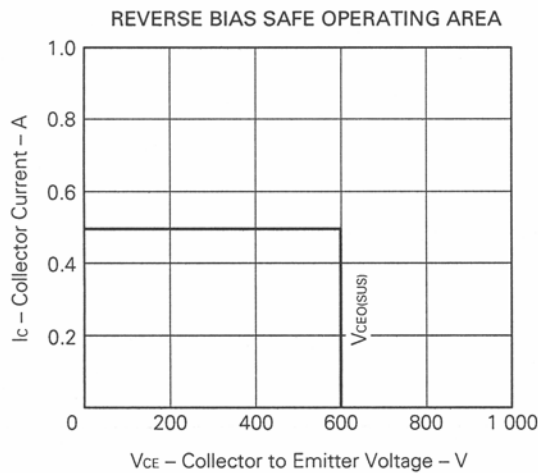
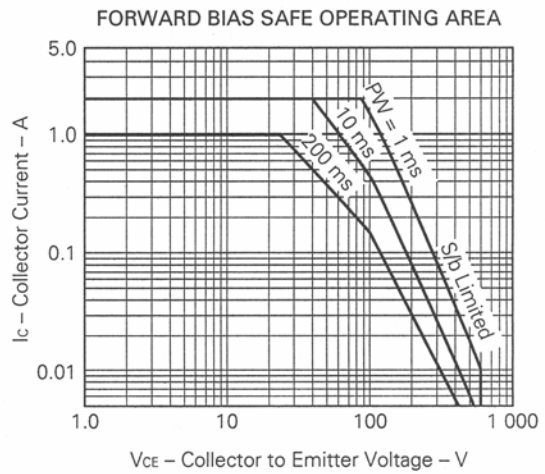
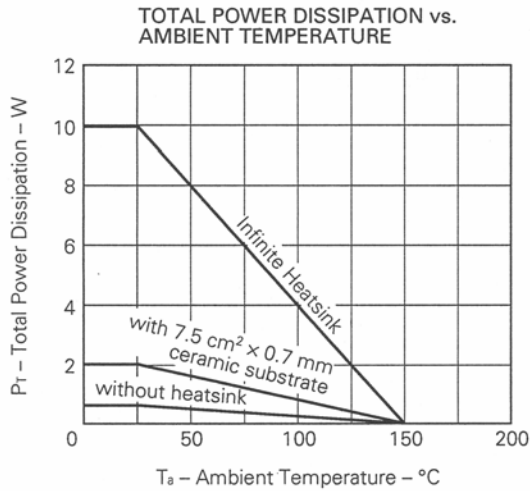
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I <sub>cBO</sub>			10	μA	V <sub>CB</sub> = 600 V, I <sub>E</sub> = 0
Emitter Cutoff Current	I <sub>EBO</sub>			10	μA	V <sub>EB</sub> = 7.0 V, I <sub>C</sub> = 0
DC Current Gain	h <sub>FE1</sub> *	30	55	120		V <sub>CE</sub> = 5.0 V, I <sub>C</sub> = 100 mA
DC Current Gain	h <sub>FE2</sub> *	5	7			V <sub>CE</sub> = 5.0 V, I <sub>C</sub> = 500 mA
Collector Saturation Voltage	V <sub>CE(sat)</sub> *		0.35	1.0	V	I <sub>C</sub> = 400 mA, I <sub>B</sub> = 80 mA
Base Saturation Voltage	V <sub>BE(sat)</sub> *		0.9	1.2	V	I <sub>C</sub> = 400 mA, I <sub>B</sub> = 80 mA
Gain Bandwidth Product	f <sub>r</sub>		30		MHz	V <sub>CE</sub> = 5.0 V, I <sub>E</sub> = -50 mA
Output Capacitance	C <sub>ob</sub>		14		pF	V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f = 1.0 MHz
Turn-on Time	t <sub>on</sub>		0.1	0.5	μs	I <sub>C</sub> = 0.5 A, R <sub>L</sub> = 500 Ω
Storage Time	t <sub>stg</sub>		4.0	5.0	μs	I <sub>B1</sub> = -I <sub>B2</sub> = 0.1 A
Fall Time	t <sub>f</sub>		0.2	0.5	μs	V <sub>CC</sub> = 250 V

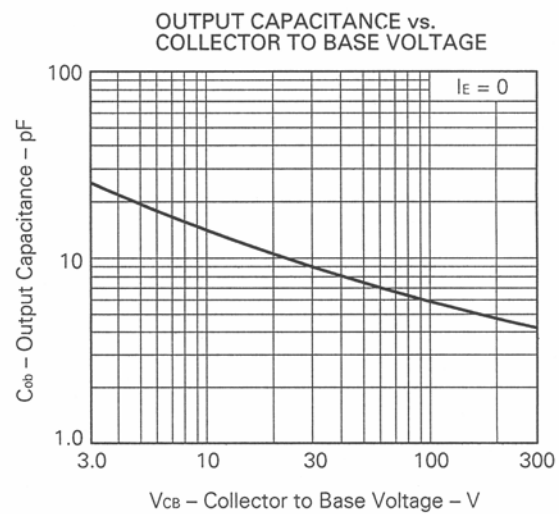
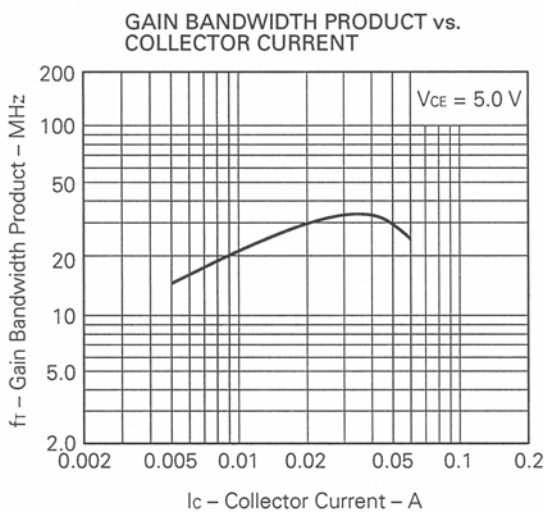
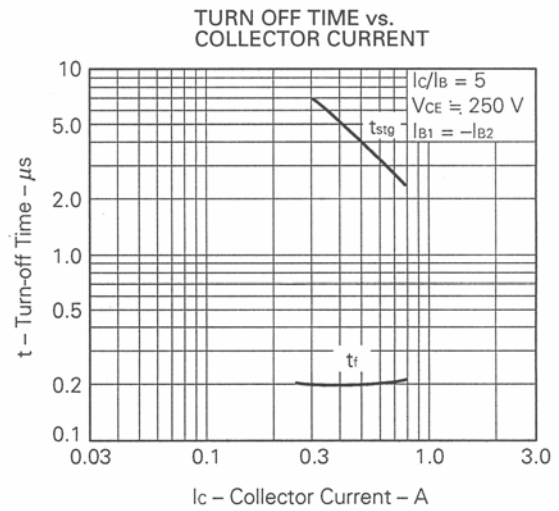
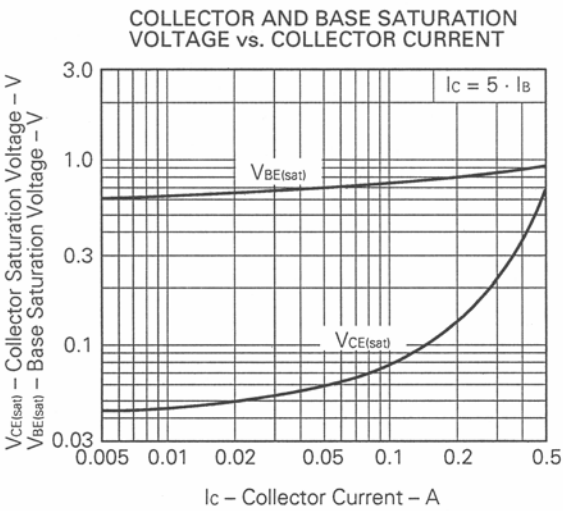
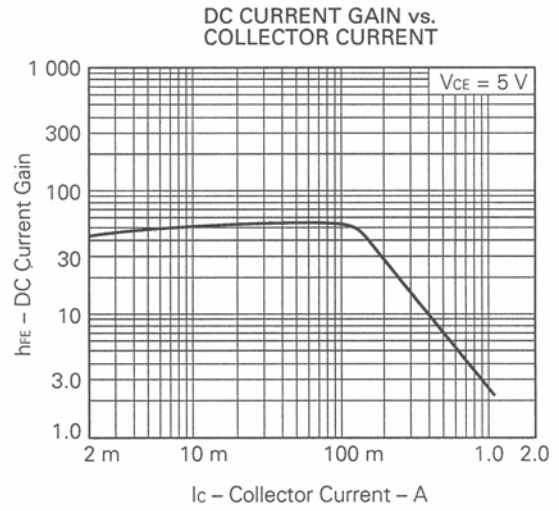
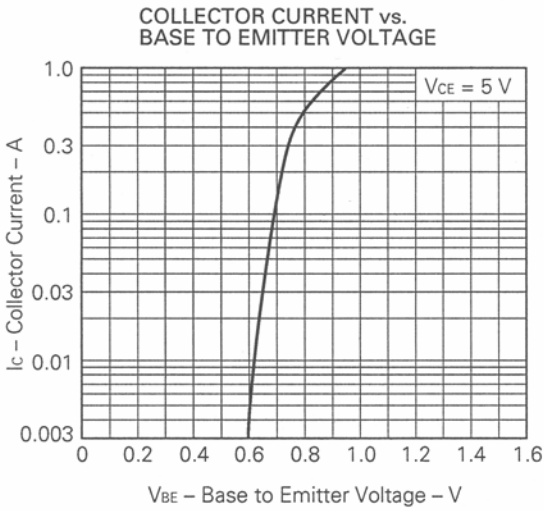
\* Pulsed: PW ≦ 350 μs, Duty Cycle ≦ 2 %

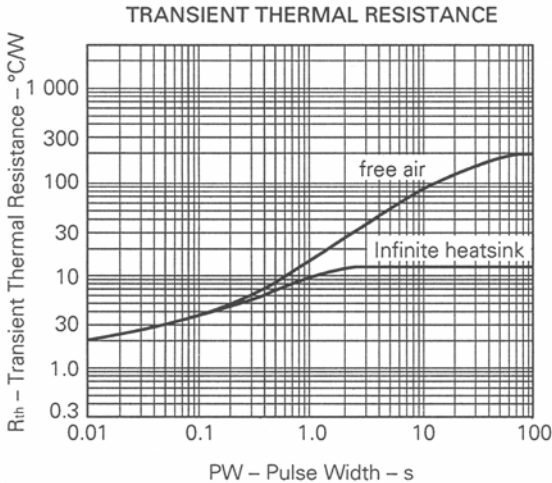
**h<sub>FE</sub> Classification**

MARKING	M	L	K
h <sub>FE1</sub>	30 to 60	40 to 80	60 to 120

**TYPICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C)**







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