

To our customers,

Old Company Name in Catalogs and Other Documents

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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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NPN SILICON EPITAXIAL TRANSISTOR

DESCRIPTION

The 2SD1286-Z is designed for Switching, especially in Hybrid Integrated Circuits.

FEATURES

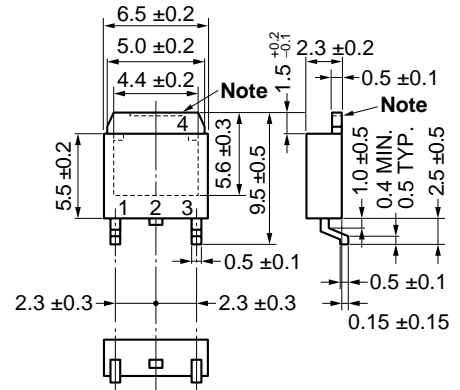
- High $h_{FE} = 2000$ to 30000
- Complement to 2SB963-Z

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

Collector to Base Voltage	V_{CBO}	60	V
Collector to Emitter Voltage	V_{CEO}	60	V
Base to Emitter Voltage	V_{EBO}	8	V
Collector Current (DC)	$I_{C(DC)}$	1	A
Collector Current (pulse) ^{Note 1}	$I_{C(pulse)}$	2	A
Total Power Dissipation ($T_A = 25^\circ\text{C}$) ^{Note 2}	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.** $PW \leq 10$ ms, Duty Cycle $\leq 50\%$
2. When mounted on ceramic substrate of $7.5\text{ cm}^2 \times 0.7\text{ mm}$

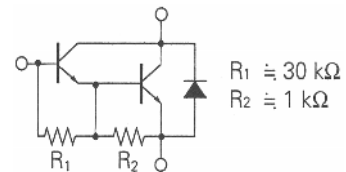
<R> PACKAGE DRAWING (Unit: mm)



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

TO-252 (MP-3Z)

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_a = 25 °C)

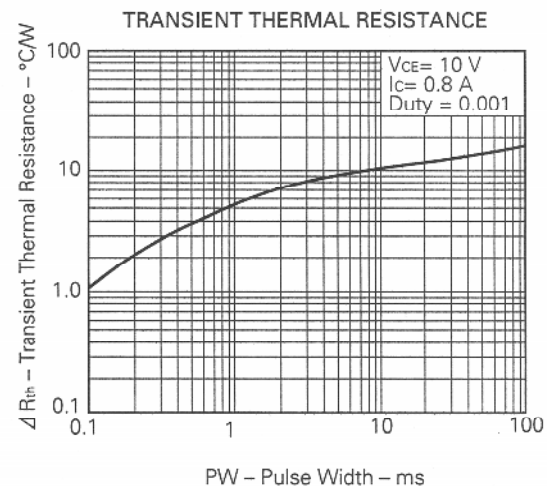
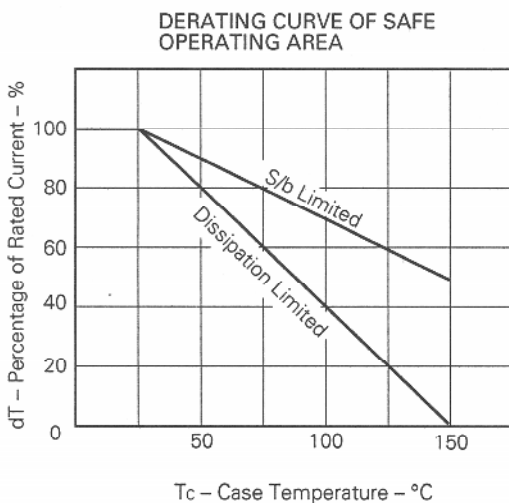
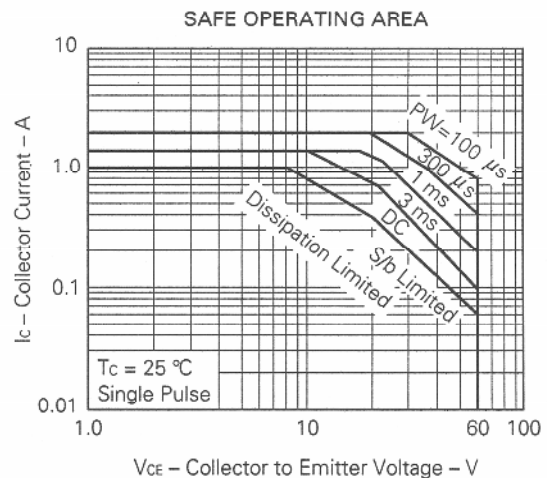
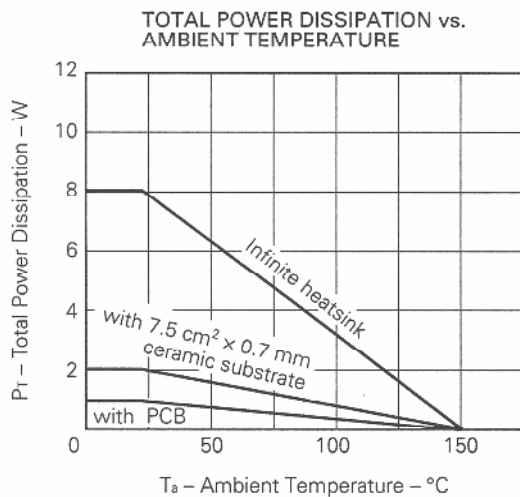
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I _{cb0}			10	μA	V _{cb} = 60 V, I _e = 0
Emitter Cutoff Current	I _{eb0}			1.0	mA	V _{eb} = 5.0 V, I _c = 0
DC Current Gain	h _{FE1} *	1 000				V _{ce} = 2.0 V, I _c = 0.2 A
DC Current Gain	h _{FE2} *	2 000		30 000		V _{ce} = 2.0 V, I _c = 0.5 A
Collector Saturation Voltage	V _{CE(sat)} *			1.5	V	I _c = 500 mA, I _b = 0.5 mA
Base Saturation Voltage	V _{BE(sat)} *			2.0	V	I _c = 500 mA, I _b = 0.5 mA
Turn-on Time	t _{on}		0.5		μs	I _c = 0.5 A, R _L = 100 Ω
Storage Time	t _{stg}		1.0		μs	I _{B1} = -I _{B2} = 0.1 mA
Fall Time	t _f		1.0		μs	V _{cc} = 50 V

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

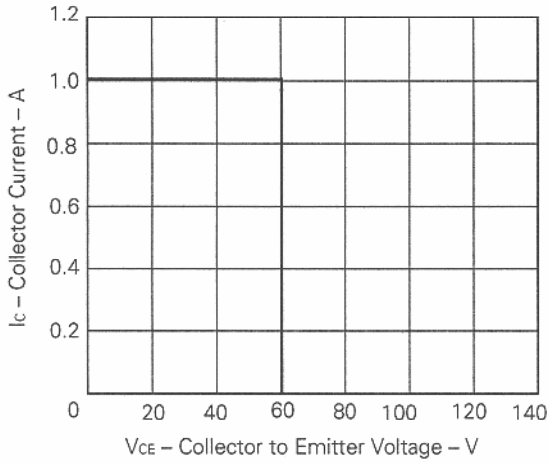
hFE Classification

MARKING	M	L	K
h _{FE2}	2 000 to 5 000	4 000 to 10 000	8 000 to 30 000

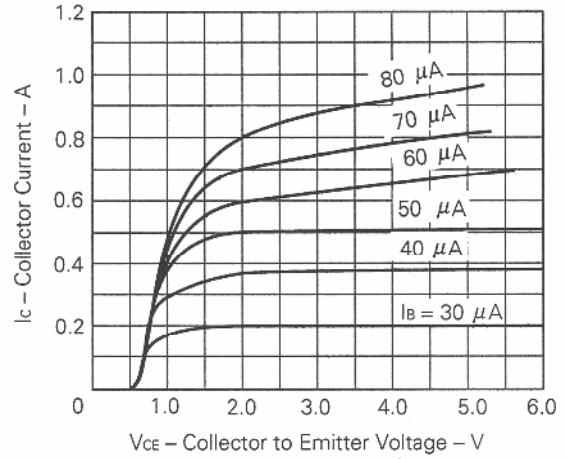
TYPICAL CHARACTERISTICS (T_a = 25 °C)



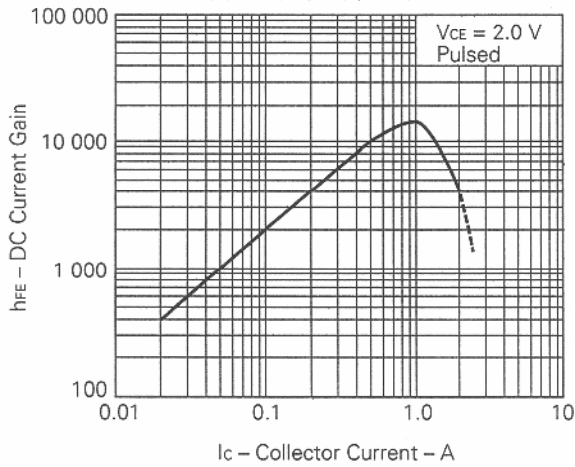
REVERSE BIAS SAFE OPERATING AREA



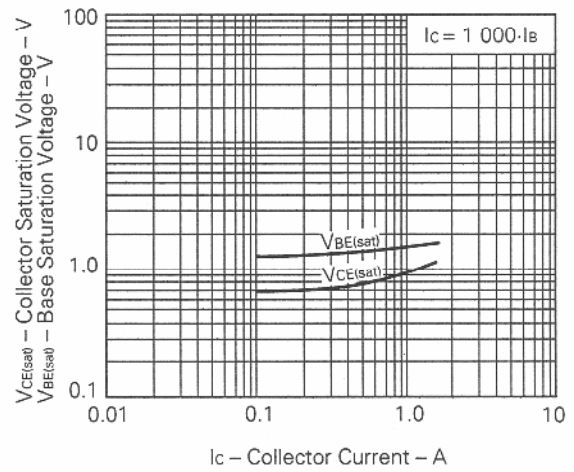
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



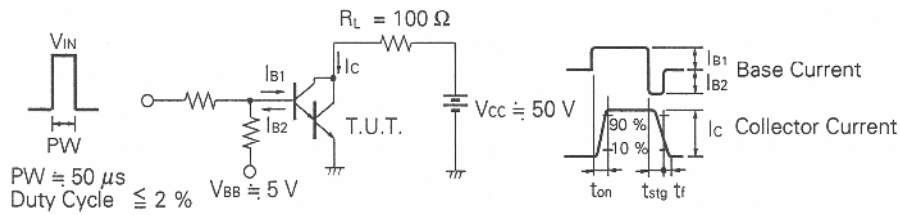
DC CURRENT GAIN vs. COLLECTOR CURRENT



BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



SWITCHING TIME (t_{on} , t_{stg} , t_r) TEST CIRCUIT



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