

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 2SD1584-Z is designed for Audio Frequency Amplifier and Switching, especially in Hybrid Integrated Circuits.

FEATURES

- High h_{FE} : $h_{FE} = 800$ to 3200
- Low $V_{CE(sat)}$: $V_{CE(sat)} = 0.25$ V TYP.

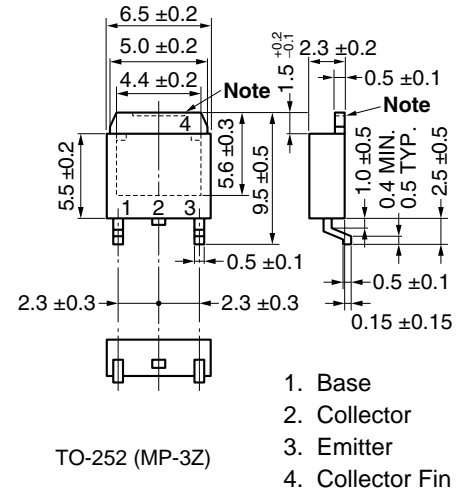
ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Collector to Base Voltage	V_{CBO}	60	V
Collector to Emitter Voltage	V_{CEO}	60	V
Emitter to Base Voltage	V_{EBO}	7	V
Collector Current (DC)	$I_{C(DC)}$	3	A
Collector Current (pulse) ^{Note 1}	$I_{C(pulse)}$	5	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 $7.5\text{ cm}^2 \times 0.7$ mm

<R> PACKAGE DRAWING (Unit: mm)



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)

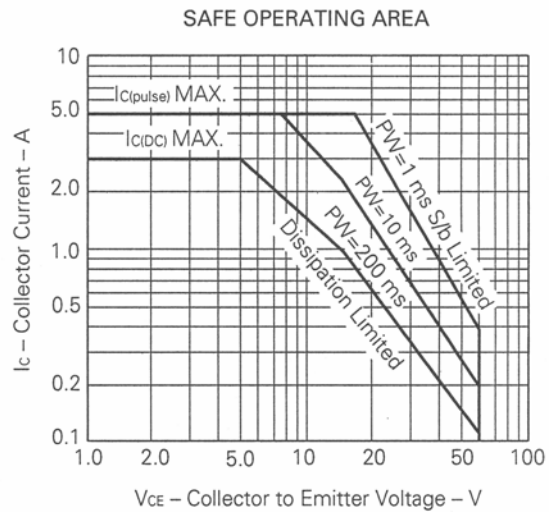
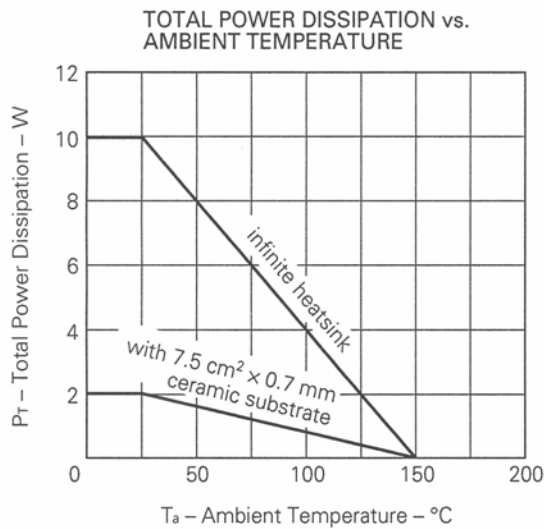
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I _{cbo}			10	μA	V _{CB} = 60 V, I _E = 0
Emitter Cutoff Current	I _{EBO}			10	μA	V _{EB} = 5.0 V, I _C = 0
DC Current Gain	h _{FE1} *	600	1 650			V _{CE} = 5.0 V, I _C = 50 mA
DC Current Gain	h _{FE2} *	800	1 800	3 200		V _{CE} = 5.0 V, I _C = 500 mA
DC Current Gain	h _{FE3} *	500	1 400			V _{CE} = 5.0 V, I _C = 3.0 A
Collector Saturation Voltage	V _{CE(sat)} *		0.25	0.5	V	I _C = 2.0 A, I _B = 20 mA
Base Saturation Voltage	V _{BE(sat)} *		0.8	1.2	V	I _C = 2.0 A, I _B = 20 mA
Gain Bandwidth Product	f _T	50	120		MHz	V _{CE} = 5.0 V, I _E = - 100 mA
Output Capacitance	C _{ob}		20		pF	V _{CB} = 10 V, I _E = 0, f = 1.0 MHz
Turn-on Time	t _{on}		0.9		μs	I _C = 2.0 A, R _L = 5 Ω I _{B1} = -I _{B2} = 20 mA V _{CC} = 10 V
Storage Time	t _{stg}		2.6		μs	
Fall Time	t _f		1.0		μs	

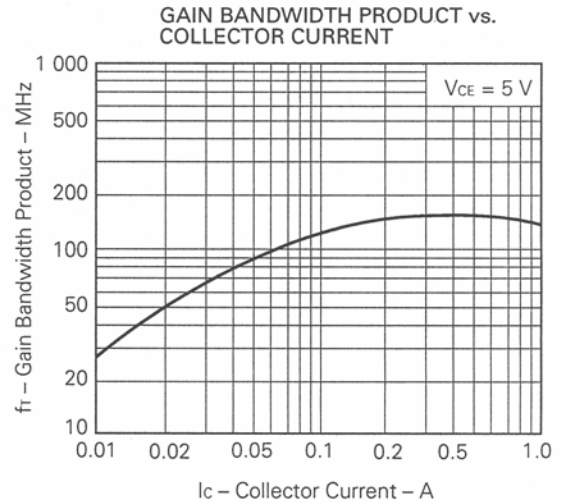
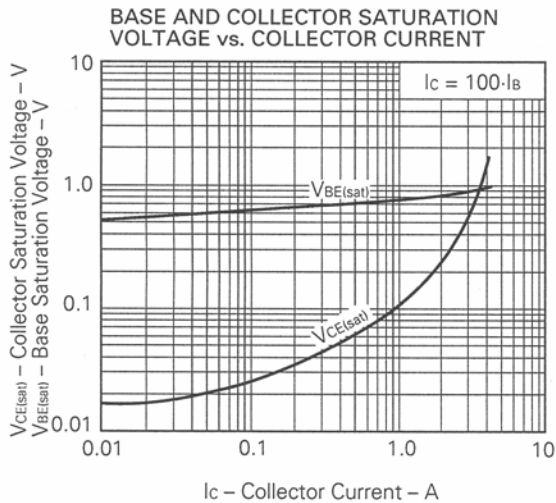
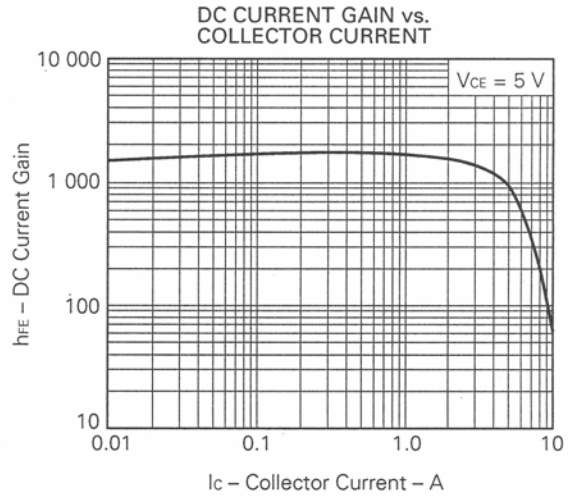
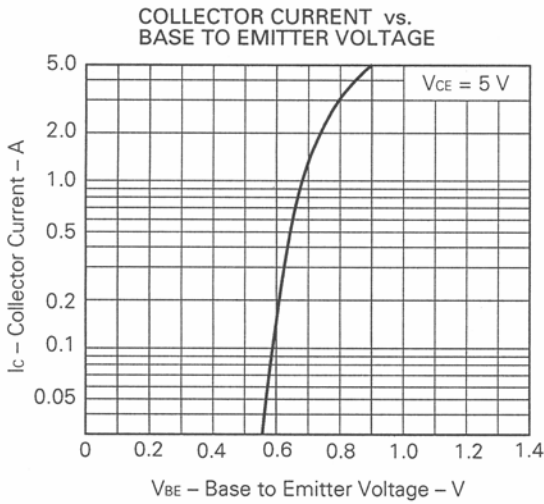
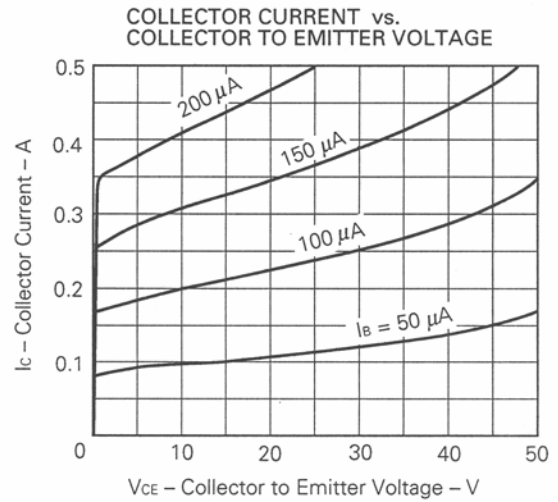
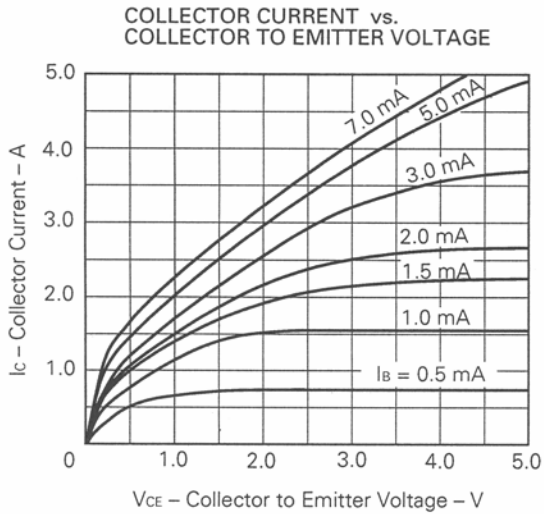
* Pulsed: PW ≤ 350 μs, Duty Cycle ≤ 2 %

h_{FE} Classification

MARKING	M	L	K
h _{FE2}	800 to 1 600	1 000 to 2 000	1 600 to 3 200

TYPICAL CHARACTERISTICS (T_a = 25 °C)





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