

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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PNP SILICON EPITAXIAL TRANSISTOR  
FOR LOW-FREQUENCY POWER AMPLIFIERS AND MID-SPEED SWITCHING

The 2SB1628 features high current capacity in small dimension and is ideal for DC/DC converters and motor drivers.

FEATURES

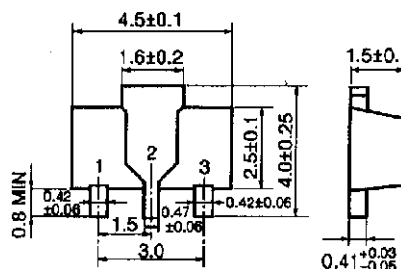
- High current capacitance
- Low collector saturation voltage

QUALITY GRADES

- Standard

Please refer to "Quality Grades on NEC Semiconductor Devices" (Document No. C11531E) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

PACKAGE DRAWING (UNIT: mm)



Electrode connection  
1: Emitter  
2: Collector (fin)  
3: Base

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Conditions	Ratings	Unit
Collector to base voltage	$V_{CBO}$		-20	V
Collector to emitter voltage	$V_{CEO}$		-16	V
Emitter to base voltage	$V_{EBO}$		-6.0	V
Collector current (DC)	$I_{C(DC)}$		-3.0	A
Collector current (pulse)	$I_{C(pulse)}$	PW ≤ 10 ms Duty cycle ≤ 50 %	-5.0	A
Base current (DC)	$I_{B(DC)}$		-0.2	A
Base current (pulse)	$I_{B(pulse)}$	PW ≤ 10 ms Duty cycle ≤ 50 %	-0.4	A
Total power dissipation	$P_T$	16 cm <sup>2</sup> × 0.7 mm ceramic board used	2.0	W
Junction temperature	$T_j$		150	°C
Storage temperature	$T_{stg}$		-55 to +150	°C

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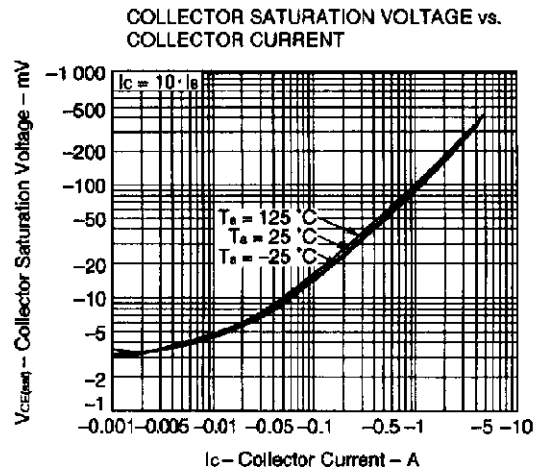
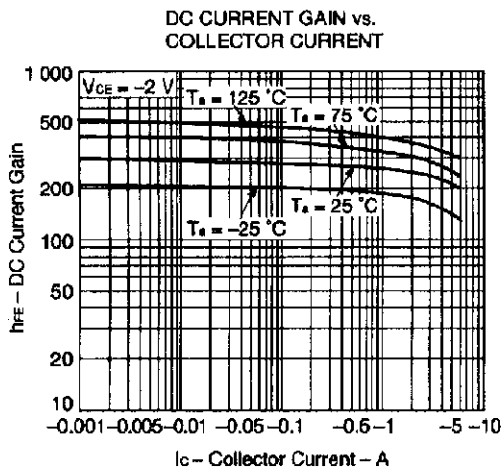
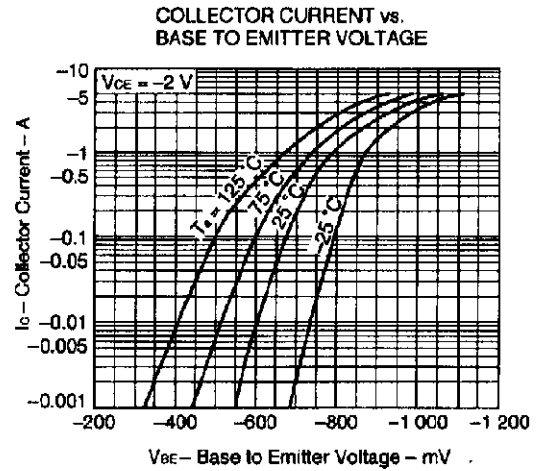
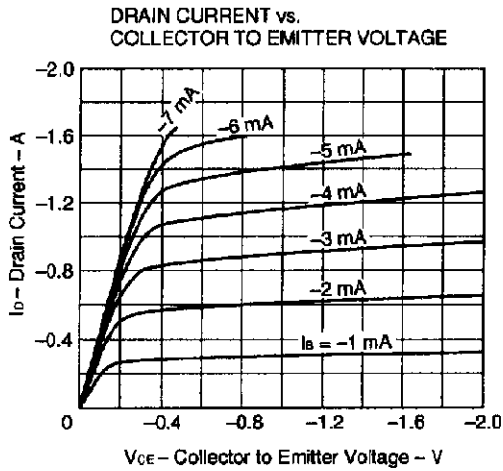
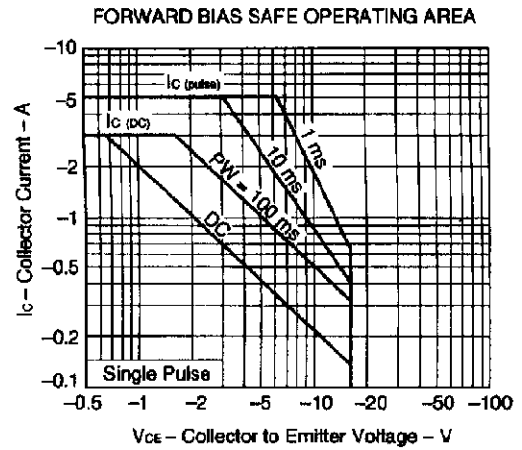
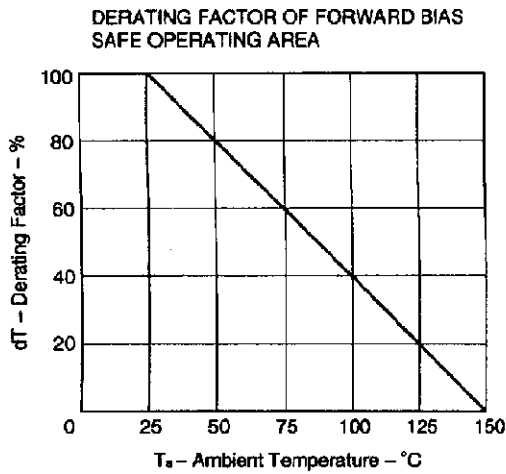
**ELECTRICAL CHARACTERISTICS (Ta = 25°C)**

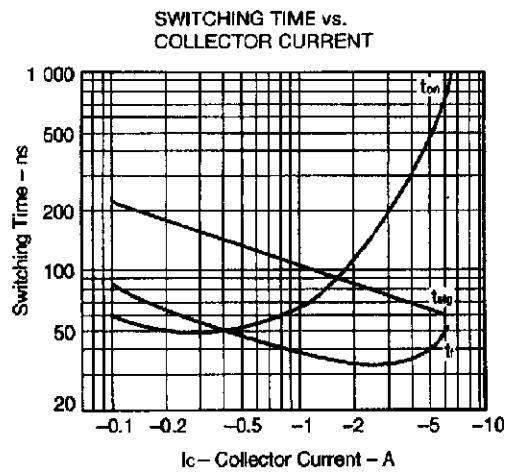
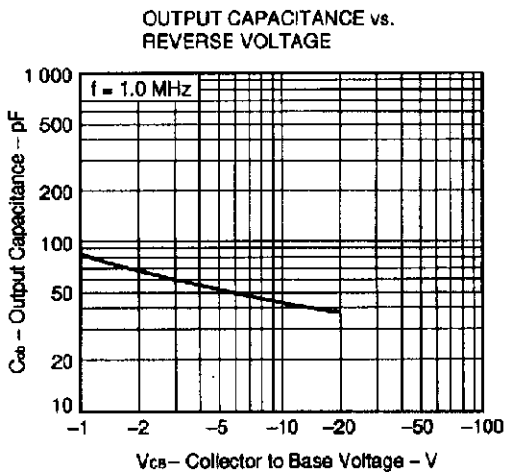
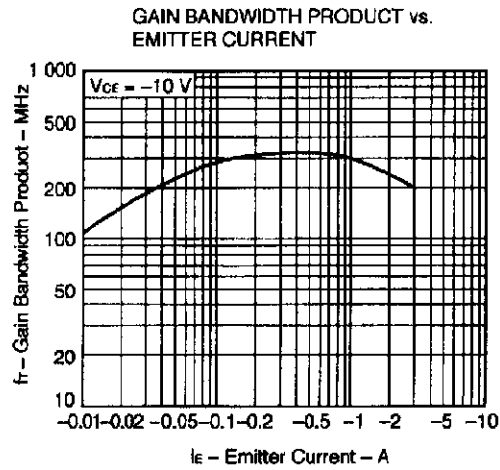
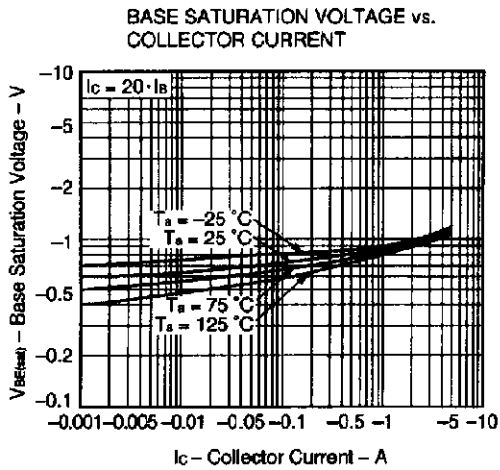
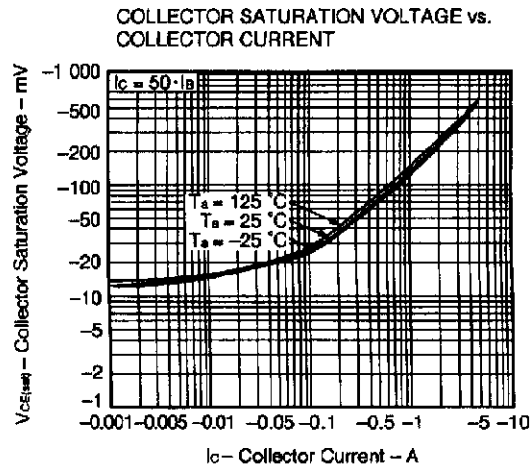
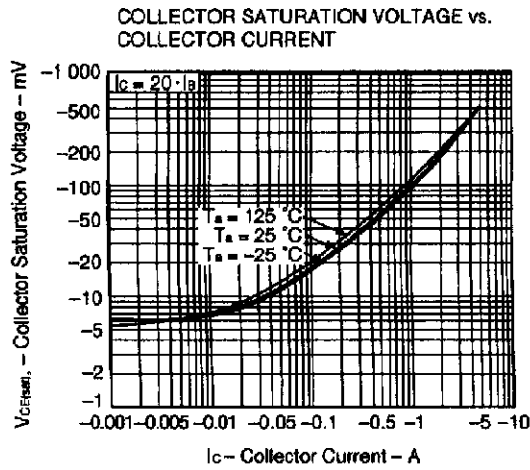
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB0} = -20\text{ V}, I_E = 0$			-100	nA
Emitter cutoff current	$I_{EBO}$	$V_{EB0} = -6.0\text{ V}, I_C = 0$			-100	nA
DC current gain	$h_{FE1}$	$V_{CE} = -2.0\text{ V}, I_C = -0.5\text{ A}$	140	280	560	–
DC current gain	$h_{FE2}$	$V_{CE} = -2.0\text{ V}, I_C = -3.0\text{ A}$	70			–
DC base voltage	$V_{BE}$	$V_{CE} = -2.0\text{ V}, I_C = -0.05\text{ A}$	-600	-660	-700	mV
Collector saturation voltage	$V_{CE(sat)1}$	$I_C = -2.0\text{ A}, I_B = -0.1\text{ A}$		-240	-350	mV
Collector saturation voltage	$V_{CE(sat)2}$	$I_C = -3.0\text{ A}, I_B = -0.15\text{ A}$		-350	-550	mV
Base saturation voltage	$V_{BE(sat)}$	$I_C = -2.0\text{ A}, I_B = -0.1\text{ A}$		-0.95	-1.2	V
Gain bandwidth product	$f_T$	$V_{CE} = -3.0\text{ V}, I_E = 0.5\text{ A}$		320		MHz
Output capacitance	$C_{ob}$	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$		45		pF
Turn-on time	$t_{on}$	$I_C = -1.0\text{ A}, V_{CC} = -10\text{ V}$ $I_{B1} = -I_{B2} = -0.1\text{ A}$ $R_L = 10\ \Omega$		70		ns
Storage time	$t_{stg}$			110		ns
Fall time	$t_f$			40		ns

**$h_{FE}$  CLASSIFICATION**

Marking	ZX	ZY	ZZ
$h_{FE1}$	140 to 280	200 to 400	280 to 560

TYPICAL CHARACTERISTICS (Ta = 25°C)





[MEMO]

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