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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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DATA SHEET

RENESAS

SILICON TRANSISTOR
2SB1628

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 mortor drivers.

FEATURES

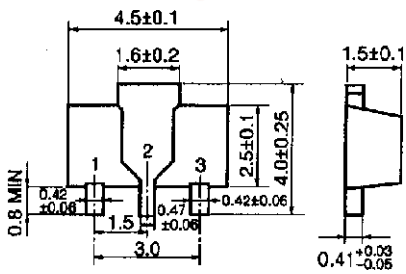
- High current capacitance
- Low collector saturation voltage

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

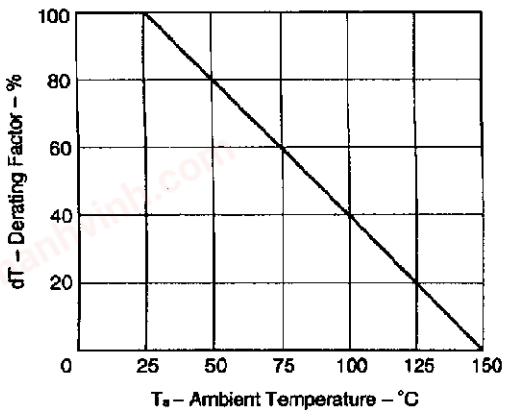
h_{FE} CLASSIFICATION

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

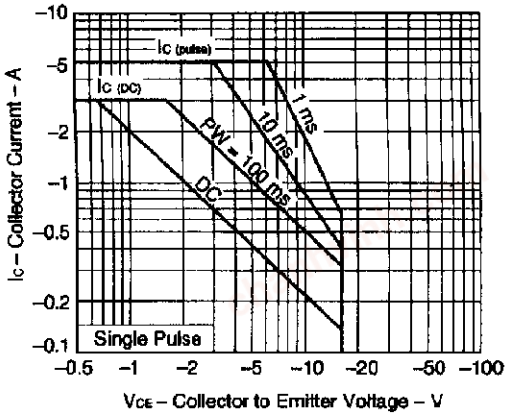
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TYPICAL CHARACTERISTICS (Ta = 25°C)

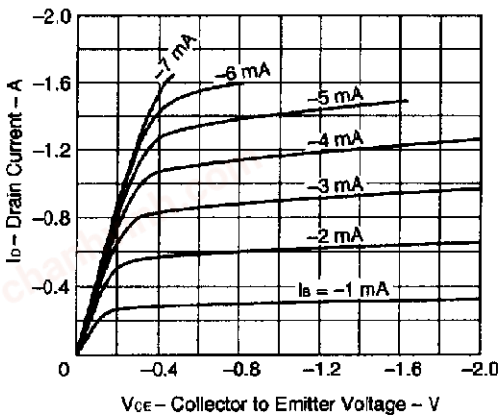
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



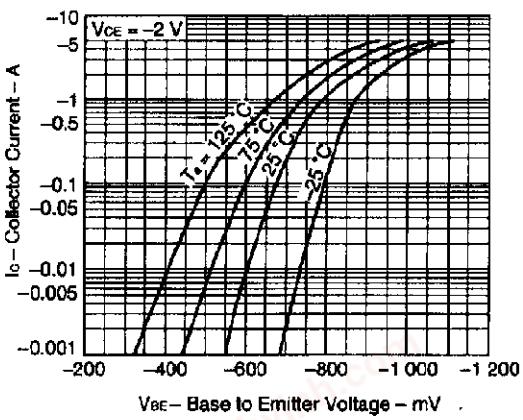
FORWARD BIAS SAFE OPERATING AREA



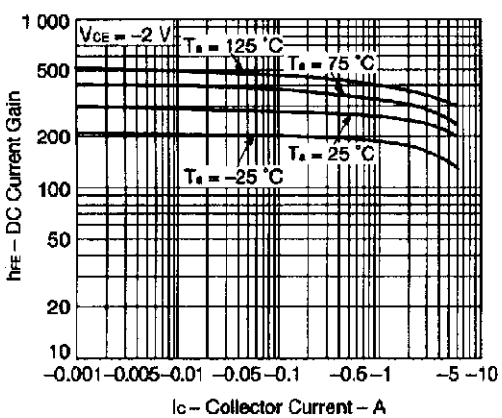
DRAIN CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



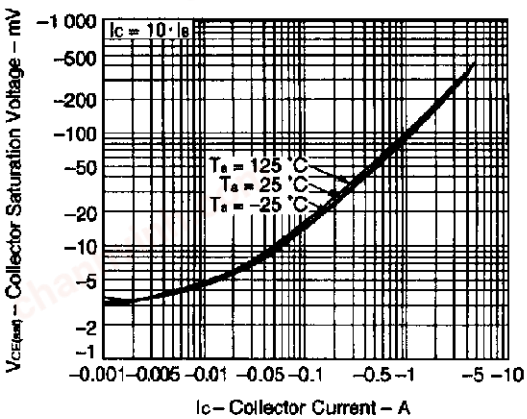
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



DC CURRENT GAIN vs. COLLECTOR CURRENT

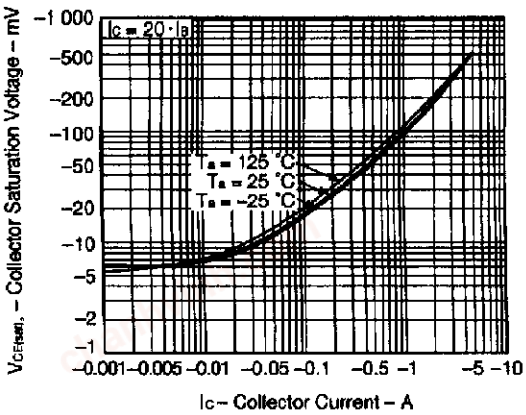


COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT

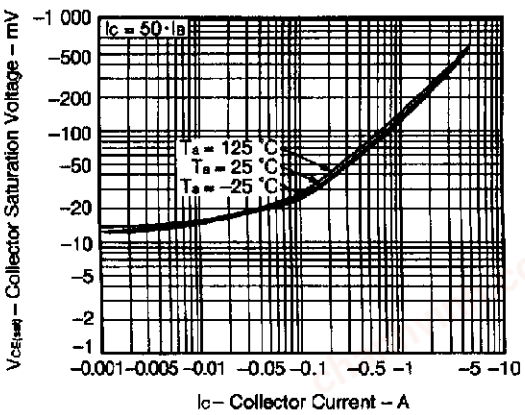


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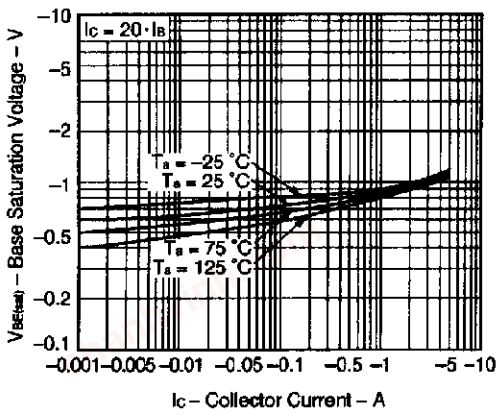
COLLECTOR SATURATION VOLTAGE vs.
COLLECTOR CURRENT



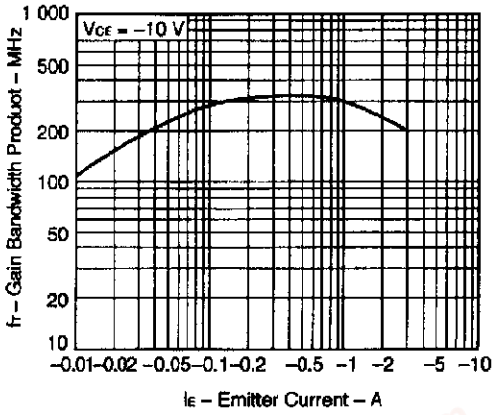
COLLECTOR SATURATION VOLTAGE vs.
COLLECTOR CURRENT



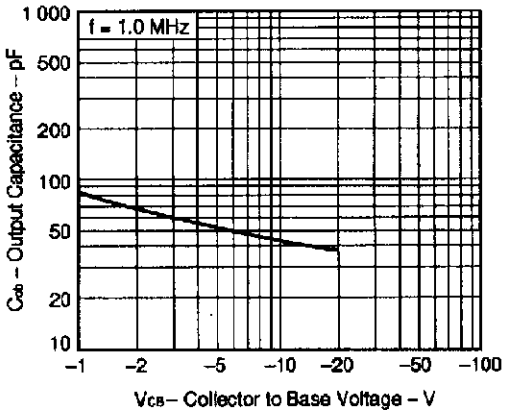
BASE SATURATION VOLTAGE vs.
COLLECTOR CURRENT



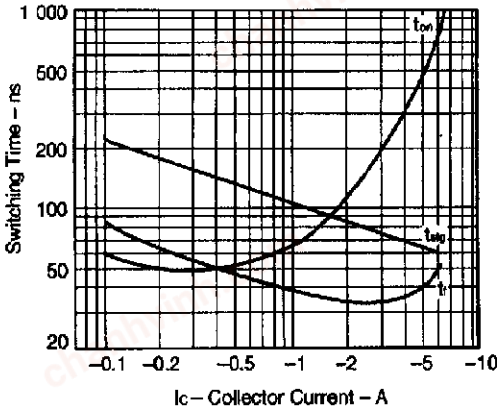
GAIN BANDWIDTH PRODUCT vs.
EMITTER CURRENT



OUTPUT CAPACITANCE vs.
REVERSE VOLTAGE



SWITCHING TIME vs.
COLLECTOR CURRENT



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