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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RENESAS

SILICON TRANSISTOR
2SD1582

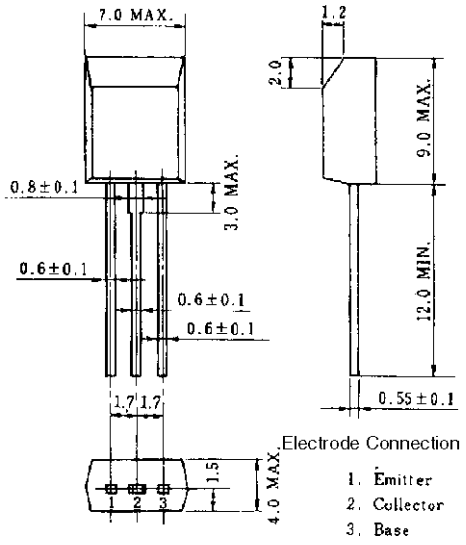
NPN SILICON EPITAXIAL TRANSISTOR FOR LOW-FREQUENCY POWER AMPLIFIERS

The 2SD1582 is a single type super high h_{FE} transistor and low collector saturation voltage and high voltage. This transistor is available for broad applications as variety of drives.

FEATURES

- Ultra high h_{FE}
  h_{FE} = 800 to 3200 (@ V_{CE} = 5.0 V, I_C = 300 mA)
- High voltage and wide ASO
  V_{CBO} = 60 V, V_{CEO} = 50 V
- Low collector saturation voltage
  $V_{CE(sat)}$ = 0.15 V TYP. (@ I_C = 500 A, I_B = 5.0 mA)

PACKAGE DRAWING (UNIT: mm)



ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	60	V
Collector to emitter voltage	V_{CEO}	50	V
Emitter to base voltage	V_{EBO}	15	V
Collector current (DC)	$I_{C(DC)}$	1.0	A
Collector current (pulse)	$I_{C(pulse)}$*	1.5	A
Total power dissipation	P_T	1.0	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−50 to +150	°C

* PW ≤ 10 ms, duty cycle ≤ 50%

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

Parameter	Symbol	Conditions		MIN.	TYP.	MAX.	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 60 V, I_E = 0				100	nA
Emitter cutoff current	I_{EBO}	V_{EB} = 10 V, I_C = 0				100	nA
DC current gain	h_{FE1}	V_{CE} = 5.0 V, I_C = 300 mA	*	800	1500	3200	−
DC current gain	h_{FE2}	V_{CE} = 5.0 V, I_C = 1.0 mA	*	400			−
DC base voltage	V_{BE}	V_{CE} = 5.0 V, I_C = 100 mA	*	600	620	700	mV
Collector saturation voltage	$V_{CE(sat)}$	I_C = 500 mA, I_B = 5.0 mA	*		0.15	0.30	V
Base saturation voltage	$V_{BE(sat)}$	I_C = 500 mA, I_B = 5.0 mA	*		0.77	1.2	V
Output capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1.0 MHz			18	30	pF
Gain bandwidth product	f_T	V_{CE} = 10 V, I_E = −500 mA		150	250		MHz

** Pulse test PW ≤ 350 μs, duty cycle ≤ 2% per pulsed

h_{FE1}/h_{FE} CLASSIFICATION M : 800 to 1600 L : 1200 to 2400 K : 2000 to 3200

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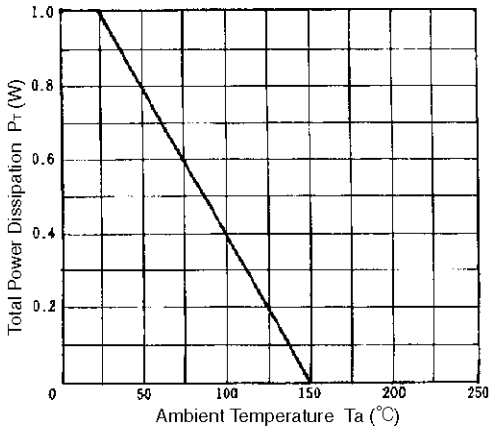
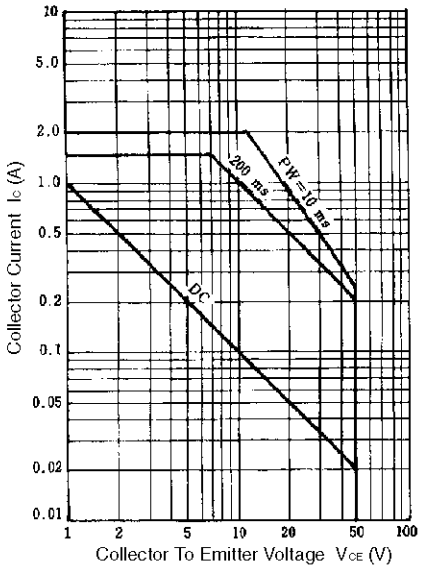
Printed in Japan

TYPICAL CHARACTERISTICS (Ta = 25°C)

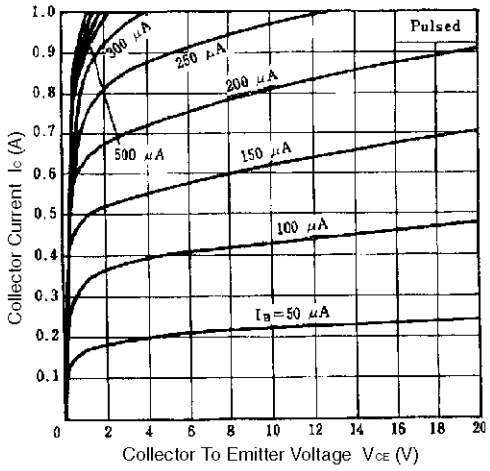
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



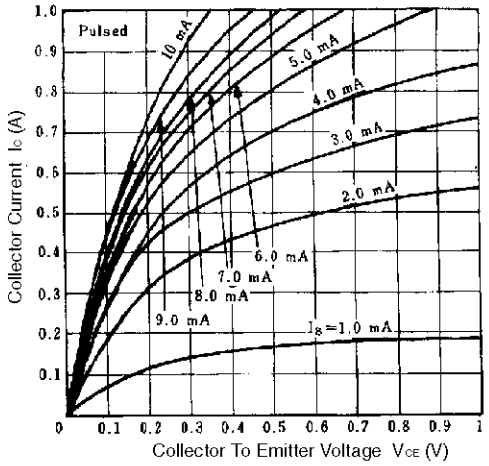
SAFE OPERATING AREAS (TRANSIENT THERMAL RESISTANCE METHOD)



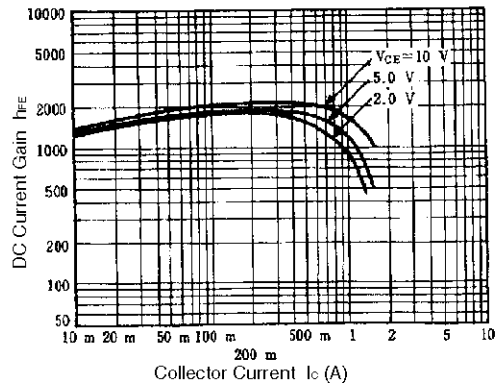
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



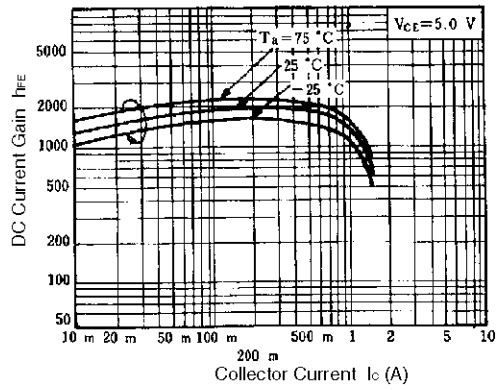
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



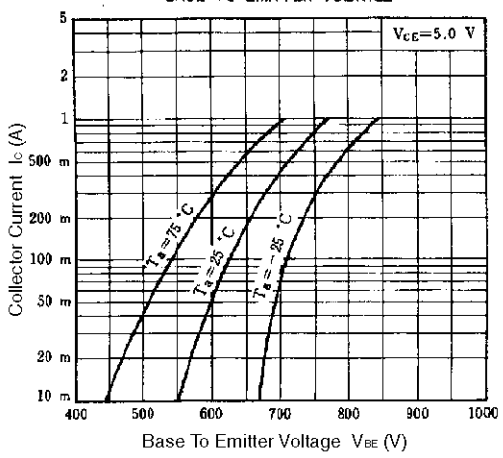
DC CURRENT GAIN vs. COLLECTOR CURRENT



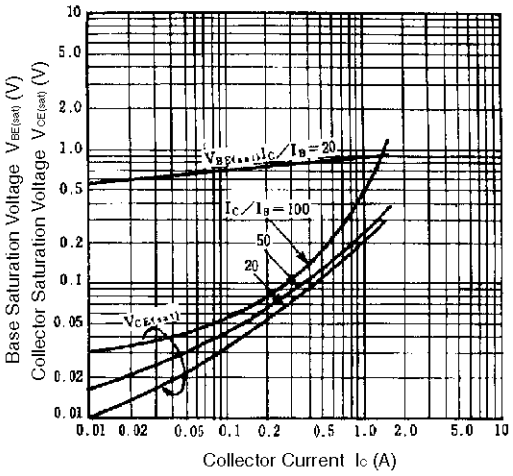
DC CURRENT GAIN vs. COLLECTOR CURRENT



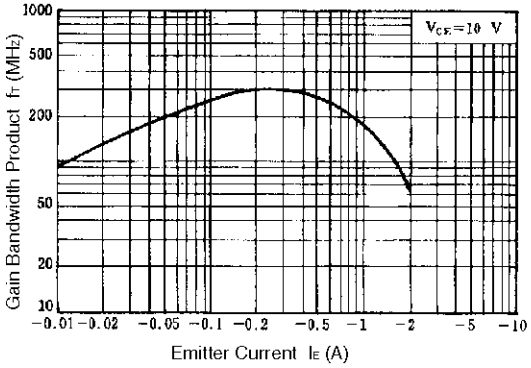
COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE



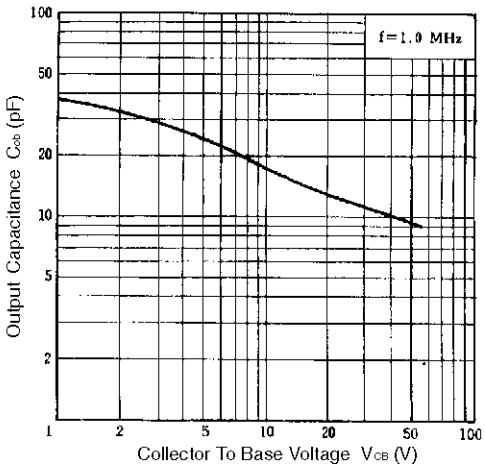
BASE AND COLLECTOR SATURATION
VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT
vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs.
COLLECTOR TO BASE VOLTAGE



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