To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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

DATA SHEET

NPN SILICON POWER TRANSISTOR
2SD882

NPN SILICON POWER TRANSISTOR

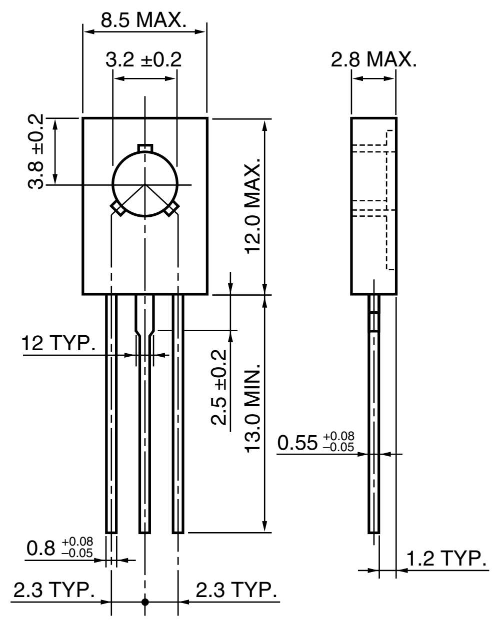
DESCRIPTION

The 2SD882 is NPN silicon transistor suited for the output stage of 3 watts audio amplifier, voltage regulator, DC-DC converter and relay driver.

FEATURES

- Low saturation voltage
  $V_{CE(sat)}$ = 0.5 V MAX. (I_C = –2 A, I_B = 0.2 A)
- Excellent h_{FE} linearity and high h_{FE}
  h_{FE} = 60 to 400 (V_{CE} = 2 V, I_C = 1 A)
- Less cramping space required due to small and thin package and reducing the trouble for attachment to a radiator.
  No insulator bushing required.

★ PACKAGE DRAWING (Unit: mm)



1: Emitter
2: Collector: connected to mounting plane
3: Base

ABSOLUTE MAXIMUM RATINGS

Maximum Temperature		
Storage Temperature		–55 to +150°C
Junction Temperature		150°C Maximum
Maximum Power Dissipations		
Total Power Dissipation (T_A = 25°C)		1.0 W
Total Power Dissipation (T_C = 25°C)		10 W
Maximum Voltages and Currents (T_A = 25°C)		
V_{CBO}	Collector to Base Voltage	40 V
V_{CEO}	Collector to Emitter Voltage	30 V
V_{EBO}	Emitter to Base Voltage	5.0 V
$I_{C(DC)}$	Collector Current (DC)	3.0 A
$I_{C(pulse)}$ Note	Collector Current (pulse)	7.0 A

Note Pulse Test PW ≤ 350 μs, Duty Cycle ≤ 2%

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
DC Current Gain	h_{FE1}	V_{CE} = 2.0 V, I_C = 20 mA Note	30	150		
DC Current Gain	h_{FE2}	V_{CE} = 2.0 V, I_C = 1.0 A Note	60	160	400	
Gain Bandwidth Product	f_T	V_{CE} = 5.0 V, I_C = 0.1 A		90		MHz
Output Capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1.0 MHz		45		pF
Collector Cutoff Current	I_{CBO}	V_{CB} = 30 V, I_E = 0 A			1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 3.0 V, I_C = 0 A			1.0	μA
Collector Saturation Voltage	$V_{CE(sat)}$	I_C = 2.0 A, I_B = 0.2 A Note		0.3	0.5	V
Base Saturation Voltage	$V_{BE(sat)}$	I_C = 2.0 A, I_B = 0.2 A Note		1.0	2.0	V

Note Pulse Test: PW ≤ 350 μs, Duty Cycle ≤ 2%

CLASSIFICATION OF h_{FE}

Rank	R	Q	P	E
Range	60 to 120	100 to 200	160 to 320	200 to 400

Remark Test Conditions: V_{CE} = 2.0 V, I_C = 1.0 A

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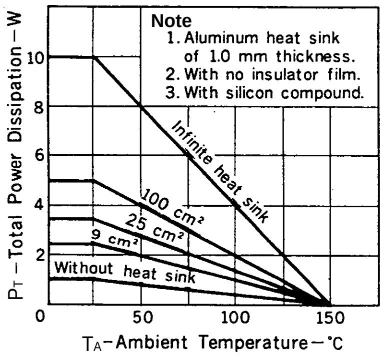
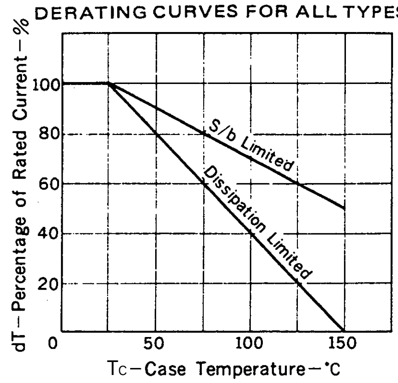
The mark ★ shows major revised points.

TYPICAL CHARACTERISTICS (T_A = 25°C)

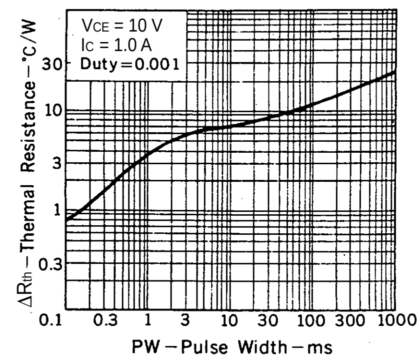
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



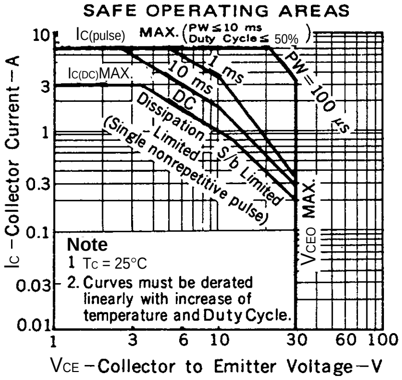
DERATING CURVES FOR ALL TYPES



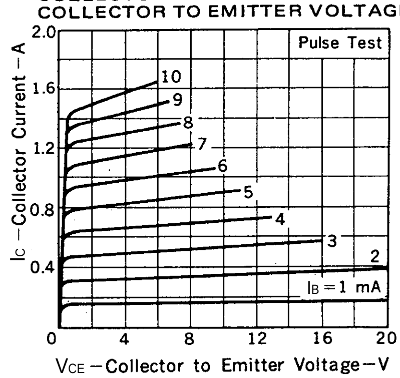
THERMAL RESISTANCE vs. PULSE WIDTH



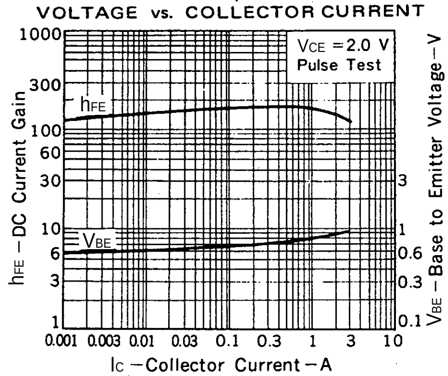
SAFE OPERATING AREAS



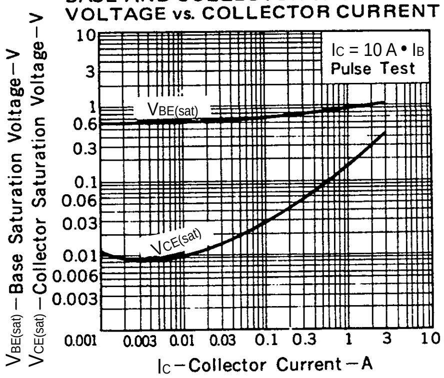
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



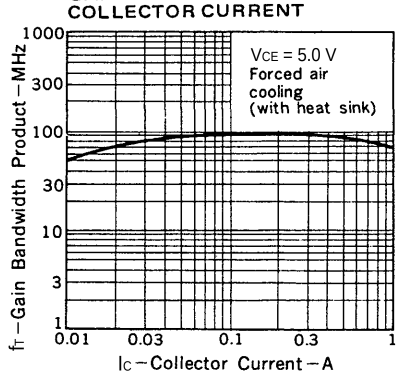
DC CURRENT GAIN, BASE TO EMITTER VOLTAGE vs. COLLECTOR CURRENT



BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



INPUT AND OUTPUT CAPACITANCE vs. REVERSE VOLTAGE