

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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Phase-out/Discontinued

**NPN SILICON EPITAXIAL TRANSISTOR (DARLINGTON CONNECTION)
FOR LOW-FREQUENCY POWER AMPLIFIERS AND LOW-SPEED SWITCHING**

The 2SD560 is a mold power transistor developed for low-frequency power amplifiers and low-speed switching. This transistor is ideal for direct driving from the IC output of devices such as pulse motor drivers and relay drivers, and PC terminals.

FEATURES

- C-to-E reverse diode inserted
- Low collector saturation voltage

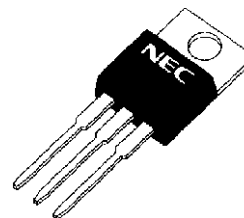
ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Parameter	Symbol	Conditions	Ratings	Unit
Collector to base voltage	V _{CB0}		150	V
Collector to emitter voltage	V _{CE0}		100	V
Emitter to base voltage	V _{EB0}		7.0	V
Collector current (DC)	I _{C(DC)}		±5.0	A
Collector current (pulse)	I _{C(pulse)}	PW ≤ 10 ms, duty cycle ≤ 50%	±8.0	A
Base current (DC)	I _{B(DC)}		0.5	A
Total power dissipation	P _T	T _C = 25°C	30	W
		T _A = 25°C	1.5	W
Junction temperature	T _j		150	°C
Storage temperature	T _{stg}		-55 to +150	°C

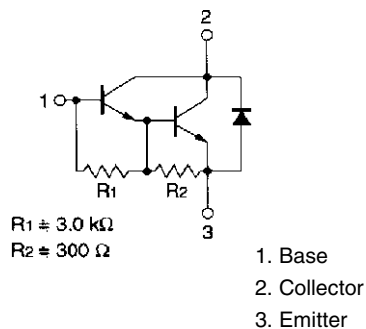
ORDERING INFORMATION

Ordering Name	Package
2SD560	TO-220AB

(TO-220AB)



INTERNAL EQUIVALENT CIRCUIT



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Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

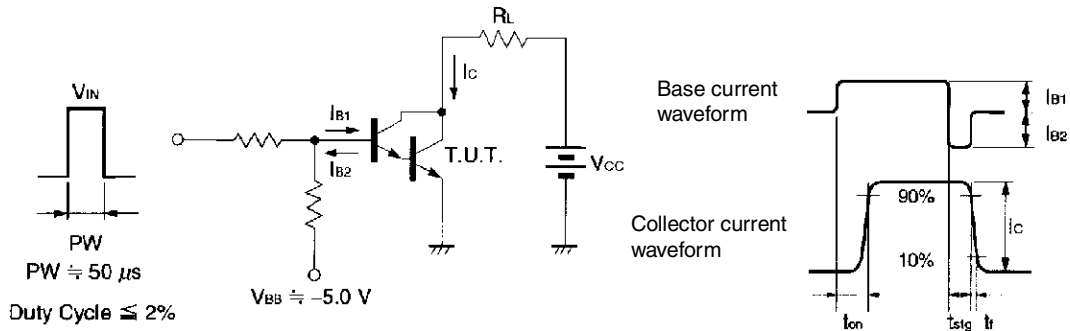
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	I _{CBO}	V _{CB} = 100 V, I _E = 0 A			1.0	μA
DC current gain	h _{FE1}	V _{CE} = 2.0 V, I _C = 3.0 A ^{Note}	2,000	6,000	15,000	
	h _{FE2}	V _{CE} = 2.0 V, I _C = 5.0 A ^{Note}	500			
Collector saturation voltage	V _{CE(sat)}	I _C = 3.0 A, I _B = 3.0 mA ^{Note}		0.9	1.5	V
Base saturation voltage	V _{BE(sat)}	I _C = 3.0 A, I _B = 3.0 mA ^{Note}		1.6	2.0	V
Turn-on time	t _{on}	I _C = 3.0 A, R _L = 16.7 Ω, I _{B1} = -I _{B2} = 3.0 mA, V _{CC} ≅ 50 V Refer to the test circuit.		1.0		μs
Storage time	t _{stg}			3.5		μs
Fall time	t _f			1.2		μs

Note Pulse test PW ≤ 350 μs, duty cycle ≤ 2%

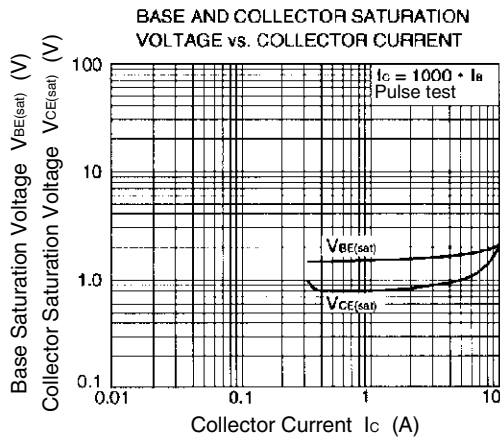
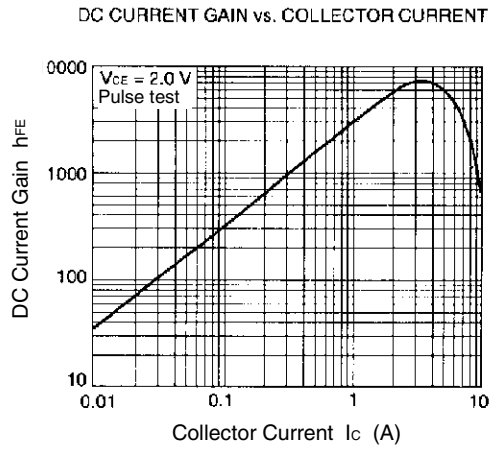
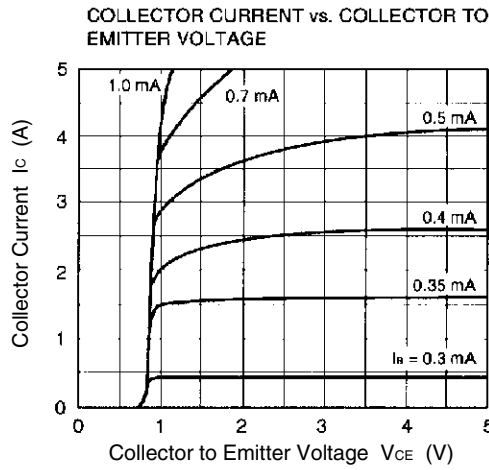
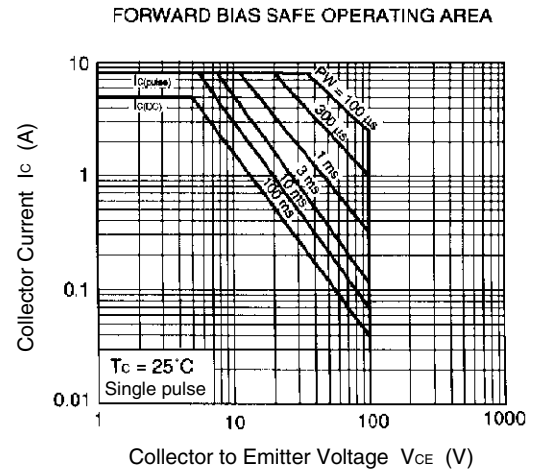
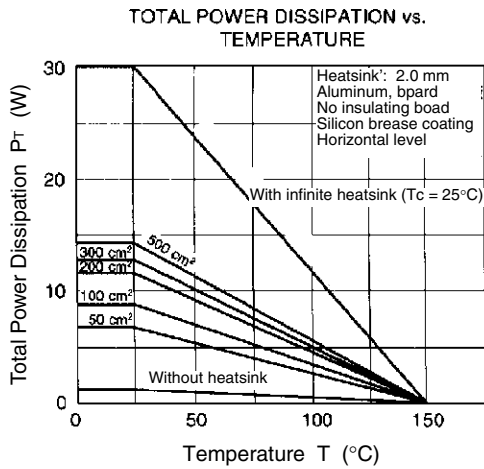
h_{FE} CLASSIFICATION

Marking	MB	LB	KB
h _{FE1}	2,000 to 5,000	3,000 to 7,000	5,000 to 15,000

SWITCHING TIME (t_{on}, t_{stg}, t_f) TEST CIRCUIT



TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)



[MEMO]

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