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 POWER TRANSISTOR

Phase-out/Discontinued

2SD1481

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

FEATURES

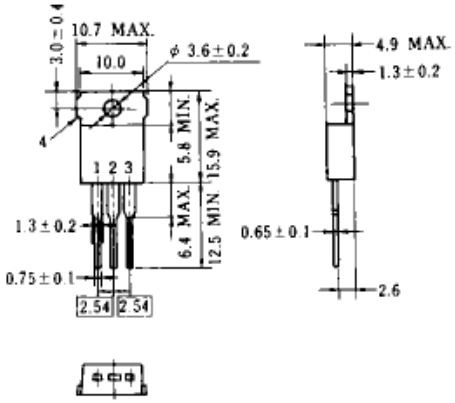
- On-chip C-to-B Zener diode for surge voltage absorption
- Low collector saturation voltage: $V_{CE(SAT)}$ = 1.5 V MAX. (at 1 A)
- Ideal for use in a direct drive from IC to the devices such as OA and FA equipment and motor solenoid relay printer head drivers

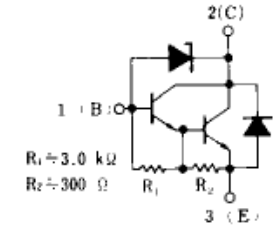
ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	60 ±10	V
Collector to emitter voltage	V_{CEO}	60 ±10	V
Emitter to base voltage	V_{EBO}	7.0	V
Collector current	$I_{C(DC)}$	2.0	A
Collector current	$I_{C(pulse)}$*	4.0	A
Base current	$I_{B(DC)}$	0.2	A
Total power dissipation	P_T (Tc = 25°C)	15	W
Total power dissipation	P_T (Ta = 25°C)	1.5	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

* PW ≤ 300 μs, duty cycle ≤ 10%

PACKAGE DRAWING (UNIT: mm)





Electrode Connection
1. Base
2. Collector
3. Emitter
4. Fin (collector)

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

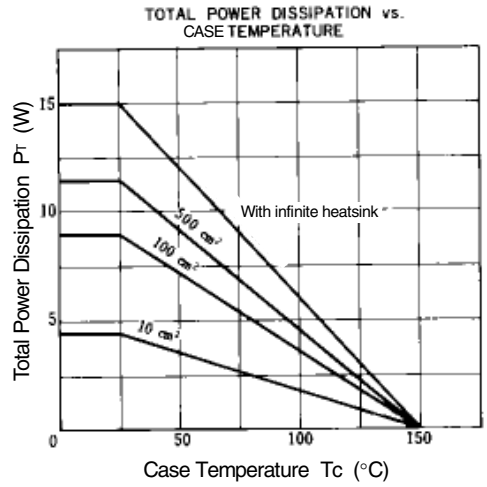
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 40 V, I_E = 0			1.0	μA
DC current gain	h_{FE1}	V_{CE} = 2.0 V, I_C = 1.0 A*	2,000		20,000	
DC current gain	h_{FE2}	V_{CE} = 2.0 V, I_C = 3.0 A*	500			
Collector saturation voltage	$V_{CE(sat)}$	I_C = 1.0 A, I_B = 1.0 mA*			1.5	V
Base saturation voltage	$V_{BE(sat)}$	I_C = 1.0 A, I_B = 1.0 mA*			2.0	V
Turn-on time	t_{on}	I_C = 1.0 A, I_{B1} = $-I_{B2}$ = 10 mA R_L = 50 Ω, V_{CC} ≅ 50 V Refer to the test circuit.		0.5		μs
Storage time	t_{stg}			2.0		μs
Fall time	t_f			1.0		μs

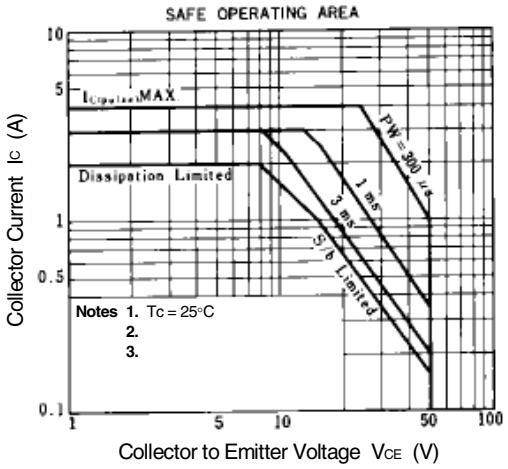
* Pulse test PW ≤ 350 μs, duty cycle ≤ 2%

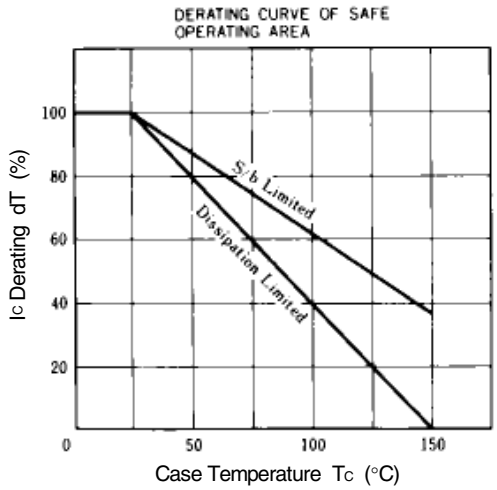
h_{FE} CLASSIFICATION

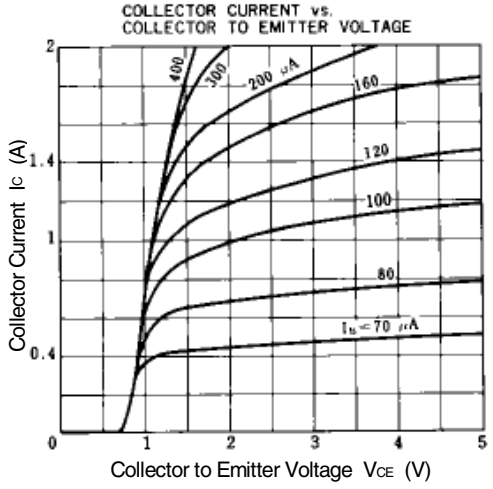
Marking	M	L	K
h_{FE1}	2,000 to 5,000	4,000 to 10,000	8,000 to 20,000

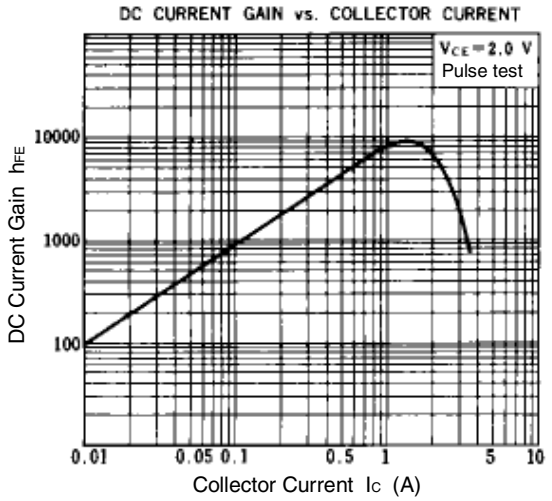
TYPICAL CHARACTERISTICS (Ta = 25°C)

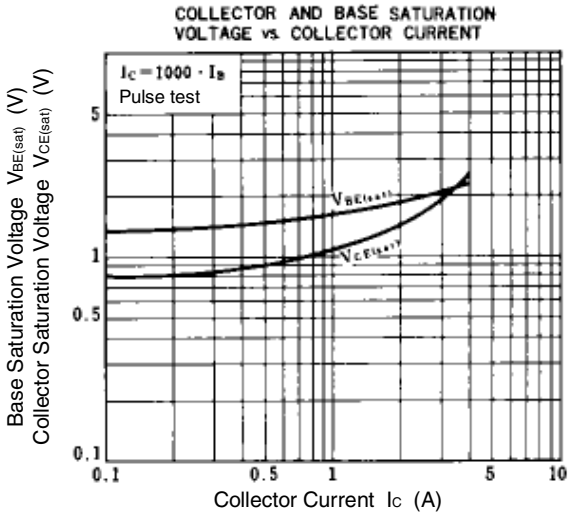




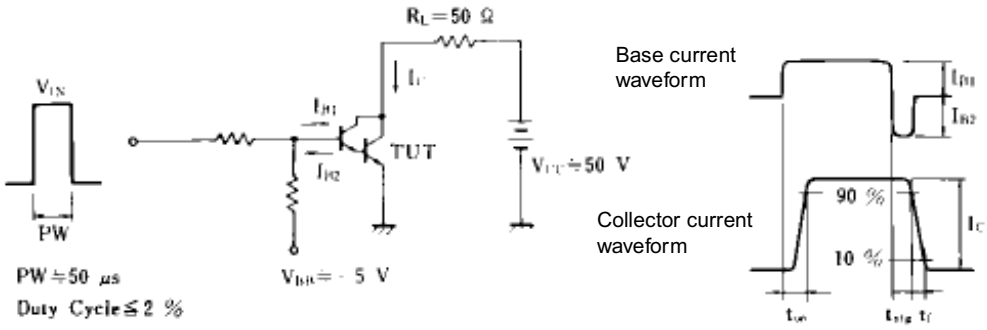








SWITCHING TIME (t_{on}, t_{stg}, t_f) TEST CIRCUIT



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