

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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DARLINGTON POWER TRANSISTOR
2SD1592

NPN SILICON TRIPLE DIFFUSED TRANSISTOR (DARLINGTON CONNECTION)
FOR HIGH-VOLTAGE LOW-SPEED SWITCHING

FEATURES

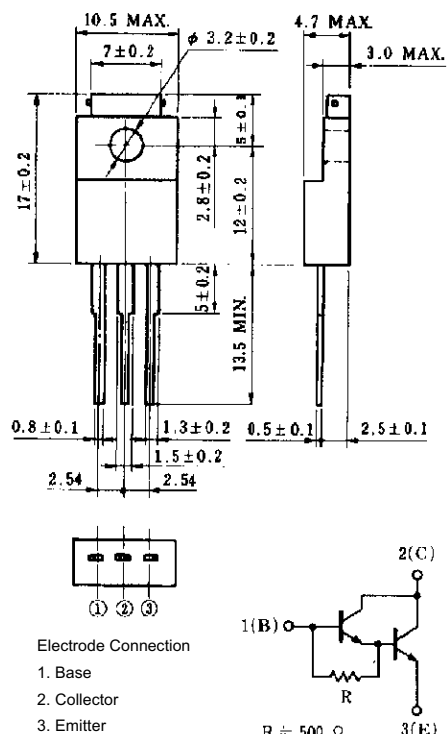
- High DC current gain due to Darlington connection
- Low collector saturation
- Reverse deterrence type
- Ideal for use in devices such as pulse motor drivers and relay drivers of PC terminals, and ignitors of general-purpose engines.
- Mold package that does not require an insulating board or insulation bushing

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V _{CBO}	500	V
Collector to emitter voltage	V _{CEO}	+300, -10	V
Emitter to base voltage	V _{EBO}	10	V
Collector current	I _{C(DC)}	5.0	A
Collector current	I _{C(pulse)*}	10	A
Base current	I _{B(DC)}	0.5	A
Total power dissipation	P _T (T _c = 25°C)	30	W
Total power dissipation	P _T (T _a = 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)



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

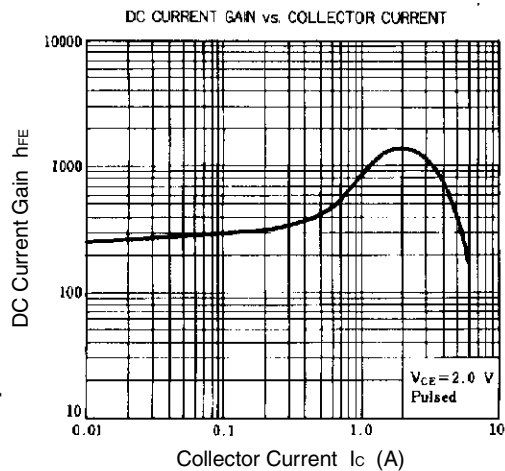
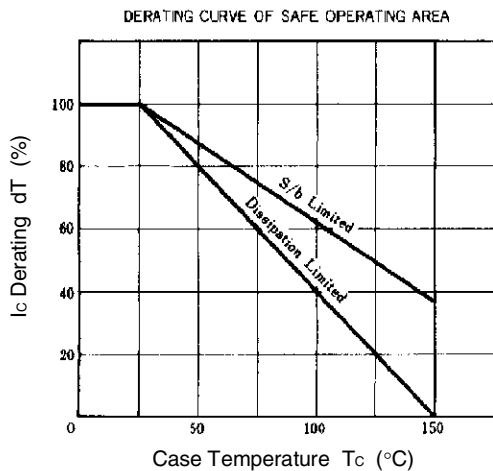
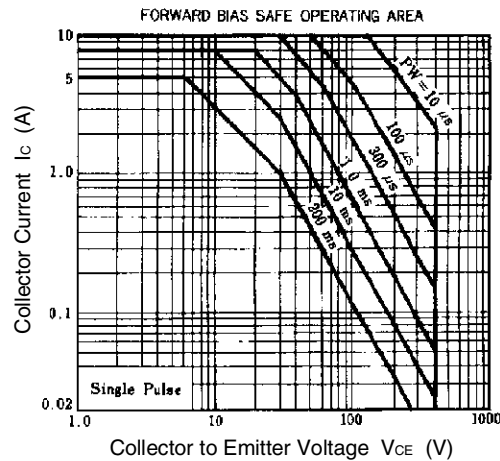
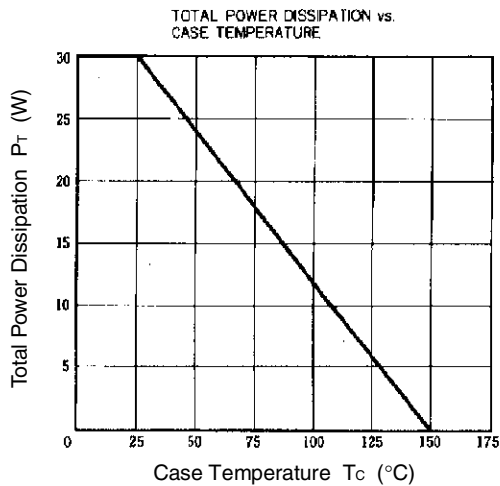
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 400\text{ V}, I_E = 0$			10	μA
DC current gain	h_{FE1}^*	$V_{CE} = 2.0\text{ V}, I_C = 2.0\text{ A}$	400		3,000	
DC current gain	h_{FE2}^*	$V_{CE} = 2.0\text{ V}, I_C = 3.0\text{ A}$	100			
Collector saturation voltage	$V_{CE(sat)}^*$	$I_C = 2\text{ A}, I_B = 5\text{ mA}$		1.0	1.5	V
Base saturation voltage	$V_{BE(sat)}^*$	$I_C = 2\text{ A}, I_B = 5\text{ mA}$		1.6	2.0	V
Turn-on time	t_{on}	$I_C = 3.0\text{ A}, I_{B1} = -I_{B2} = 30\text{ mA}$ $R_L = 50\ \Omega, V_{CC} \cong 150\text{ V}$		1.0		μs
Storage time	t_{stg}			12		μs
Fall time	t_f			6		μs

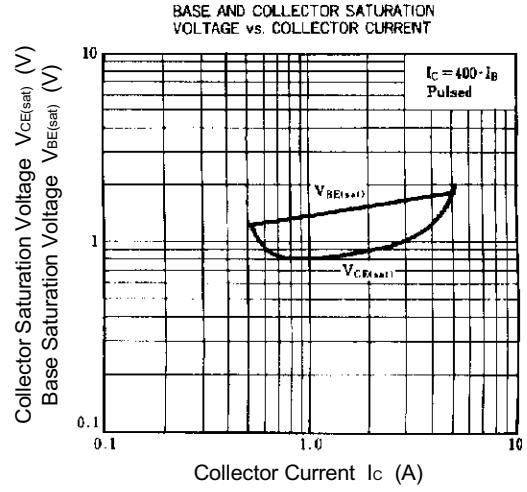
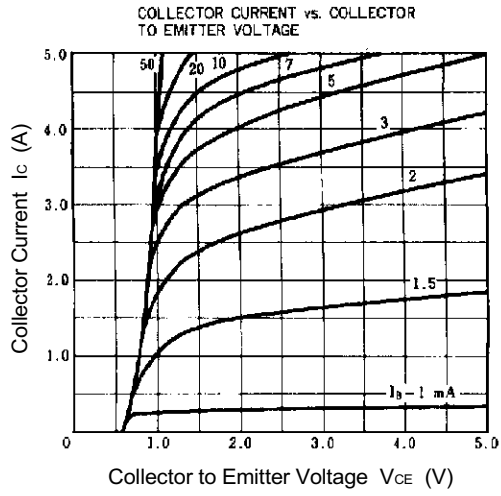
* Pulse test $PW \leq 350\ \mu\text{s}$, duty cycle $\leq 2\%$

h_{FE} CLASSIFICATION

Marking	M	L	K
h_{FE}	400 to 800	600 to 1,200	1,000 to 3,000

TYPICAL CHARACTERISTICS (Ta = 25°C)





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