

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

FEATURES

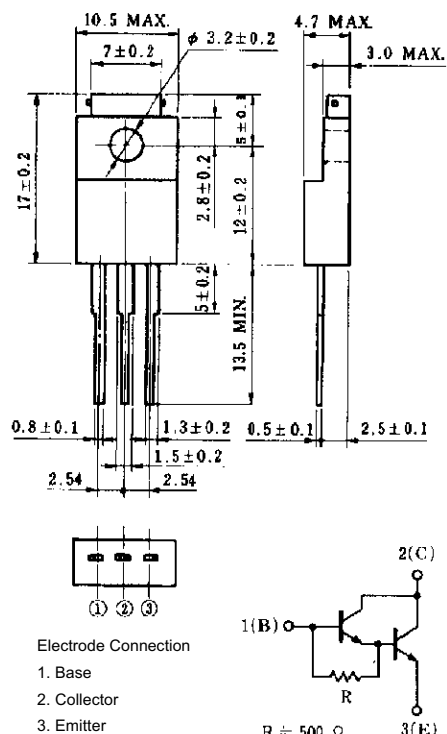
- High DC current gain due to Darlington connection
- Low collector saturation
- Reverse deterrence type
- Ideal for use in devices such as pulse motor drivers and relay drivers of PC terminals, and ignitors of general-purpose engines.
- Mold package that does not require an insulating board or insulation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

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

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	$P_T (T_c = 25^\circ\text{C})$	30	W
Total power dissipation	$P_T (T_a = 25^\circ\text{C})$	1.5	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

* $PW \leq 300 \mu\text{s}$, duty cycle $\leq 10\%$

PACKAGE DRAWING (UNIT: mm)



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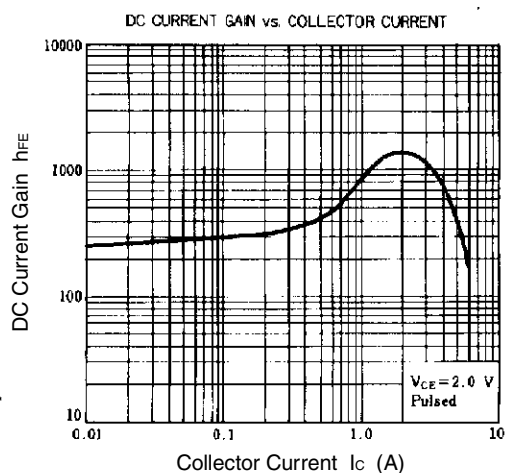
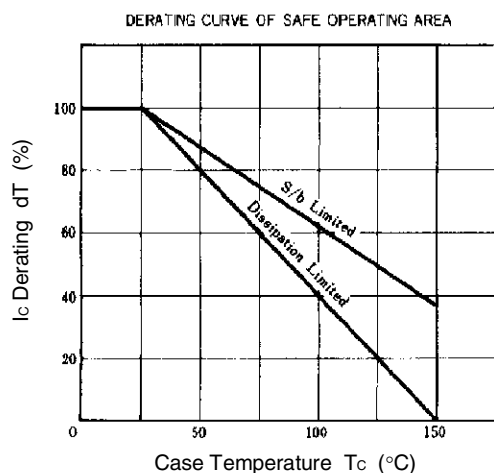
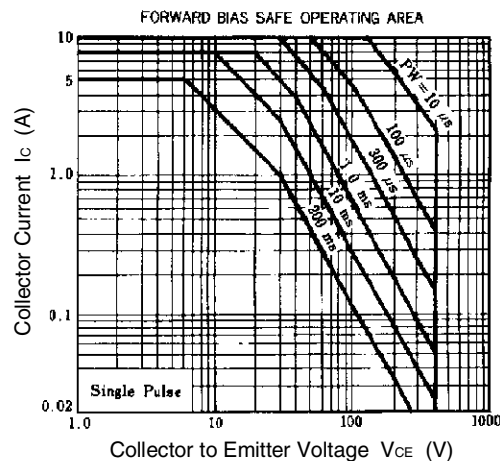
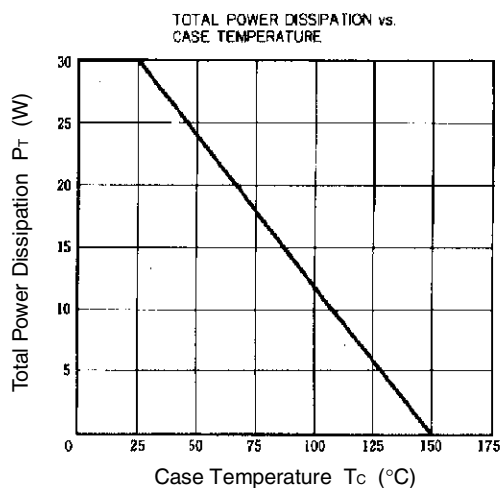
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

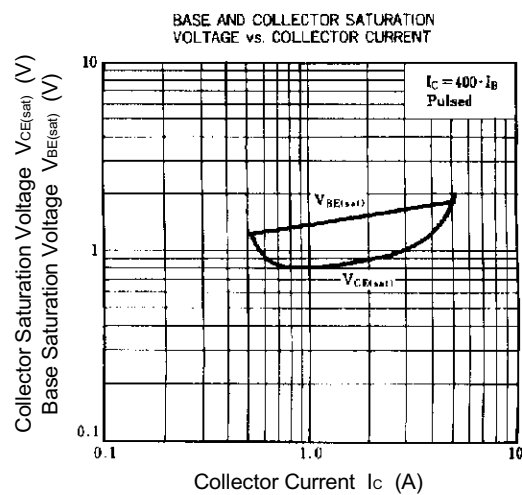
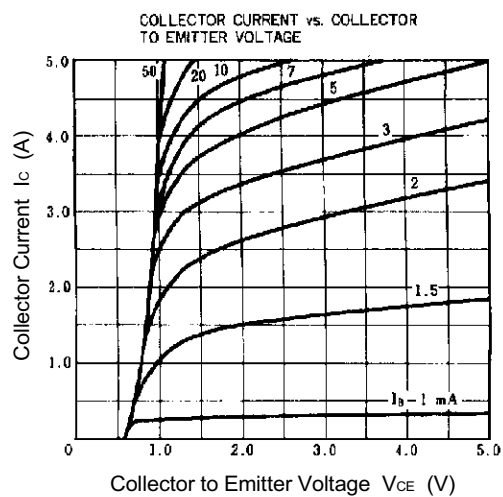
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 400\text{ V}, I_E = 0$			10	μA
DC current gain	h_{FE1}^*	$V_{CE} = 2.0\text{ V}, I_C = 2.0\text{ A}$	400		3,000	
DC current gain	h_{FE2}^*	$V_{CE} = 2.0\text{ V}, I_C = 3.0\text{ A}$	100			
Collector saturation 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 ($T_a = 25^\circ\text{C}$)



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