

To our customers,

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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 TRIPLE DIFFUSED TRANSISTOR
FOR HIGH-VOLTAGE HIGH-SPEED SWITCHING**

The 2SC3570 is a mold power transistor developed for high-voltage high-speed switching, and is ideal for use in drivers such as switching regulators, DC/DC converters, and high-frequency power amplifiers.

FEATURES

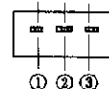
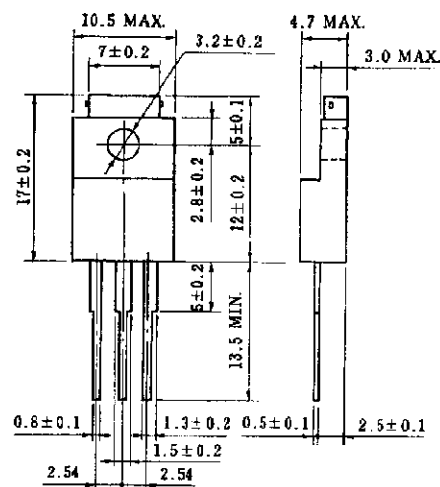
- Mold package that does not require an insulating board or insulation bushing
- Low collector saturation voltage:
 $V_{CE(sat)} = 1.0 \text{ V MAX. (@ 2 A)}$
- Fast switching speed:
 $t_f \leq 0.7 \mu\text{s MAX. (@ 2 A)}$
- Wide base reverse-bias SOA:
 $V_{CEX(SUS)} = 450 \text{ V MIN. (@ 2 A)}$

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	500	V
Collector to emitter voltage	V_{CEO}	400	V
Emitter to base voltage	V_{EBO}	8.0	V
Collector current (DC)	$I_{C(DC)}$	5.0	A
Collector current (pulse)	$I_{C(pulse)}^*$	10	A
Base current (DC)	$I_{B(DC)}$	2.5	A
Total power dissipation	$P_T (T_c = 25^\circ\text{C})$	25	W
Total power dissipation	$P_T (T_a = 25^\circ\text{C})$	2.0	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

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

PACKAGE DRAWING (UNIT: mm)



Electrode Connection

1. Base
2. Collector
3. Emitter

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

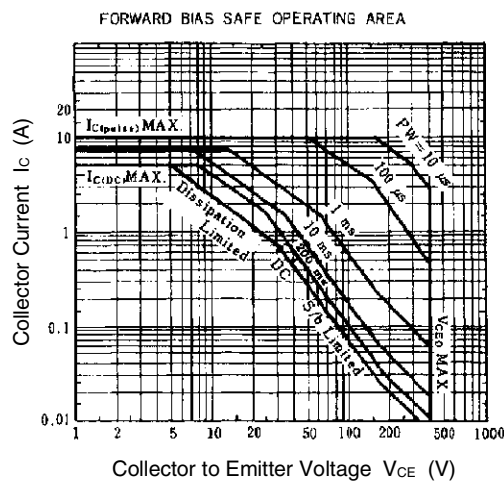
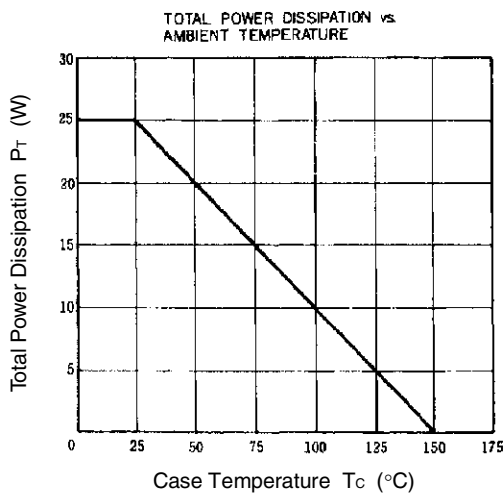
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector to emitter voltage	V _{CEO(SUS)}	I _C = 2.0 A, I _{B1} = 0.4 A, L = 1 mH	400			V
Collector to emitter voltage	V _{CEX(SUS)1}	I _C = 2.0 A, I _{B1} = -I _{B2} = 0.4 A, L = 180 μH, clamped	450			V
Collector to emitter voltage	V _{CEX(SUS)2}	I _C = 4.0 A, I _{B1} = 0.8 A, -I _{B2} = 0.4 A, L = 180 μH, clamped	400			V
Collector cutoff current	I _{CB0}	V _{CB} = 400 V, I _E = 0			10	μA
Collector cutoff current	I _{CER}	V _{CE} = 400 V, R _{BE} = 51 Ω, Ta = 125°C			1.0	mA
Collector cutoff current	I _{CEX1}	V _{CE} = 400 V, V _{BE(OFF)} = -1.5 V			10	μA
Collector cutoff current	I _{CEX2}	V _{CE} = 400 V, V _{BE(OFF)} = -1.5 V, Ta = 125°C			1.0	mA
Emitter cutoff current	I _{EB0}	V _{EB} = 5.0 V, I _C = 0			10	μA
DC current gain	h _{FE1} *	V _{CE} = 5.0 V, I _C = 0.5 A	20		80	
DC current gain	h _{FE2} *	V _{CE} = 5.0 V, I _C = 2.0 A	10			
Collector saturation voltage	V _{CE(sat)} *	I _C = 2.0 A, I _B = 0.4 A			1.0	V
Base saturation voltage	V _{BE(sat)} *	I _C = 2.0 A, I _B = 0.4 A			1.2	V
Turn-on time	t _{on}	I _C = 2.0 A, R _L = 75 Ω, I _{B1} = -I _{B2} = 0.4 A, V _{CC} ≡ 150 V			1.0	μs
Storage time	t _{stg}	Refer to the test circuit.			2.0	μs
Fall time	t _f				0.7	μs

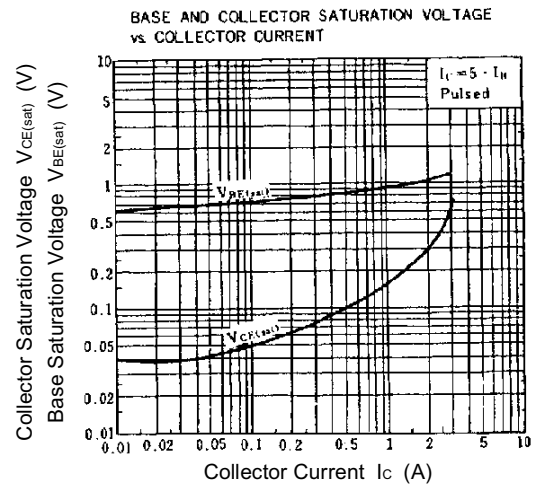
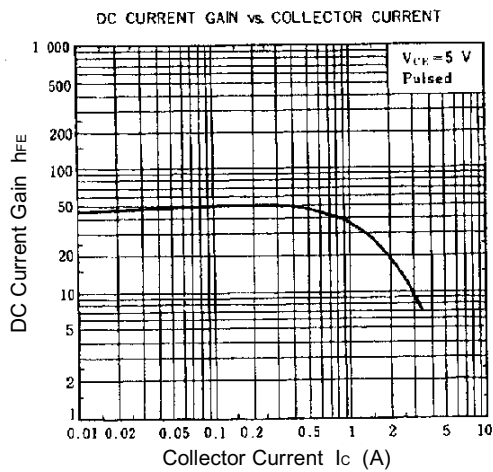
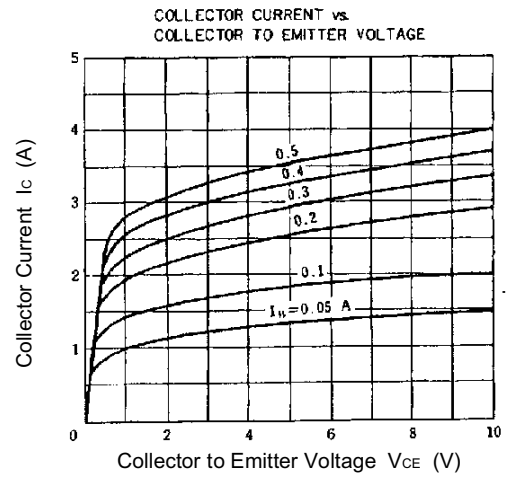
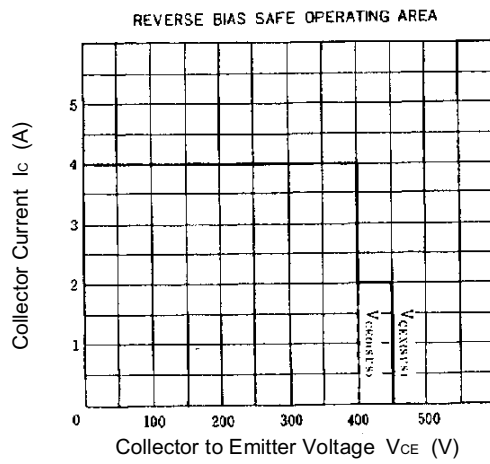
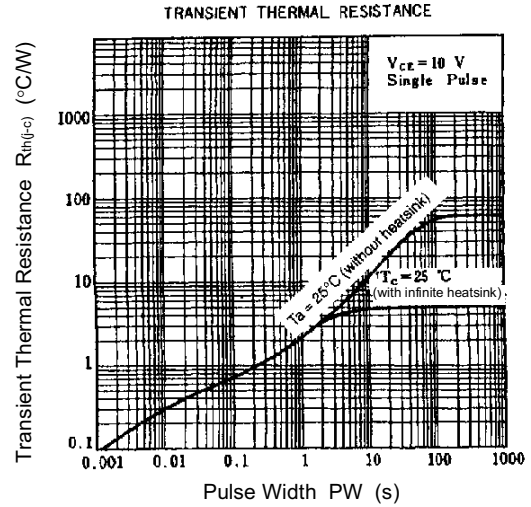
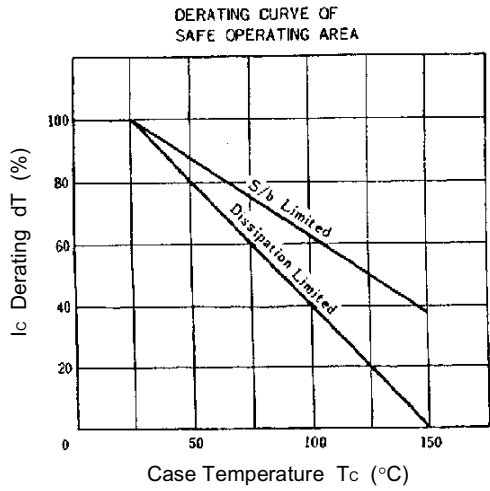
* Pulse test PW ≤ 350 μs, duty cycle ≤ 2%

h_{FE} CLASSIFICATION

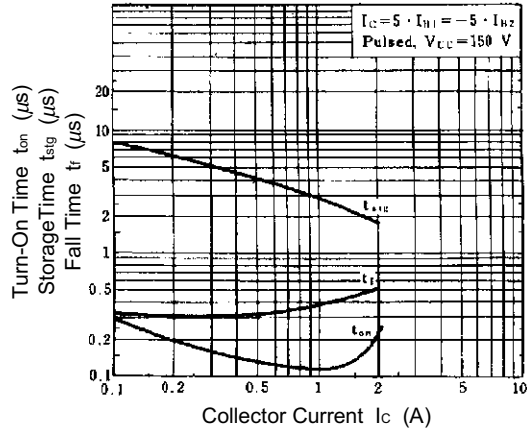
Marking	M	L	K
h _{FE1}	20 to 40	30 to 60	40 to 80

TYPICAL CHARACTERISTICS (Ta = 25°C)

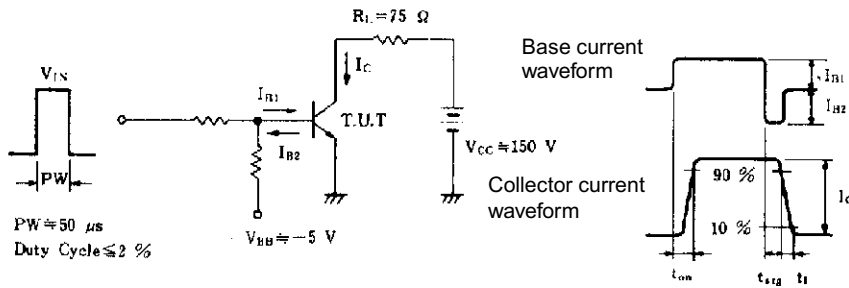




TURN ON, STORAGE AND FALL TIME vs. COLLECTOR CURRENT



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



[MEMO]

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