To all our customers

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Renesas Technology Home Page: http://www.renesas.com

Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

Cautions

Keep safety first in your circuit designs!

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   Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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2SD1113(K)

Silicon NPN Triple Diffused

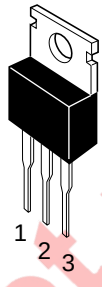
ADE-208-903 (Z)
1st. Edition
September 2000

Application

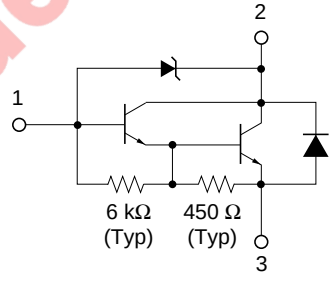
Igniter

Outline

TO-220AB



1. Base
2. Collector (Flange)
3. Emitter



Absolute Maximum Ratings (Ta = 25°C)

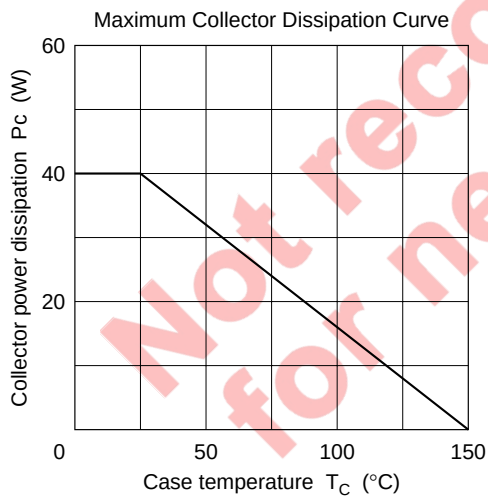
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	300	V
Collector to emitter voltage	V_{CEO}	300	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	6	A
Collector peak current	$I_{C(peak)}$	10	A
Collector power dissipation	P_C *1	40	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

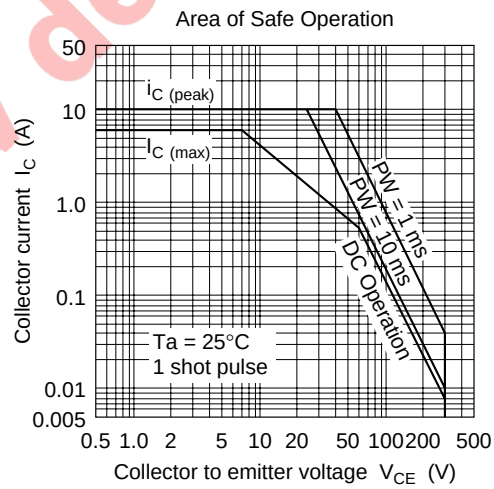
Note: 1. Value at T_C = 25°C.

Electrical Characteristics (Ta = 25°C)

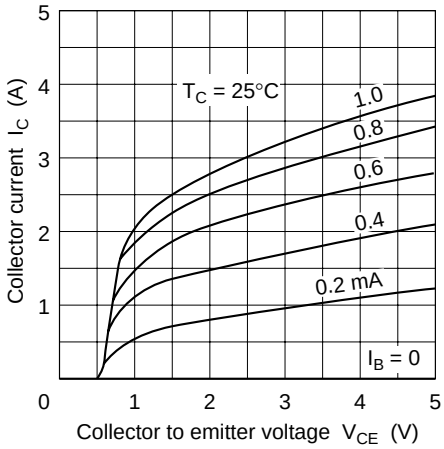
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	300	—	500	V	I_C = 0.1 mA, I_E = 0
Collector to emitter sustain voltage	$V_{CEO(sus)}$	300	—	—	V	I_C = 3 A, PW = 50 µs, f = 50 Hz, L = 10 mH
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	I_E = 50 mA, I_C = 0
Collector cutoff current	I_{CEO}	—	—	100	µA	V_{CE} = 300 V, R_{BE} = ∞
DC current transfer ratio	h_{FE}	500	—	—		V_{CE} = 2 V, I_C = 4 A*[1]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.5	V	I_C = 4 A, I_B = 40 mA*[1]
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	2.0	V	I_C = 4 A, I_B = 40 mA*[1]
Turn on time	t_{on}	—	2.0	—	µs	I_C = 4 A, I_{B1} = $-I_{B2}$ = 40 mA
Turn off time	t_{off}	—	23	—	µs	I_C = 4 A, I_{B1} = $-I_{B2}$ = 40 mA

Note: 1. Pulse test.

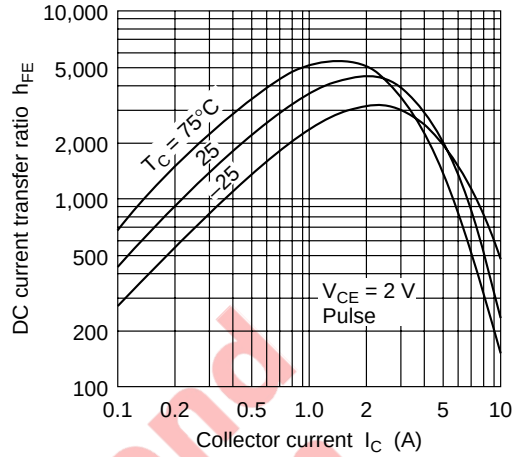




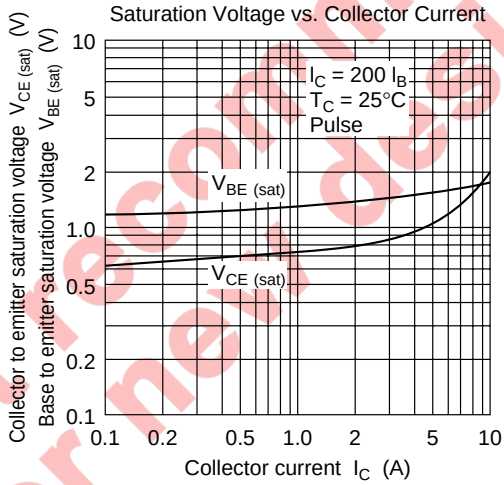
Typical Output Characteristics



DC Current Transfer Ratio vs. Collector Current



Saturation Voltage vs. Collector Current



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