

# 2SD1113(K)

Silicon NPN Triple Diffused

RENESAS

ADE-208-903 (Z)

1st. Edition

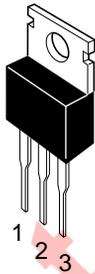
September 2000

## Application

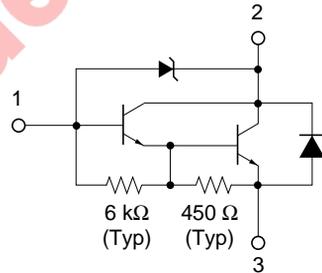
Igniter

## Outline

TO-220AB



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



## Absolute Maximum Ratings (T<sub>a</sub> = 25°C)

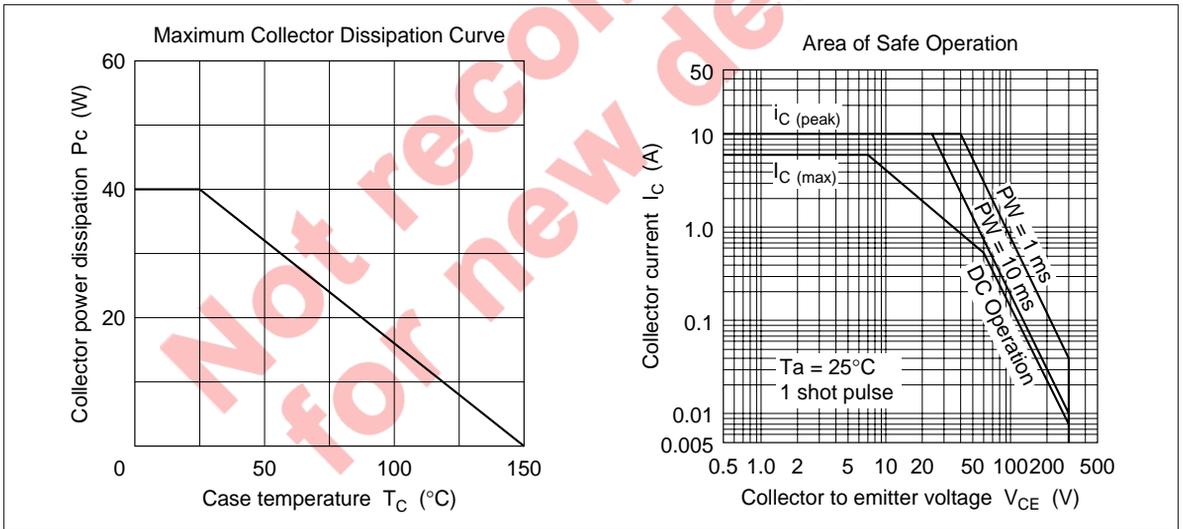
Item	Symbol	Ratings	Unit
Collector to base voltage	V <sub>CBO</sub>	300	V
Collector to emitter voltage	V <sub>CEO</sub>	300	V
Emitter to base voltage	V <sub>EBO</sub>	7	V
Collector current	I <sub>C</sub>	6	A
Collector peak current	I <sub>C(peak)</sub>	10	A
Collector power dissipation	P <sub>C</sub> <sup>*1</sup>	40	W
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

Note: 1. Value at T<sub>c</sub> = 25°C.

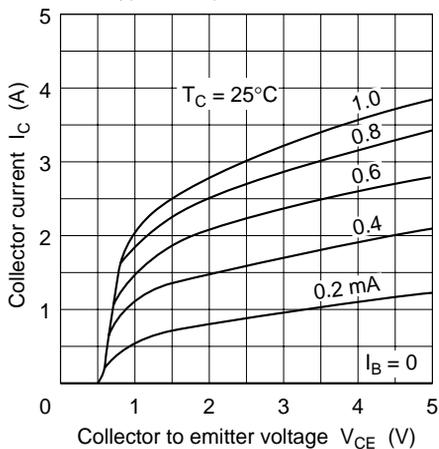
## Electrical Characteristics (Ta = 25°C)

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

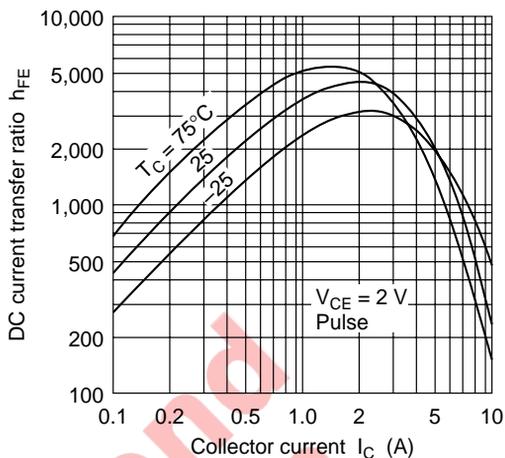
Note: 1. Pulse test.



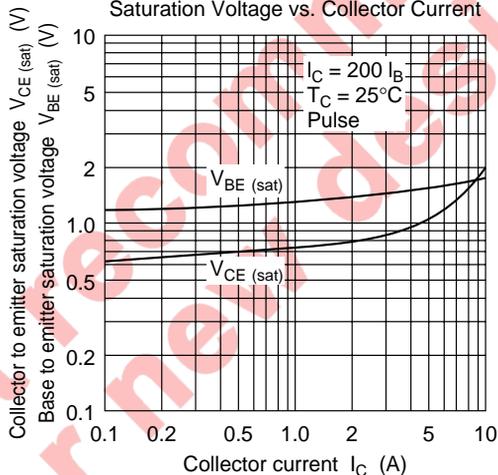
Typical Output Characteristics



DC Current Transfer Ratio vs. Collector Current



Saturation Voltage vs. Collector Current



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