

To our customers,

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## Old Company Name in Catalogs and Other Documents

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On April 1<sup>st</sup>, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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Not recommended  
for new design

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To all our customers

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

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# 2SC4500(L)/(S)

Silicon NPN Epitaxial

RENESAS

ADE-208-894 (Z)

1st. Edition

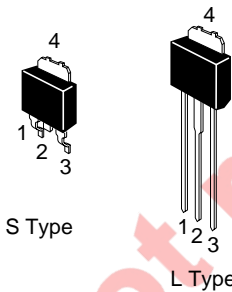
September 2000

## Application

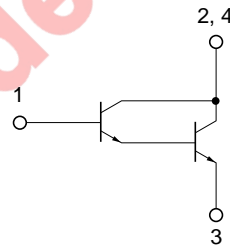
Low frequency amplifier

## Outline

DPAK



- 1. Base
- 2. Collector
- 3. Emitter
- 4. Collector



## Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	60	V
Collector to emitter voltage	$V_{CEO}$	60	V
Emitter to base voltage	$V_{EBO}$	7	V
Collector current	$I_C$	1	A
Collector peak current	$I_{C(peak)}$	2	A
Collector power dissipation	$P_C$	0.8	W
	$P_C^{*1}$	8	
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

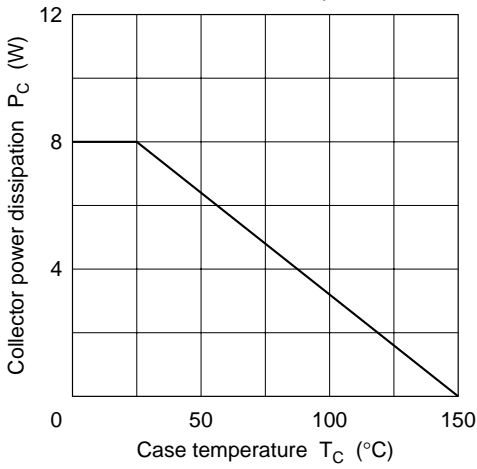
Note: 1. Value at  $T_C = 25^\circ\text{C}$ .

## Electrical Characteristics (Ta = 25°C)

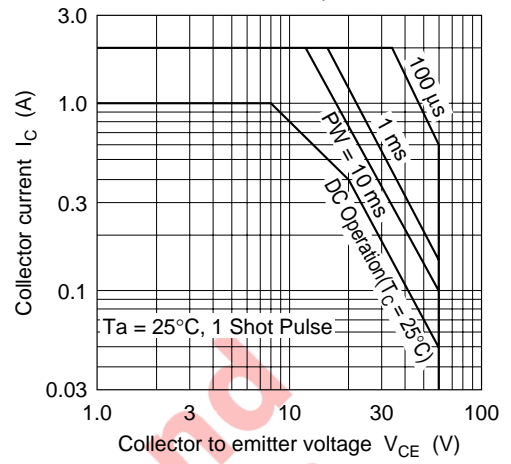
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	60	—	—	V	$I_C = 1\text{ mA}$ , $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	$I_E = 0.1\text{ mA}$ , $I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	10	$\mu\text{A}$	$V_{CB} = 60\text{ V}$ , $I_E = 0$
DC current transfer ratio	$h_{FE}$	2000	—	—		$V_{CE} = 10\text{ V}$ , $I_C = 500\text{ mA}^{*1}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.5	V	$I_C = 500\text{ mA}$ , $I_B = 0.5\text{ mA}^{*1}$
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	2.0	V	$I_C = 500\text{ mA}$ , $I_B = 0.5\text{ mA}^{*1}$
Turn on time	$t_{on}$	—	100	—	ns	$V_{CC} = 12\text{ V}$ , $I_C = 250\text{ mA}$ ,
Turn off time	$t_{off}$	—	600	—	ns	$I_{B1} = -I_{B2} = 5\text{ mA}$

Note: 1. Pulse Test.

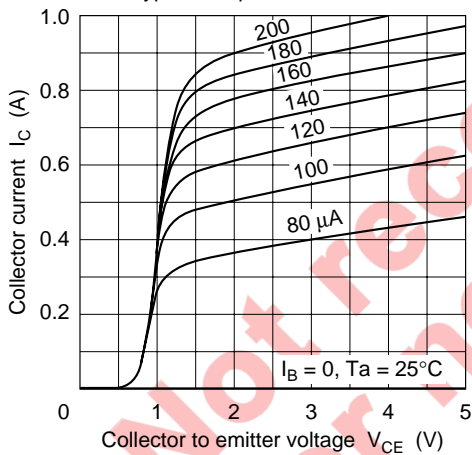
Maximum Collector Dissipation Curve



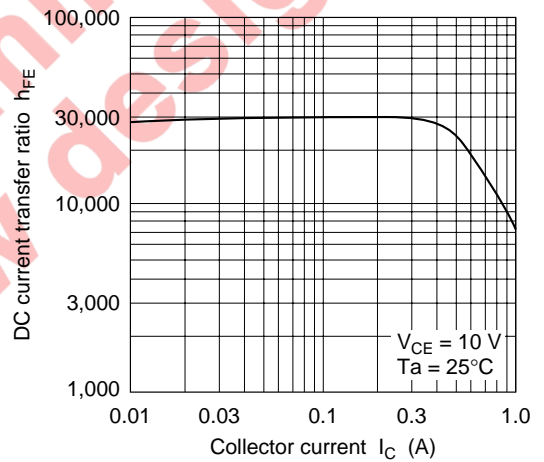
Area of Safe Operation

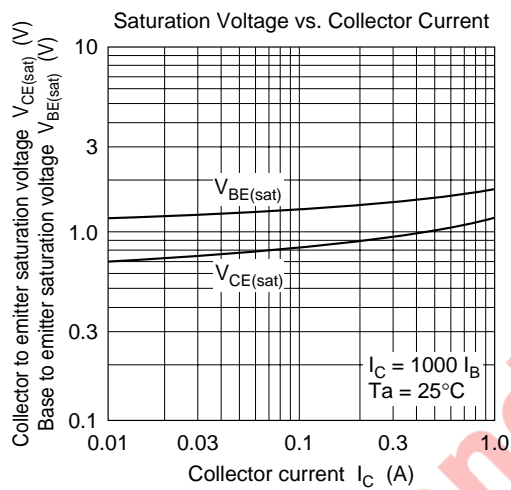


Typical Output Characteristics



DC Current Transfer Ratio vs. Collector Current





Not recommended  
for new design



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