To all our customers

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

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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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2SD1559

Silicon NPN Triple Diffused

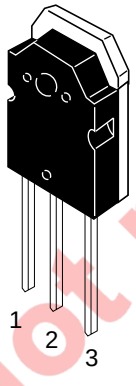
ADE-208-914 (Z)
1st. Edition
September 2000

Application

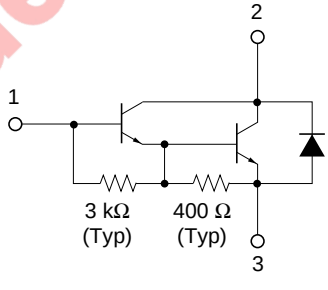
Low frequency power amplifier complementary pair with 2SB1079

Outline

TO-3P



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



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	100	V
Collector to emitter voltage	V_{CEO}	100	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	20	A
Collector peak current	$I_{C(peak)}$	30	A
Base current	I_B	3	A
Collector power dissipation	P_C*[1]	100	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

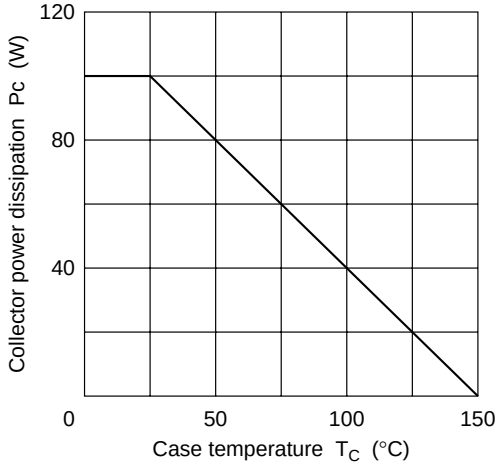
Note: 1. Value at T_C = 25°C.

Electrical Characteristics (Ta = 25°C)

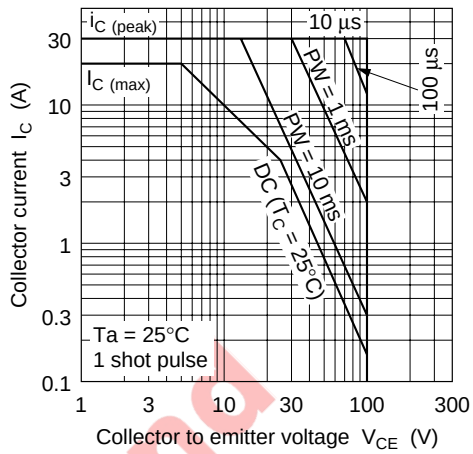
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	100	—	—	V	I_C = 0.1 mA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	100	—	—	V	I_C = 25 mA, R_{BE} = ∞
Collector to emitter sustain voltage	$V_{CEO(sus)}$	100	—	—	V	I_C = 200 mA, R_{BE} = ∞*[1]
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	V_{EB} = 50 mA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	100	µA	V_{CB} = 100 V, I_E = 0
	I_{CEO}	—	—	1.0	mA	V_{CE} = 80 V, R_{BE} = ∞
DC current transfer ratio	h_{FE}	1000	—	20000		V_{CE} = 3 V, I_C = 10 A*[1]
Collector to emitter saturation voltage	$V_{CE(sat)1}$	—	—	2.0	V	I_C = 10 A, I_B = 20 mA*[1]
Base to emitter saturatiopn voltage	$V_{BE(sat)1}$	—	—	2.5	V	
Collector to emitter saturation voltage	$V_{CE(sat)2}$	—	—	3.0	V	I_C = 20 A, I_B = 200 mA*[1]
Base to emitter saturation voltage	$V_{BE(sat)2}$	—	—	3.5	V	
Turn on time	t_{on}	—	1.0	—	µs	I_C = 10 A, I_{B1} = $-I_{B2}$ = 20 mA
Storage time	t_{stg}	—	9.0	—	µs	
Fall time	t_f	—	3.0	—	µs	

Note: 1. Pulse test.

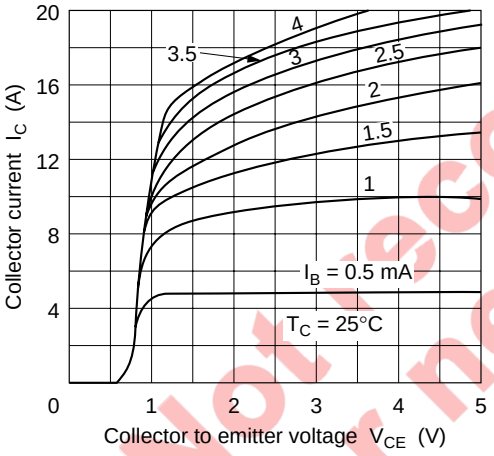
Maximum Collector Dissipation Curve



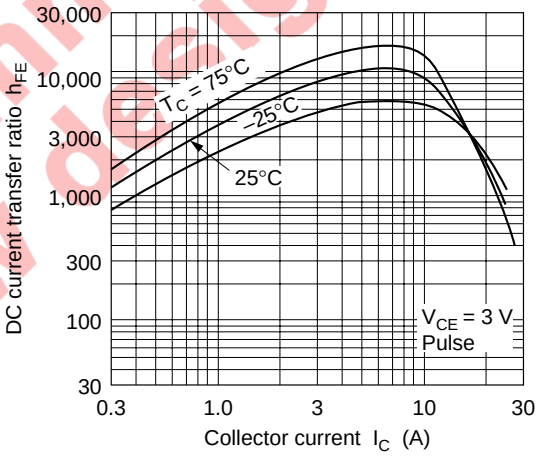
Area of Safe Operation



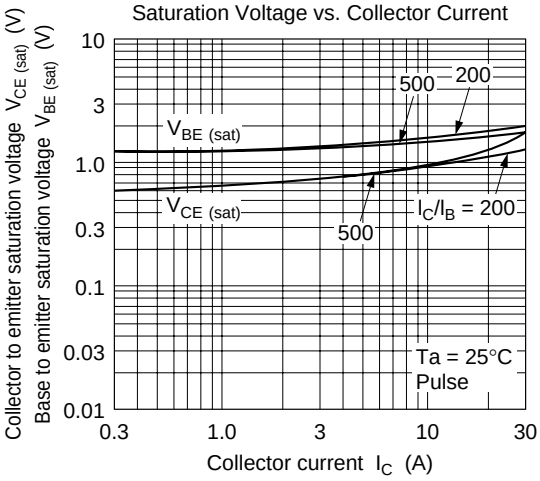
Typical Output Characteristics



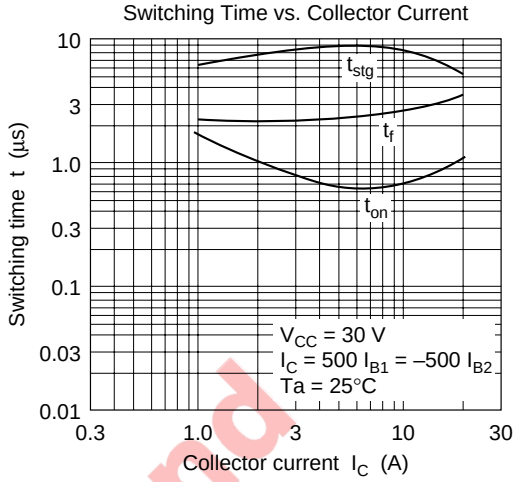
DC Current Transfer Ratio vs. Collector Current



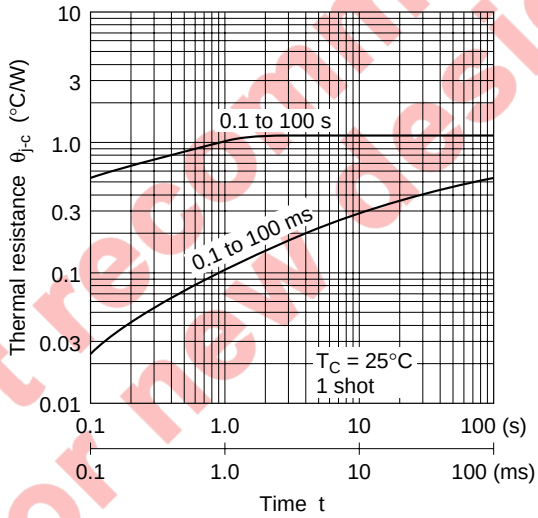
Saturation Voltage vs. Collector Current



Switching Time vs. Collector Current



Transient Thermal Resistance



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