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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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2SA1052

Silicon PNP Epitaxial

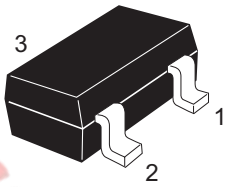
REJ03G0634-0300
(Previous ADE-208-1006A)
Rev.3.00
Aug.10.2005

Application

Low frequency amplifier

Outline

RENESAS Package code: PLSP0003ZB-A
(Package name: MPAK)



1. Emitter
2. Base
3. Collector

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Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	–30	V
Collector to emitter voltage	V_{CEO}	–30	V
Emitter to base voltage	V_{EBO}	–5	V
Collector current	I_C	–100	mA
Emitter current	I_E	100	mA
Collector power dissipation	P_C	150	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

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Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	–30	—	—	V	I_C = –10 ∝A, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	–30	—	—	V	I_C = –1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	–5	—	—	V	I_E = –10 ∝A, I_C = 0
Collector cutoff current	I_{CBO}	—	—	–0.5	∝A	V_{CB} = –20 V, I_E = 0
Emitter cutoff current	I_{EBO}	—	—	–0.5	∝A	V_{EB} = –2 V, I_C = 0
DC current transfer ratio	h_{FE}*[1]	160	—	500		V_{CE} = –12 V, I_C = –2 mA
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	–0.2	V	I_C = –10 mA, I_B = –1 mA
Base to emitter voltage	V_{BE}	—	—	–0.75	V	V_{CE} = –12 V, I_C = –2 mA

Note: 1. The 2SA1052 is grouped by h_{FE} as follows.

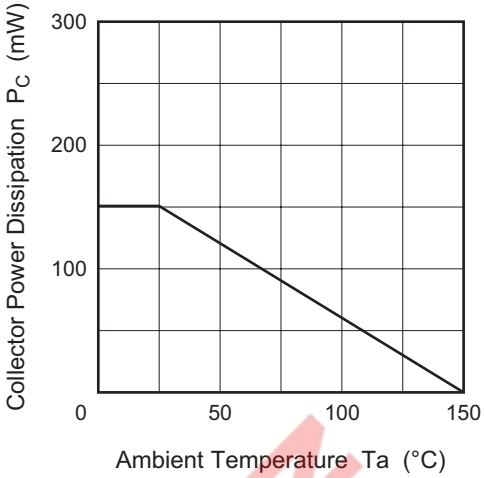
Grade	C	D
Mark	MC	MD
h_{FE}	160 to 320	250 to 500

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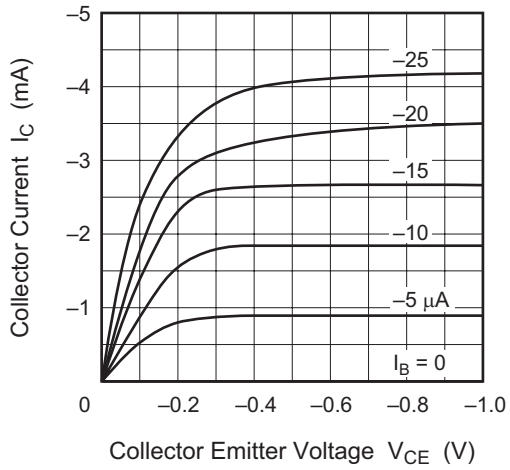
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Main Characteristics

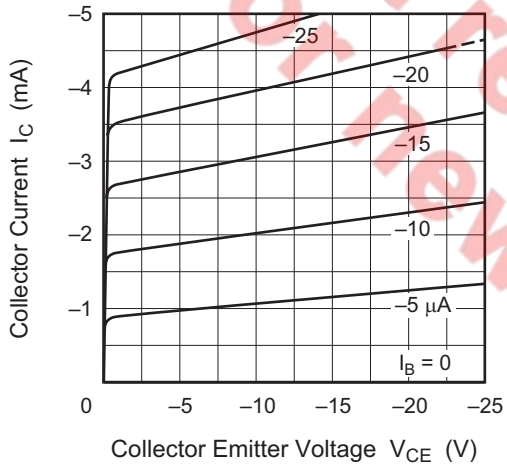
Maximum Collector Dissipation Curve



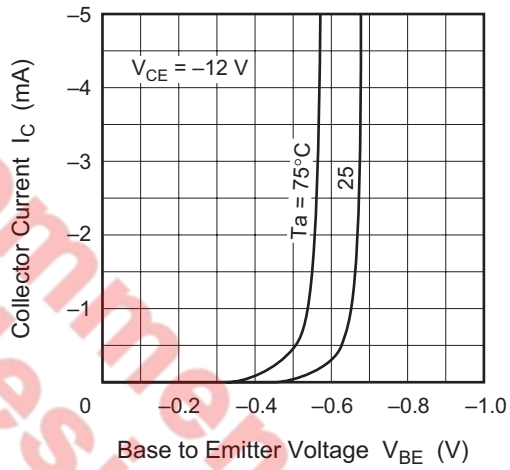
Typical Output Characteristics (1)



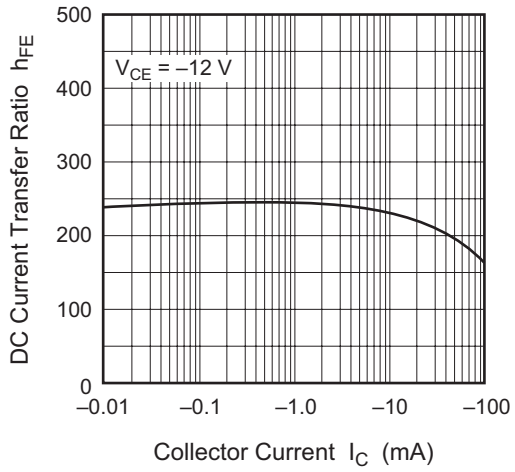
Typical Output Characteristics (2)



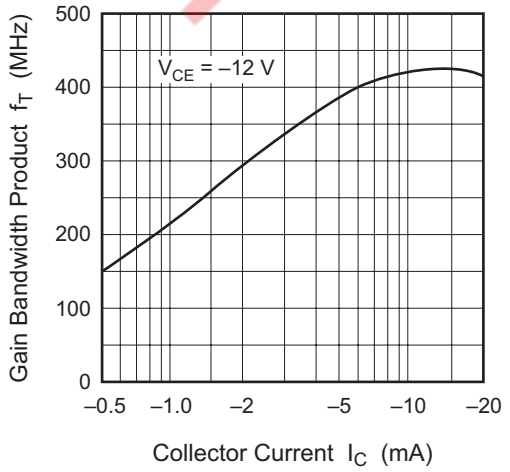
Typical Transfer Characteristics



DC Current Transfer Ratio vs. Collector Current

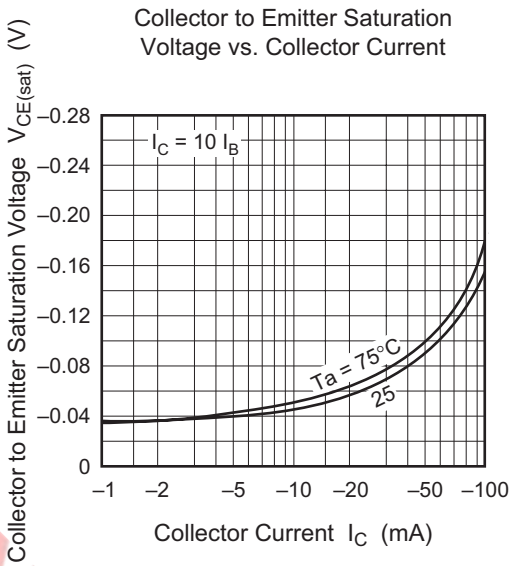


Gain Bandwidth Product vs. Collector Current



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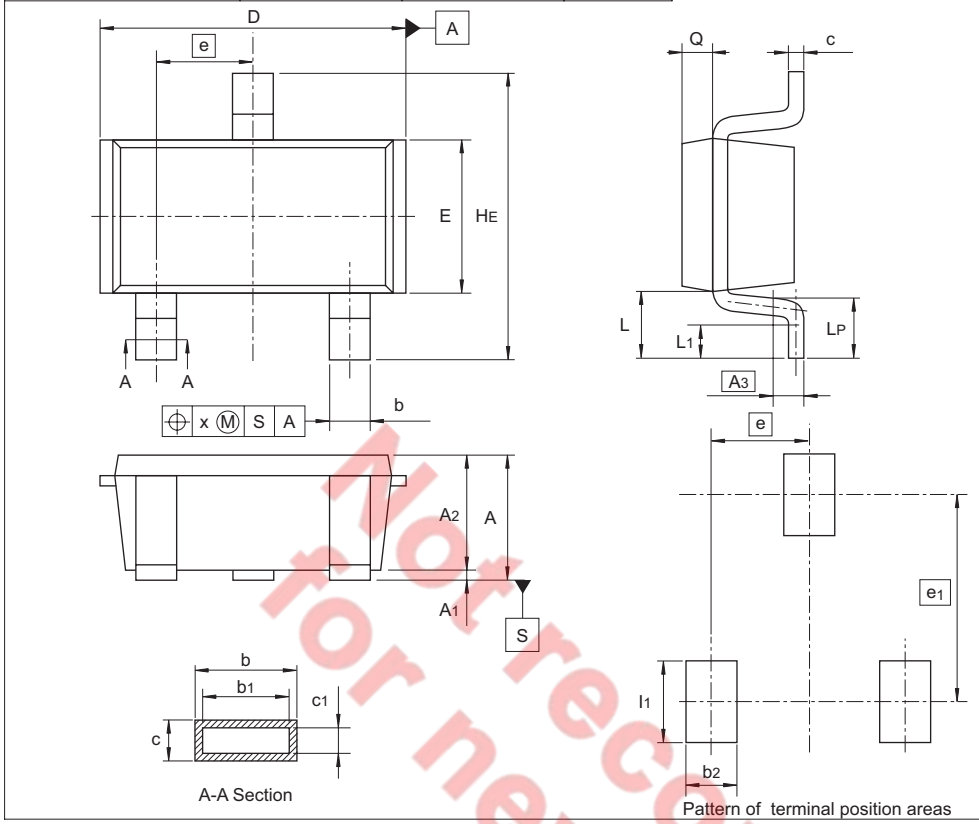


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Package Dimensions

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
SC-59A	PLSP0003ZB-A	MPAK(T) / MPAK(T)V, MPAK / MPAKV	0.011g



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
A	1.0	—	1.3
A_1	0	—	0.1
A_2	1.0	1.1	1.2
A_3	—	0.25	—
b	0.35	0.42	0.5
b_1	—	0.4	—
c	0.1	0.13	0.15
c_1	—	0.11	—
D	2.7	—	3.1
E	1.35	1.5	1.65
e	—	0.95	—
H_E	2.2	2.8	3.0
L	0.35	—	0.75
L_1	0.15	—	0.55
L_P	0.25	—	0.65
x	—	—	0.05
b_2	—	—	0.55
e_1	—	1.95	—
l_1	—	—	1.05
Q	—	0.3	—

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Ordering Information

Part Name	Quantity	Shipping Container
2SA1052MCTR-E 2SA1052MDTR-E	3000	ϕ 178 mm Reel, 8 mm Emboss Taping

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