

2SB647, 2SB647A

Silicon PNP Epitaxial

REJ03G0648-0200
(Previous ADE-208-1025)
Rev.2.00
Aug.10.2005

Application

- Low frequency power amplifier
- Complementary pair with 2SD667/A

Outline

RENESAS Package code: PRSS0003DC-A
(Package name: TO-92 Mod)



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

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	2SB647	2SB647A	Unit
Collector to base voltage	V_{CBO}	-120	-120	V
Collector to emitter voltage	V_{CEO}	-80	-100	V
Emitter to base voltage	V_{EBO}	-5	-5	V
Collector current	I_C	-1	-1	A
Collector peak current	$i_{C(peak)}$	-2	-2	A
Collector power dissipation	P_C	0.9	0.9	W
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	-55 to +150	-55 to +150	°C

Electrical Characteristics

(Ta = 25°C)

Item	Symbol	2SB647			2SB647A			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	-120	—	—	-120	—	—	V	$I_C = -10\ \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-80	—	—	-100	—	—	V	$I_C = -1\ mA, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	-5	—	—	-5	—	—	V	$I_E = -10\ \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	-10	—	—	-10	μA	$V_{CB} = -100\ V, I_E = 0$
DC current transfer ratio	h_{FE1}^{*1}	60	—	320	60	—	200		$V_{CE} = -5\ V,$ $I_C = -150\ mA^{*2}$
	h_{FE2}	30	—	—	30	—	—		$V_{CE} = -5\ V,$ $I_C = -500\ mA^{*2}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	-1	—	—	-1	V	$I_C = -500\ mA,$ $I_B = -50\ mA^{*2}$
Base to emitter voltage	V_{BE}	—	—	-1.5	—	—	-1.5	V	$V_{CE} = -5\ V,$ $I_C = -150\ mA^{*2}$
Gain bandwidth product	f_T	—	140	—	—	140	—	MHz	$V_{CE} = -5\ V,$ $I_C = -150\ mA$
Collector output capacitance	C_{ob}	—	20	—	—	20	—	pF	$V_{CB} = -10\ V, I_E = 0$ $f = 1\ MHz$

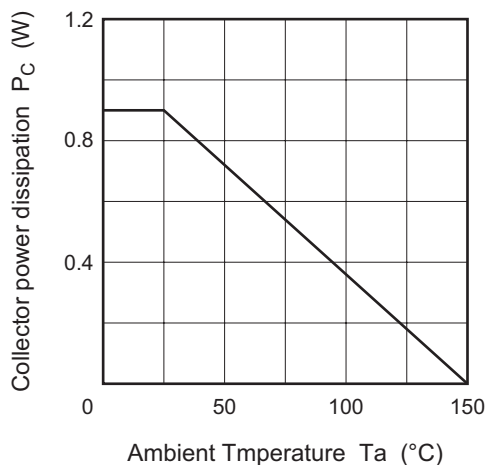
Notes: 1. The 2SB647 and 2SB647A are grouped by h_{FE1} as follows.

2. Pulse test

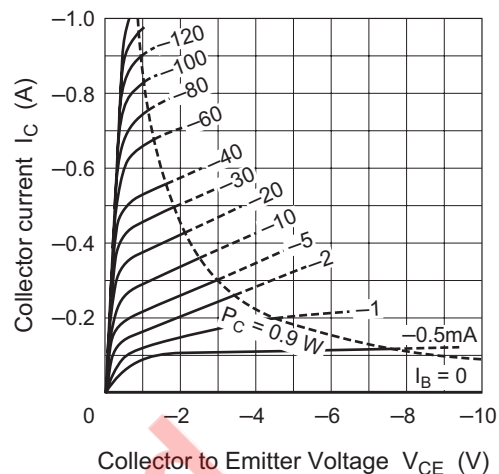
	B	C	D
2SB647	—	100 to 200	160 to 320
2SB647A	60 to 120	100 to 200	—

Main Characteristics

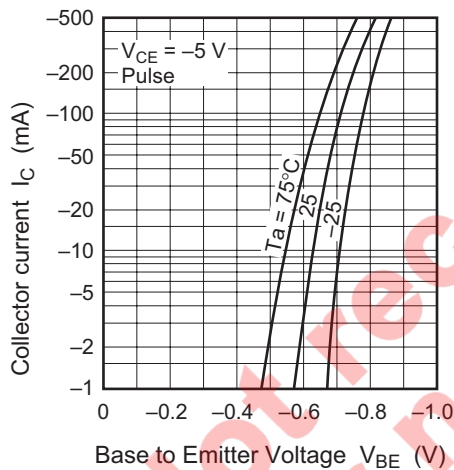
Maximum Collector Dissipation Curve



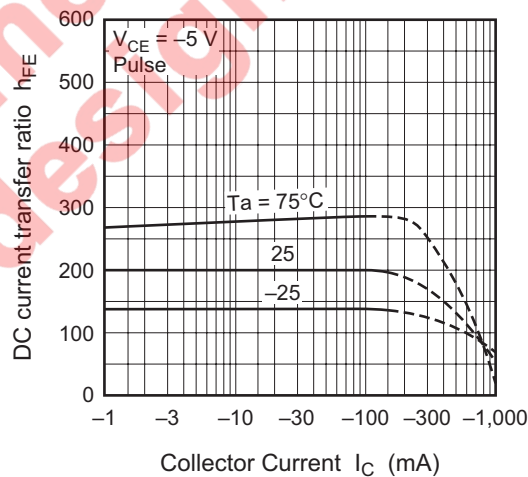
Typical Output Characteristics



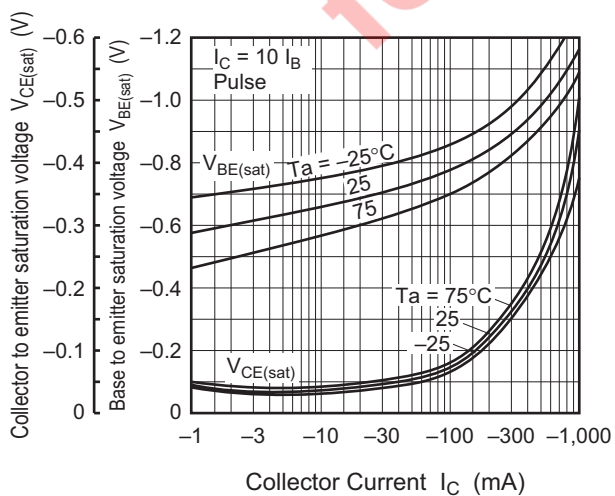
Typical Transfer Characteristics



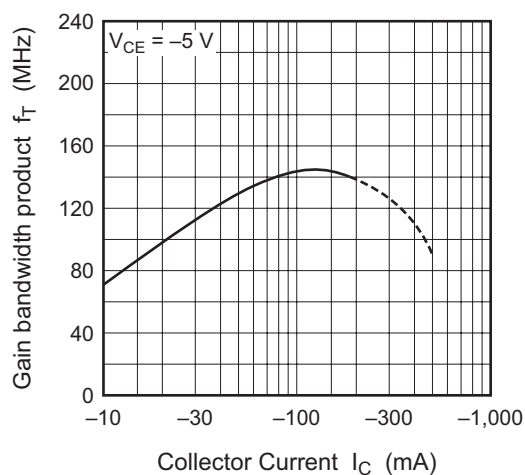
DC Current Transfer Ratio vs. Collector Current

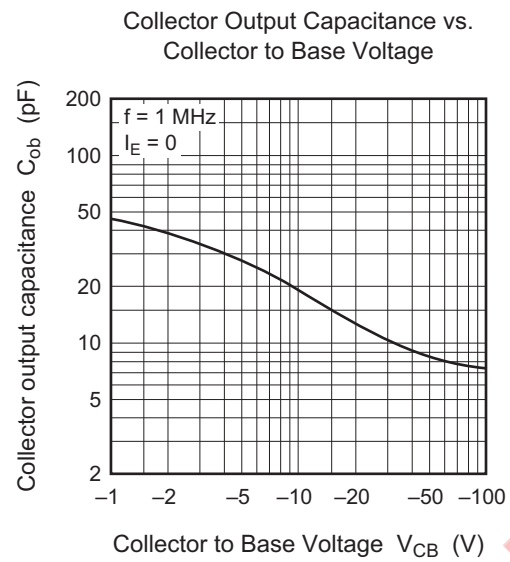


Saturation Voltage vs. Collector Current



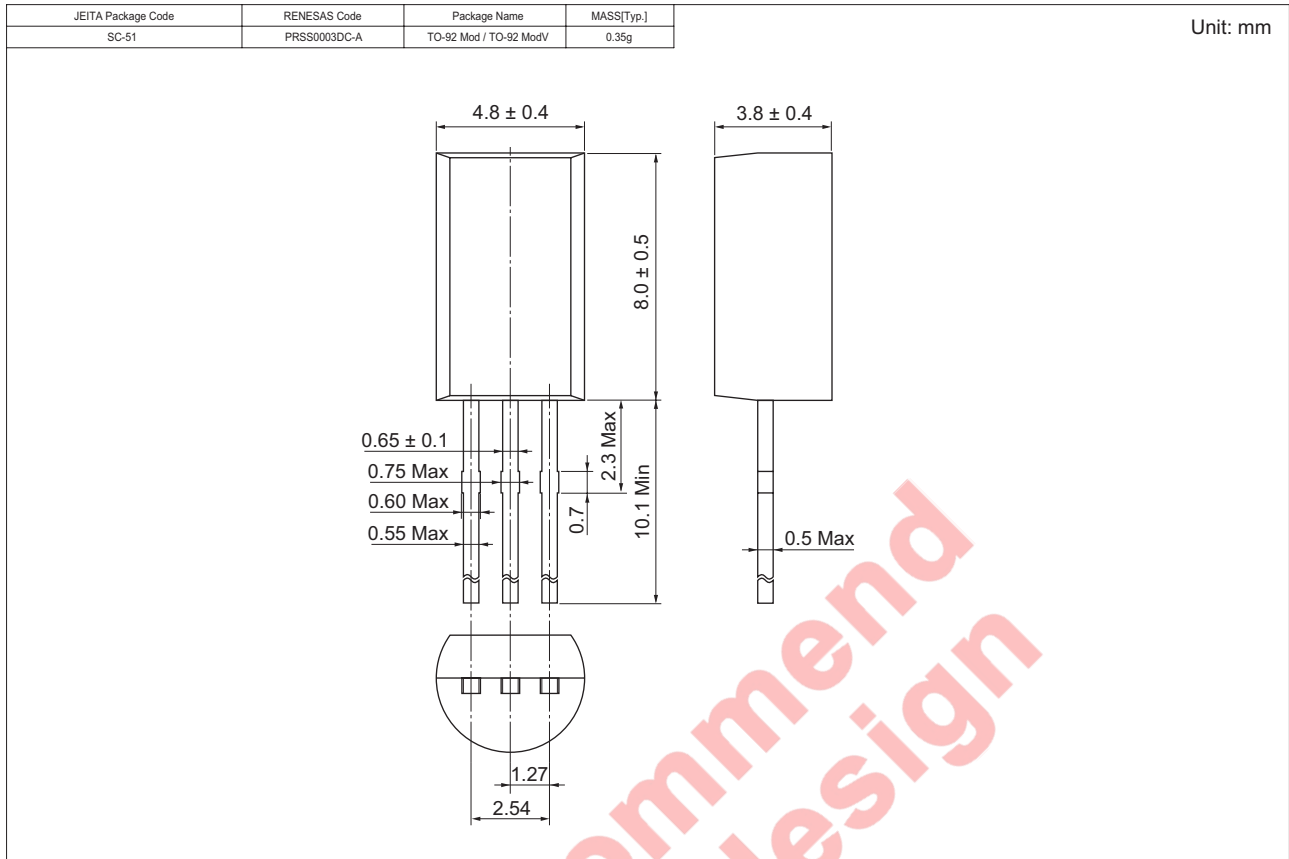
Gain Bandwidth Product vs. Collector Current





Not recommended
for new design

Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SB647CTZ-E	2500	Hold Box, Radial Taping
2SB647DTZ-E		
2SB647ABTZ-E		
2SB647ACTZ-E		

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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