

2SB647, 2SB647A

Silicon PNP Epitaxial

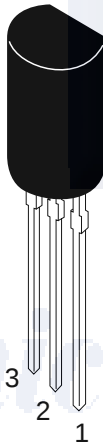
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Application

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

Outline

TO-92MOD



1. Emitter
2. Collector
3. Base

Electrónica S.A. de C.V.

2SB647, 2SB647A

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.

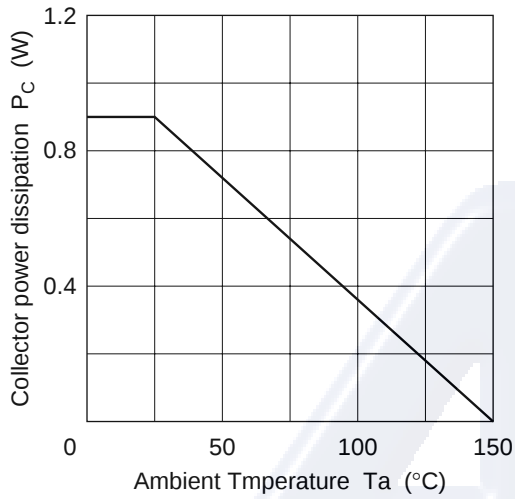
2. Pulse test

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

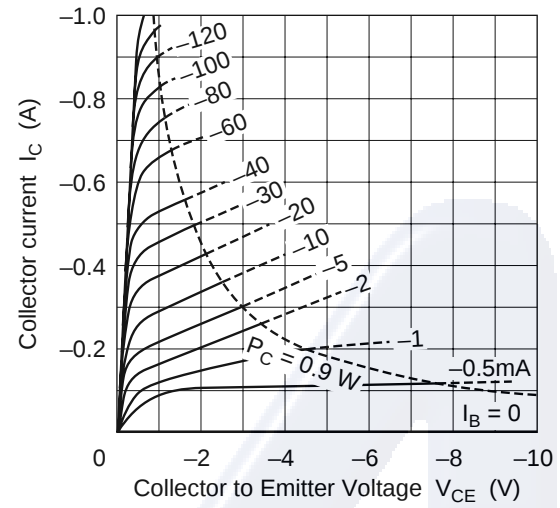
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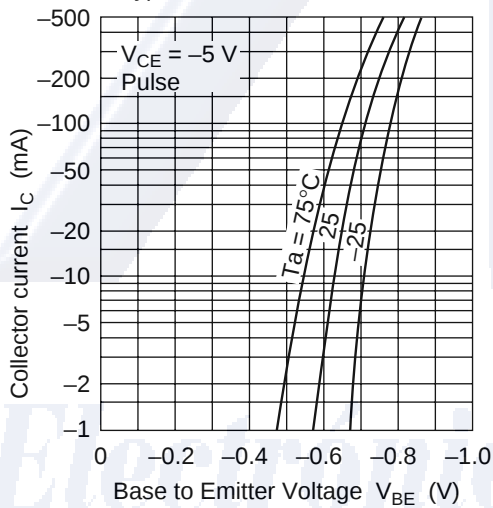
Maximum Collector Dissipation Curve



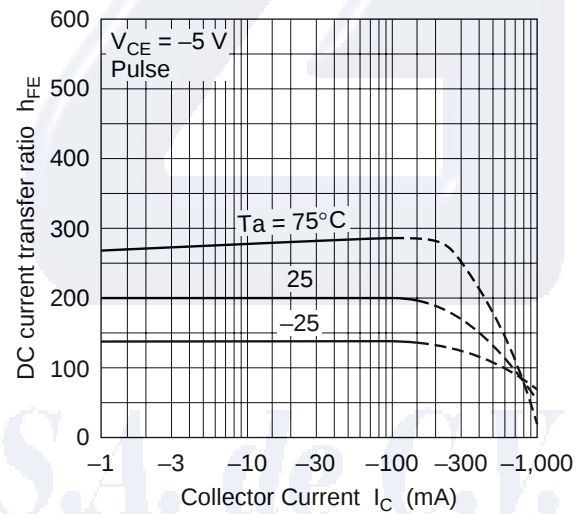
Typical Output Characteristics



Typical Transfer Characteristics



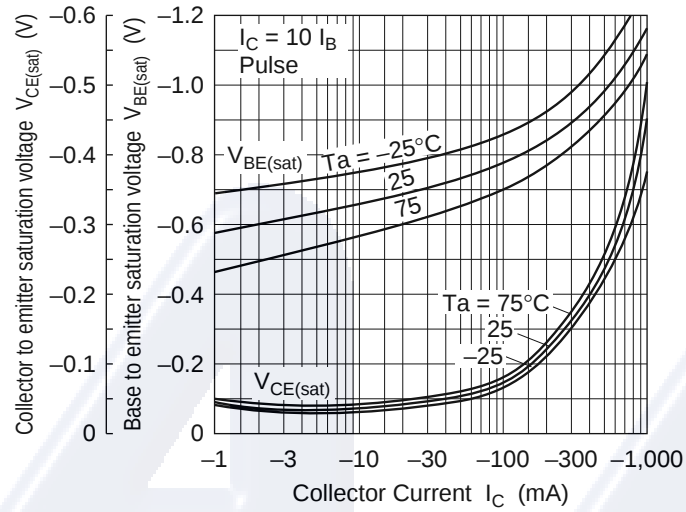
DC Current Transfer Ratio vs. Collector Current



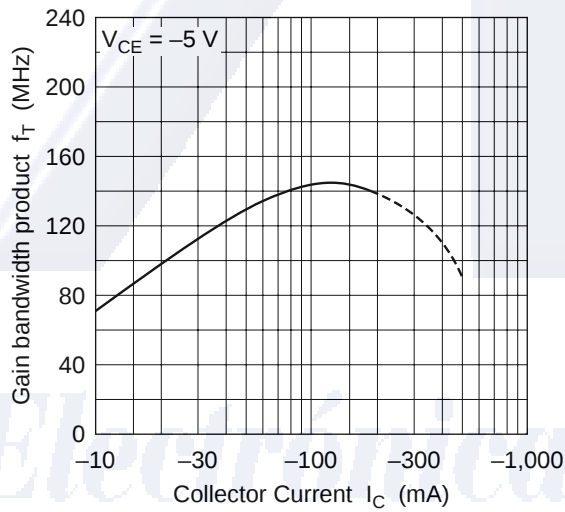
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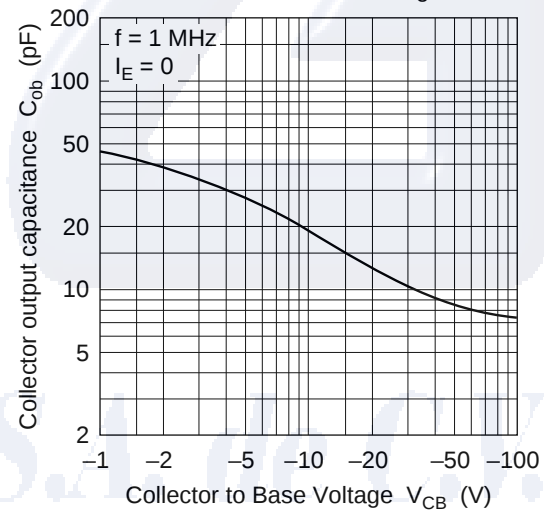
Saturation Voltage
vs. Collector Current



Gain Bandwidth Product
vs. Collector Current

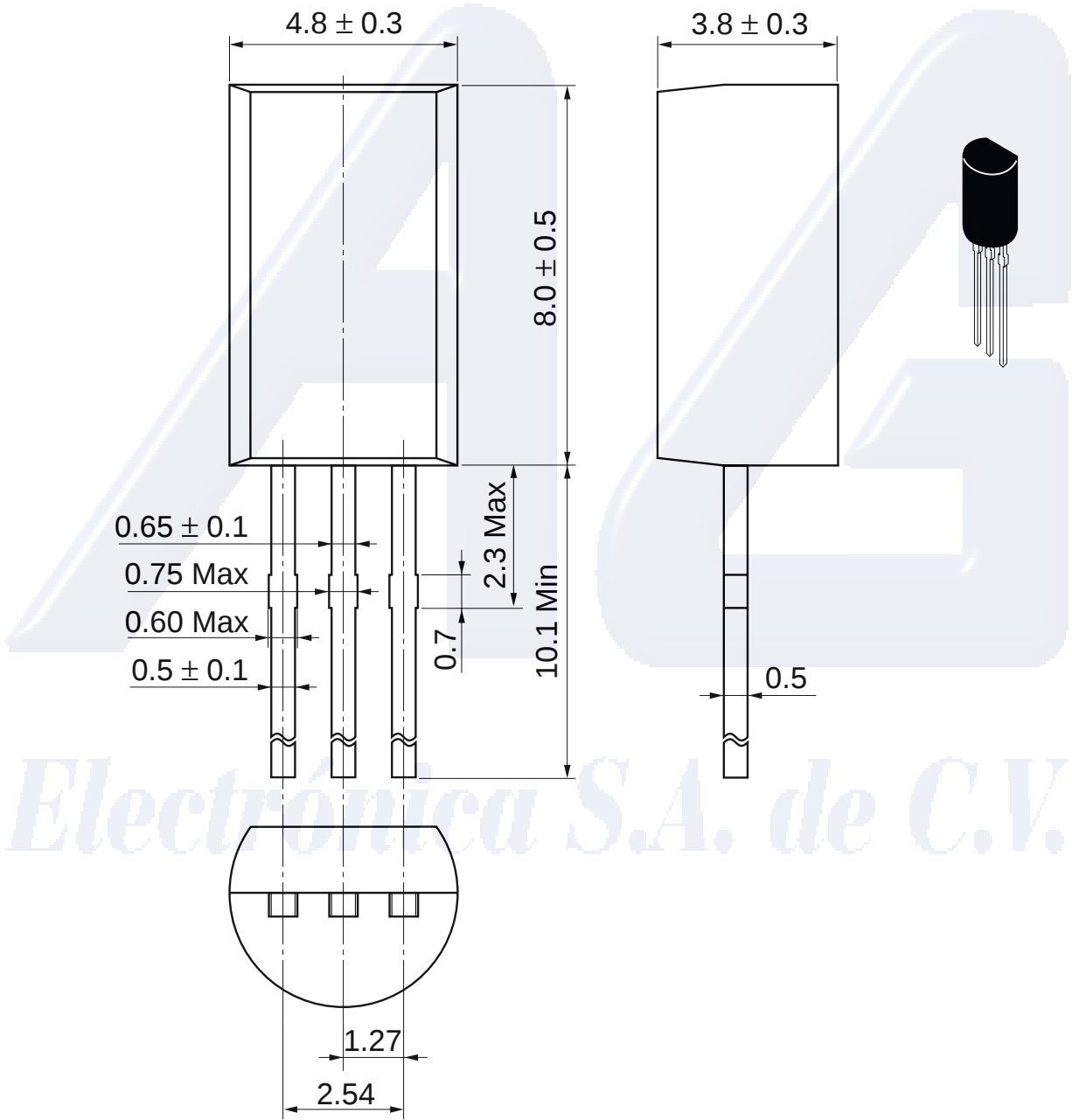


Collector Output Capacitance vs.
Collector to Base Voltage



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Unit: mm



Hitachi Code	TO-92 Mod
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.35 g

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