

HTT1127E

Silicon NPN Epitaxial Twin Transistor

REJ03G0839-0100
(Previous ADE-208-1540)
Rev.1.00
Aug.10.2005

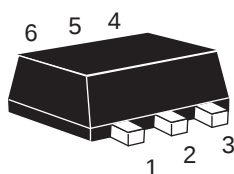
Features

- Include 2 transistors in a small size SMD package: EMFPAK-6 (6 Leads: 1.2 x 0.8 x 0.5 mm)

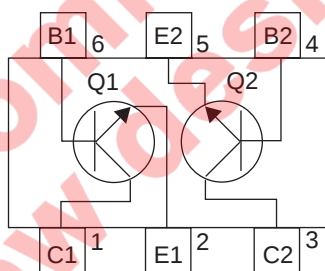
Q1: Equivalent Buffer transistor	Q2: Equivalent OSC transistor
2SC5700	2SC5849

Outline

RENESAS Package code: PXSF0006LA-A
(Package name: EMFPAK-6)



Pin Arrangement



1. Collector Q1
2. Emitter Q1
3. Collector Q2
4. Base Q2
5. Emitter Q2
6. Base Q1

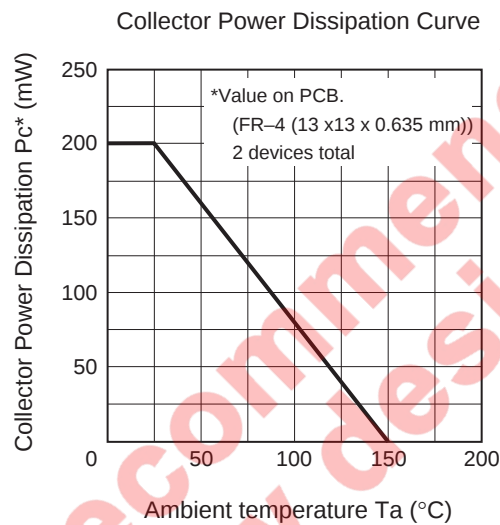
Note: Marking is "R".

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings		Unit
		Q1	Q2	
Collector to base voltage	V_{CBO}	15	15	V
Collector to emitter voltage	V_{CEO}	4	6	V
Emitter to base voltage	V_{EBO}	1.5	1.5	V
Collector current	I_C	50	80	mA
Collector power dissipation	P_C	Total 200*		mW
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	-55 to +150	-50 to +150	°C

Note: *Value on PCB. (FR-4 (13 x 13 x 0.635 mm)).



Q1 Electrical Characteristics

(Ta = 25°C)

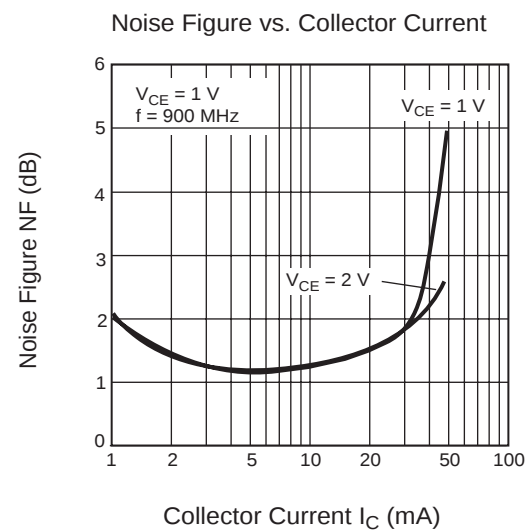
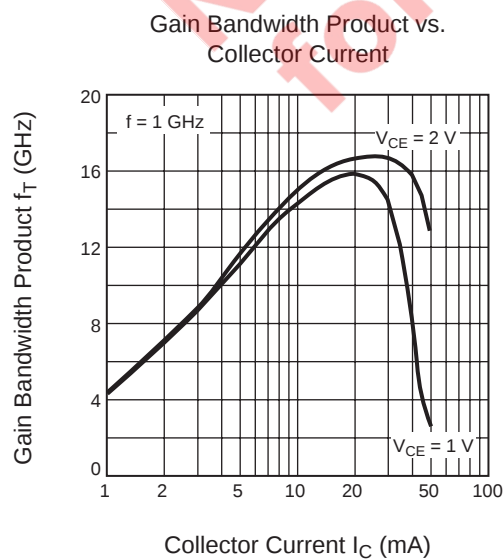
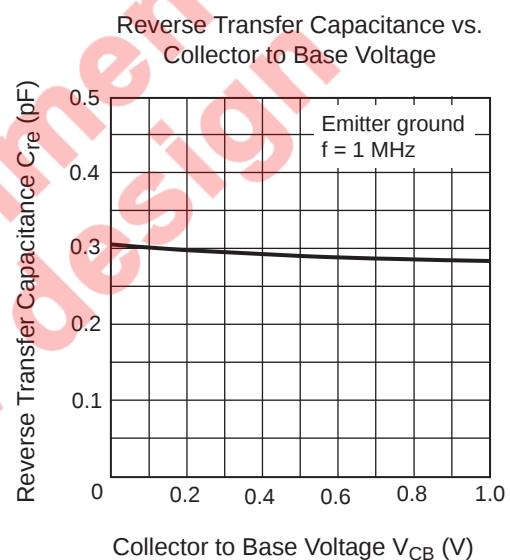
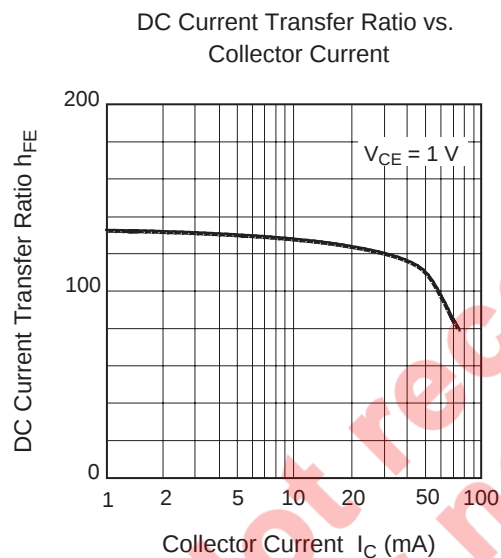
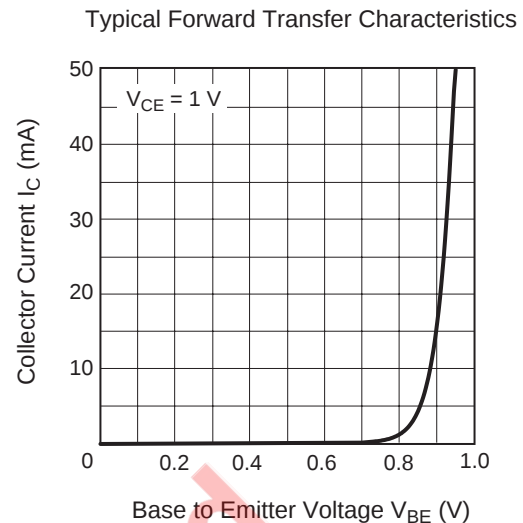
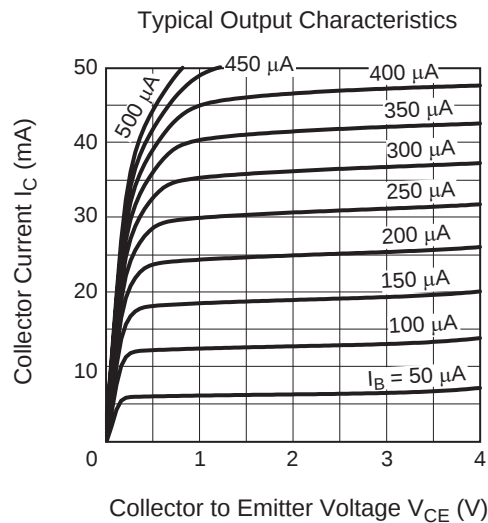
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	15	—	—	V	$I_C = 10\ \mu A, I_E = 0$
Collector cutoff current	I_{CBO}	—	—	0.1	μA	$V_{CB} = 15\ V, I_E = 0$
Collector cutoff current	I_{CEO}	—	—	1.0	μA	$V_{CE} = 4\ V, R_{BE} = \text{infinite}$
Emitter cutoff current	I_{EBO}	—	—	0.1	μA	$V_{EB} = 0.8\ V, I_C = 0$
DC current transfer ratio	h_{FE}	100	120	150	—	$V_{CE} = 1\ V, I_C = 5\ mA$
Reverse transfer capacitance	C_{re}	—	0.3	0.45	pF	$V_{CB} = 1\ V, f = 1\ MHz$ Emitter ground
Gain bandwidth product	f_T	10	12	—	GHz	$V_{CE} = 1\ V, I_C = 5\ mA,$ $f = 1\ GHz$
Forward transfer coefficient	$ S_{21} ^2$	13	16	—	dB	$V_{CE} = 1\ V, I_C = 5\ mA,$ $f = 900\ MHz,$
Noise figure	NF	—	1.0	1.7	dB	$\Gamma_S = \Gamma_L = 50\ \Omega$

Q2 Electrical Characteristics

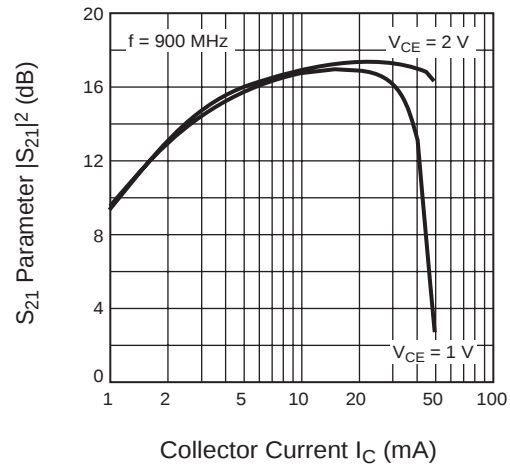
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	15	—	—	V	$I_C = 10\ \mu A, I_E = 0$
Collector cutoff current	I_{CBO}	—	—	0.1	μA	$V_{CB} = 15\ V, I_E = 0$
Collector cutoff current	I_{CEO}	—	—	0.1	μA	$V_{CE} = 4\ V, R_{BE} = \text{infinite}$
Emitter cutoff current	I_{EBO}	—	—	0.1	μA	$V_{EB} = 1.5\ V, I_C = 0$
DC current transfer ratio	h_{FE}	90	120	140	—	$V_{CE} = 1\ V, I_C = 5\ mA$
Reverse transfer capacitance	C_{re}	—	0.50	0.65	pF	$V_{CB} = 1\ V, f = 1\ MHz$ Emitter ground
Gain bandwidth product	f_T	2.0	4.0	—	GHz	$V_{CE} = 1\ V, I_C = 5\ mA,$ $f = 1\ GHz$
Forward transfer coefficient	$ S_{21} ^2$	7	11	—	dB	$V_{CE} = 1\ V, I_C = 5\ mA,$ $f = 900\ MHz$
Noise figure	NF	—	1.7	2.3	dB	$\Gamma_S = \Gamma_L = 50\ \Omega$

Q1 Main Characteristics



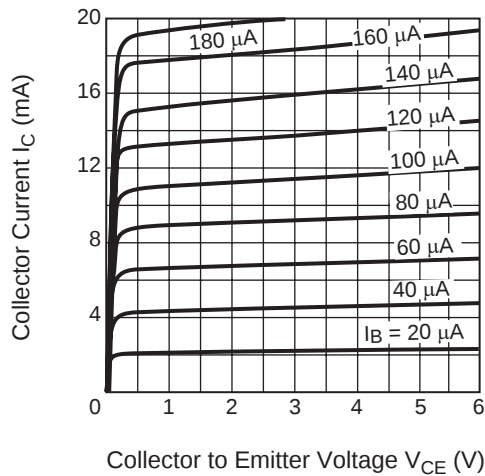
S_{21} Parameter vs. Collector Current



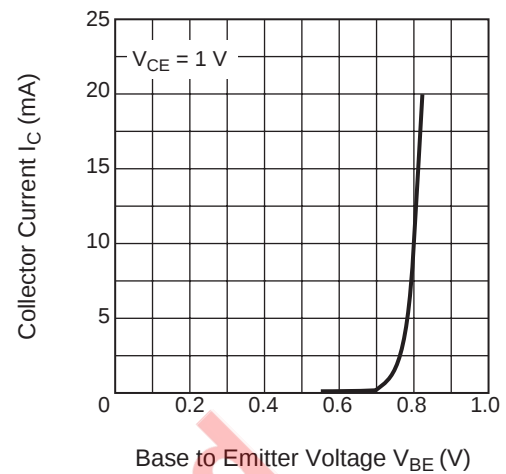
Not recommended
for new design

Q2 Main Characteristics

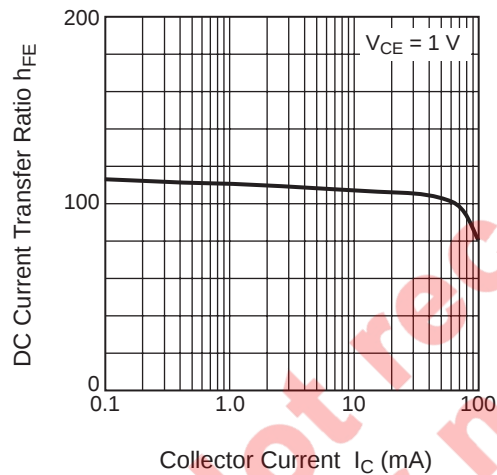
Typical Output Characteristics



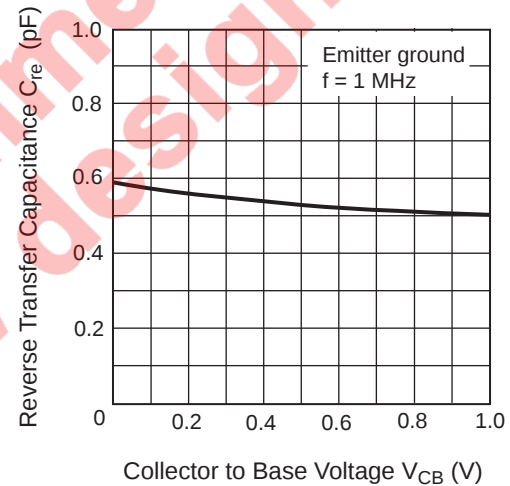
Typical Forward Transfer Characteristics



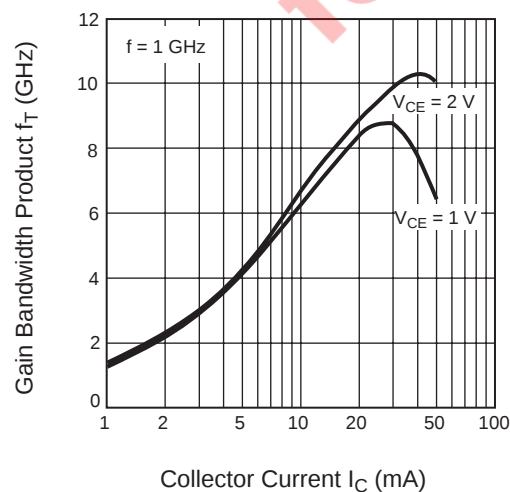
DC Current Transfer Ratio vs. Collector Current



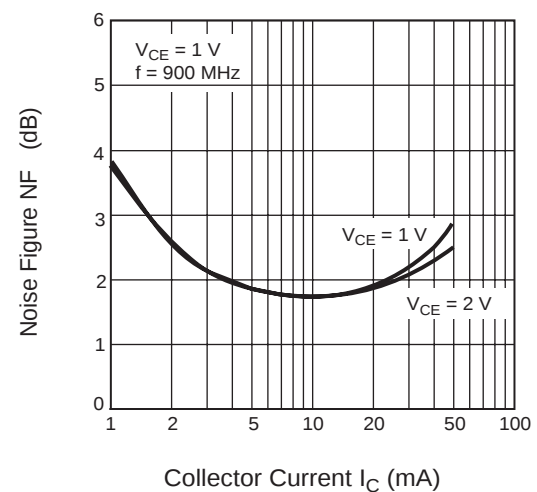
Reverse Transfer Capacitance vs. Collector to Base Voltage

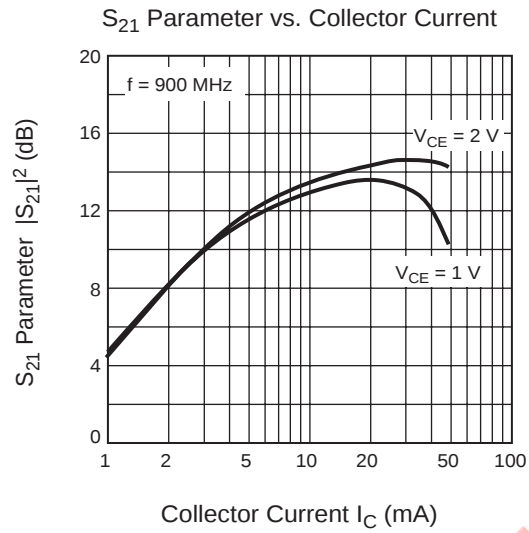


Gain Bandwidth Product vs. Collector Current



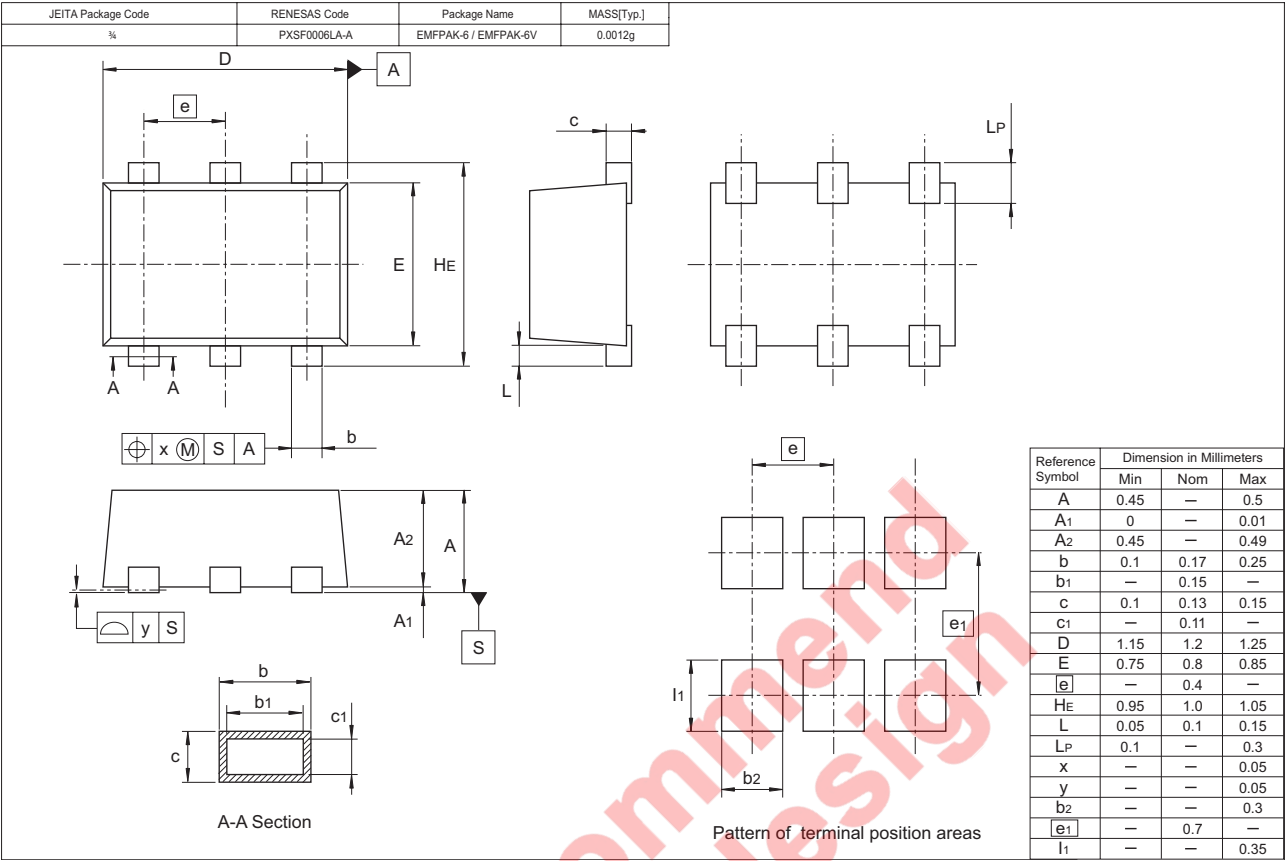
Noise Figure vs. Collector Current





Not recommended
for new design

Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
HTT1127ERTL-E	5000	φ 178 mm Reel, 8 mm Emboss Taping

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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