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April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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EOL product

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HTT1127E

Silicon NPN Epitaxial Twin Transistor

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

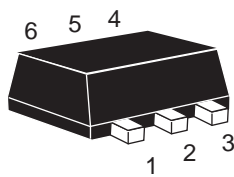
Features

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

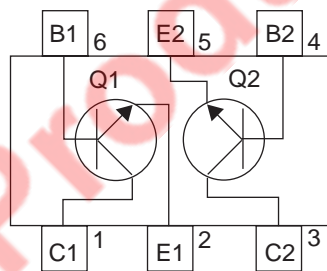
Q1: Equivalent Buffer transistor	Q2: Equivalent OSC transistor
2SC5700	2SC5849

Outline

RENESAS Package code: PXS F0006LA-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

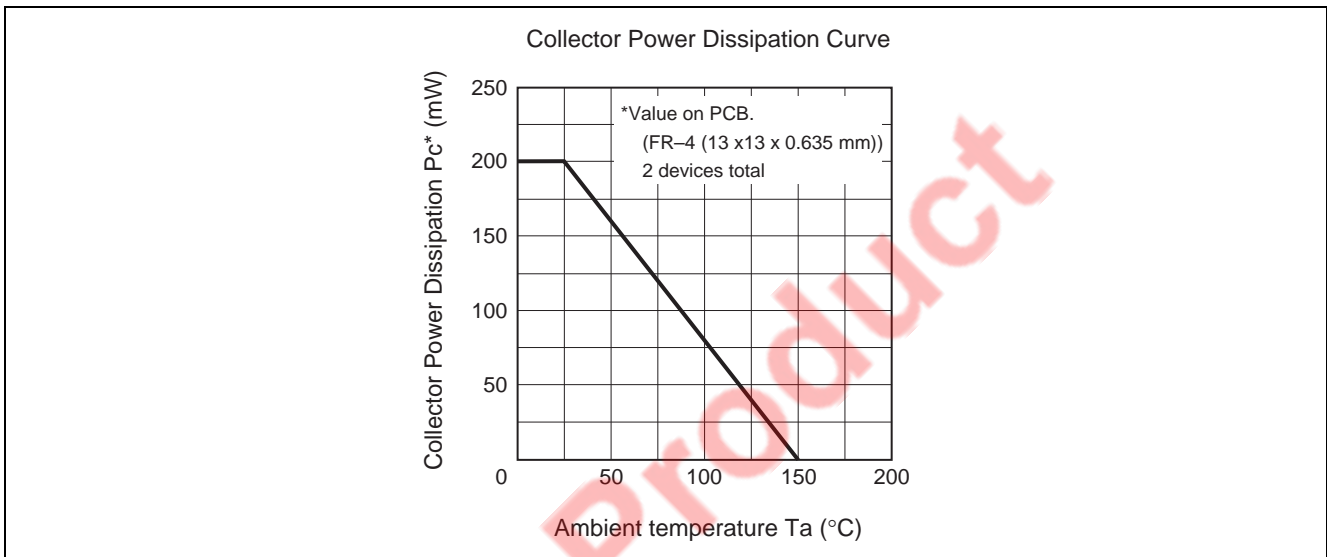
Note: Marking is "R".

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)

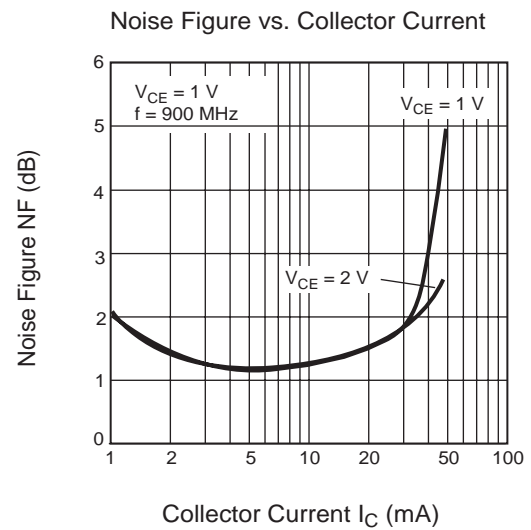
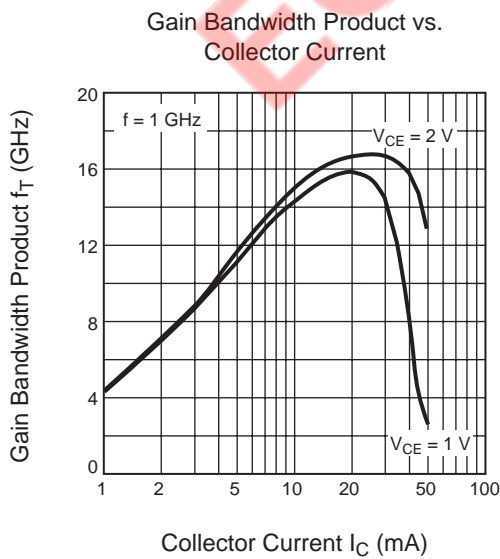
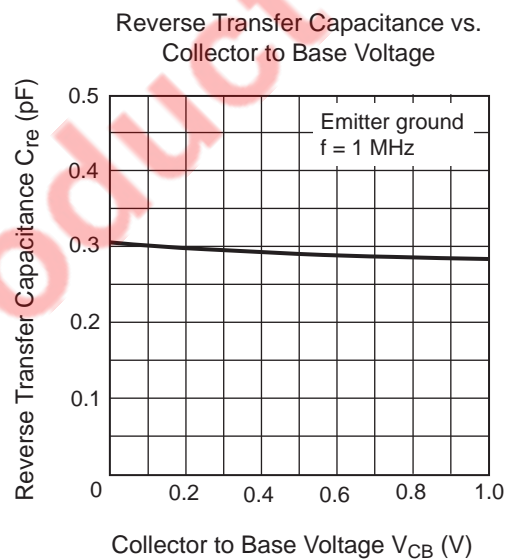
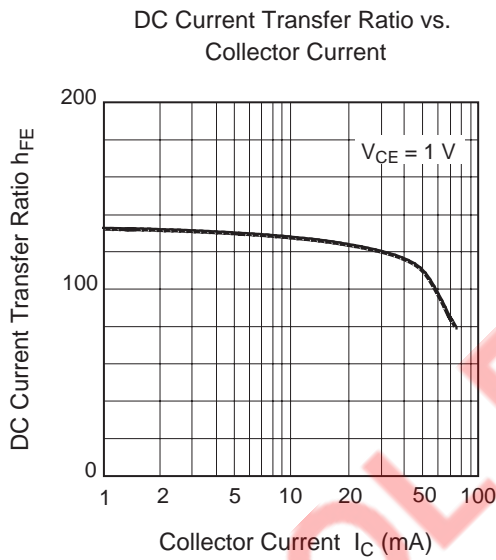
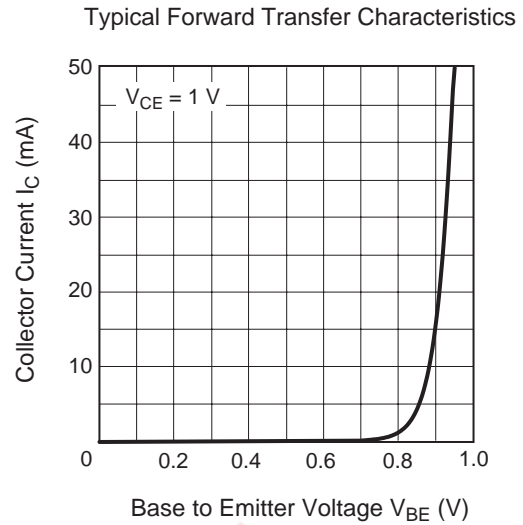
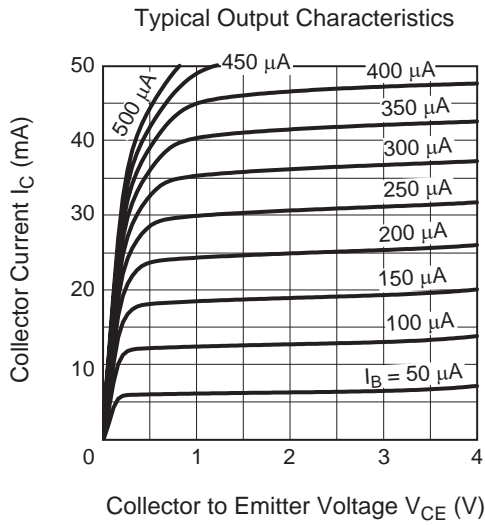
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	15	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector cutoff current	I_{CBO}	—	—	0.1	μA	$V_{CB} = 15 V, I_E = 0$
Collector cutoff current	I_{CEO}	—	—	1.0	μA	$V_{CE} = 4 V, R_{BE} = \text{infinite}$
Emitter cutoff current	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	$V_{CE} = 1 V, I_C = 5 mA,$
Noise figure	NF	—	1.0	1.7	dB	$f = 900 MHz,$ $\Gamma_S = \Gamma_L = 50 \Omega$

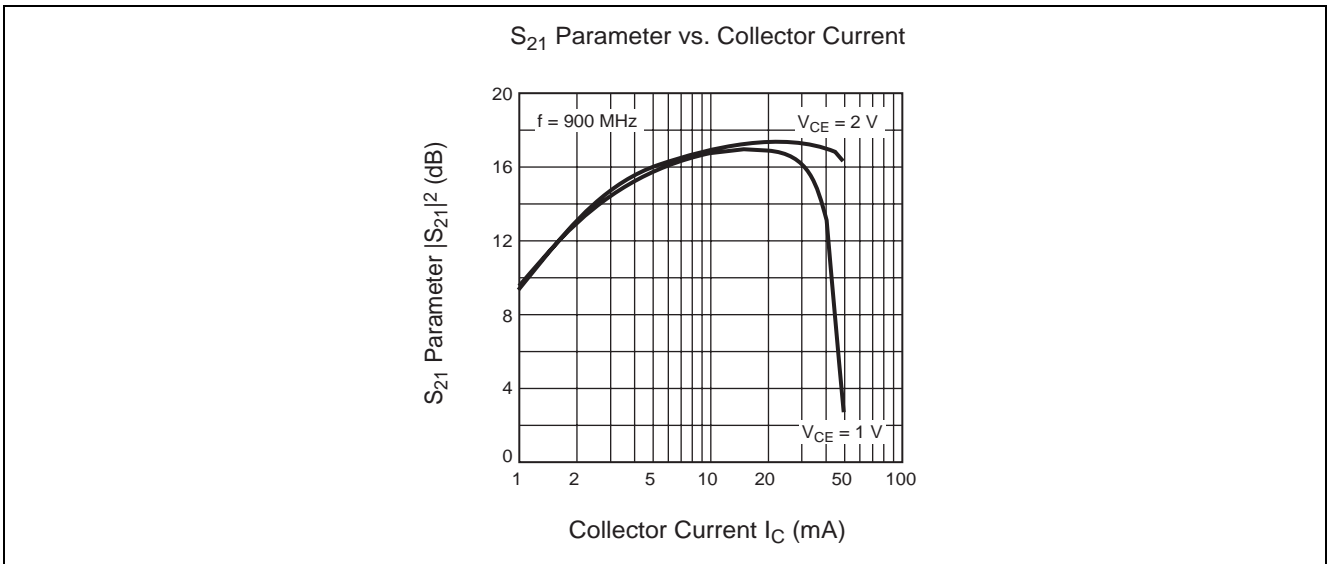
Q2 Electrical Characteristics

(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	$V_{CE} = 1 V, I_C = 5 mA,$
Noise figure	NF	—	1.7	2.3	dB	$f = 900 MHz$ $\Gamma_S = \Gamma_L = 50 \Omega$

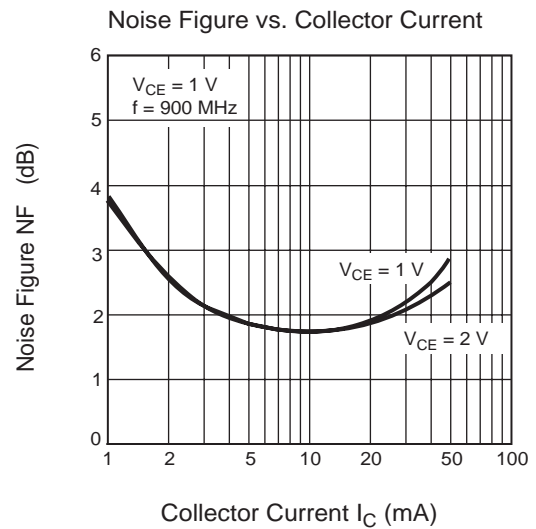
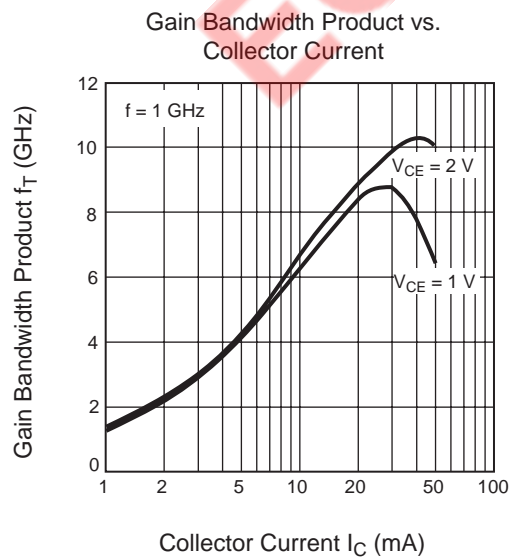
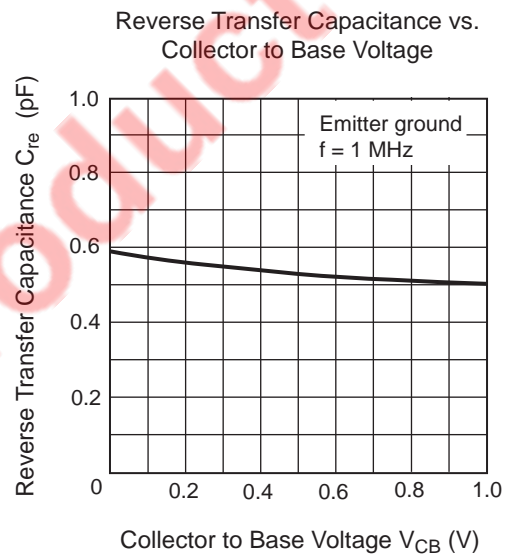
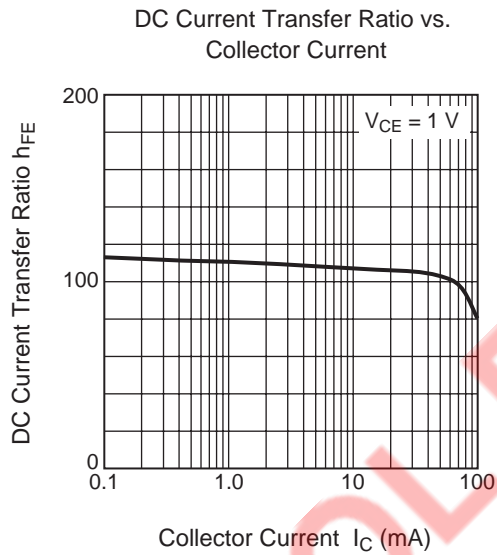
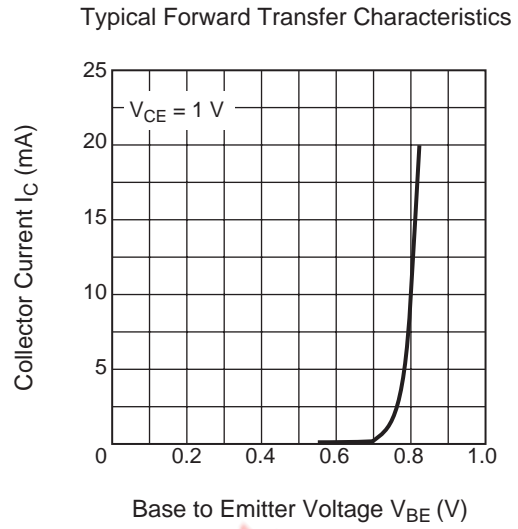
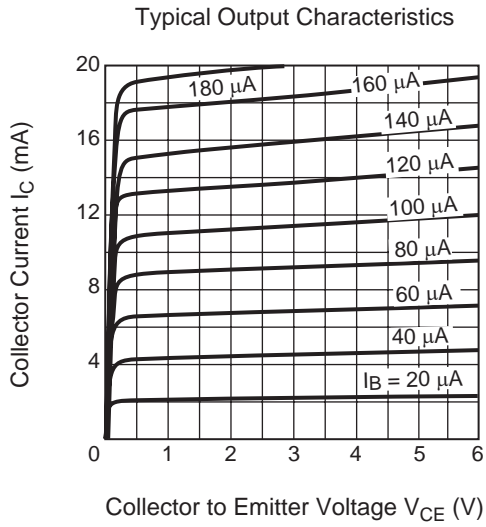
Q1 Main Characteristics

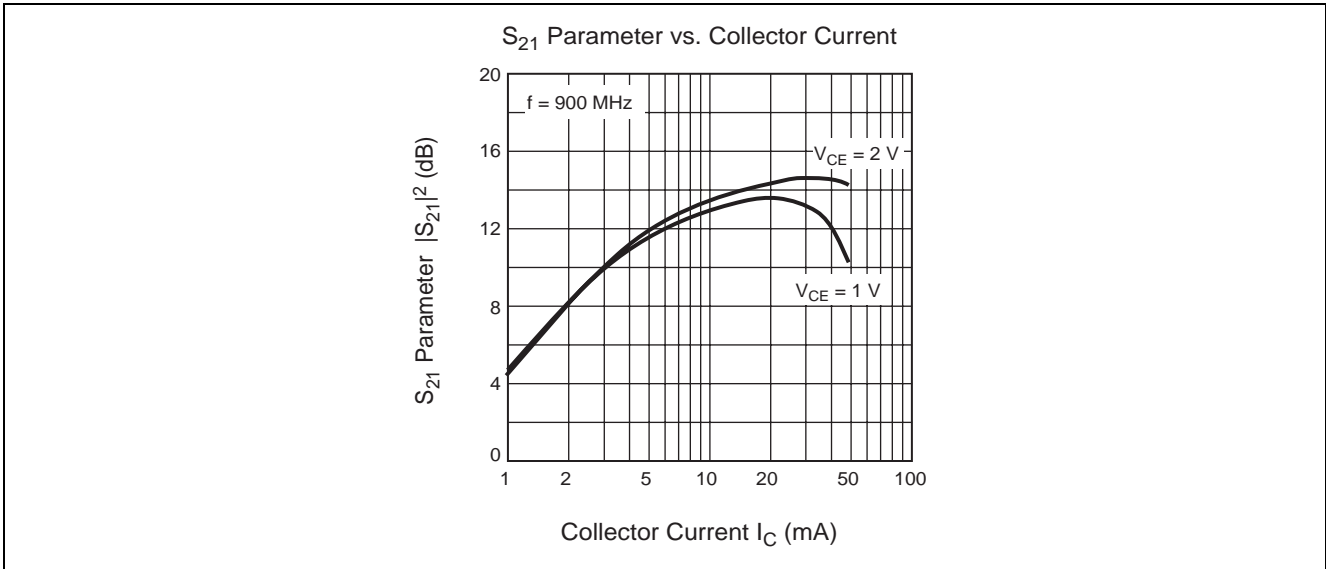




EOL Product

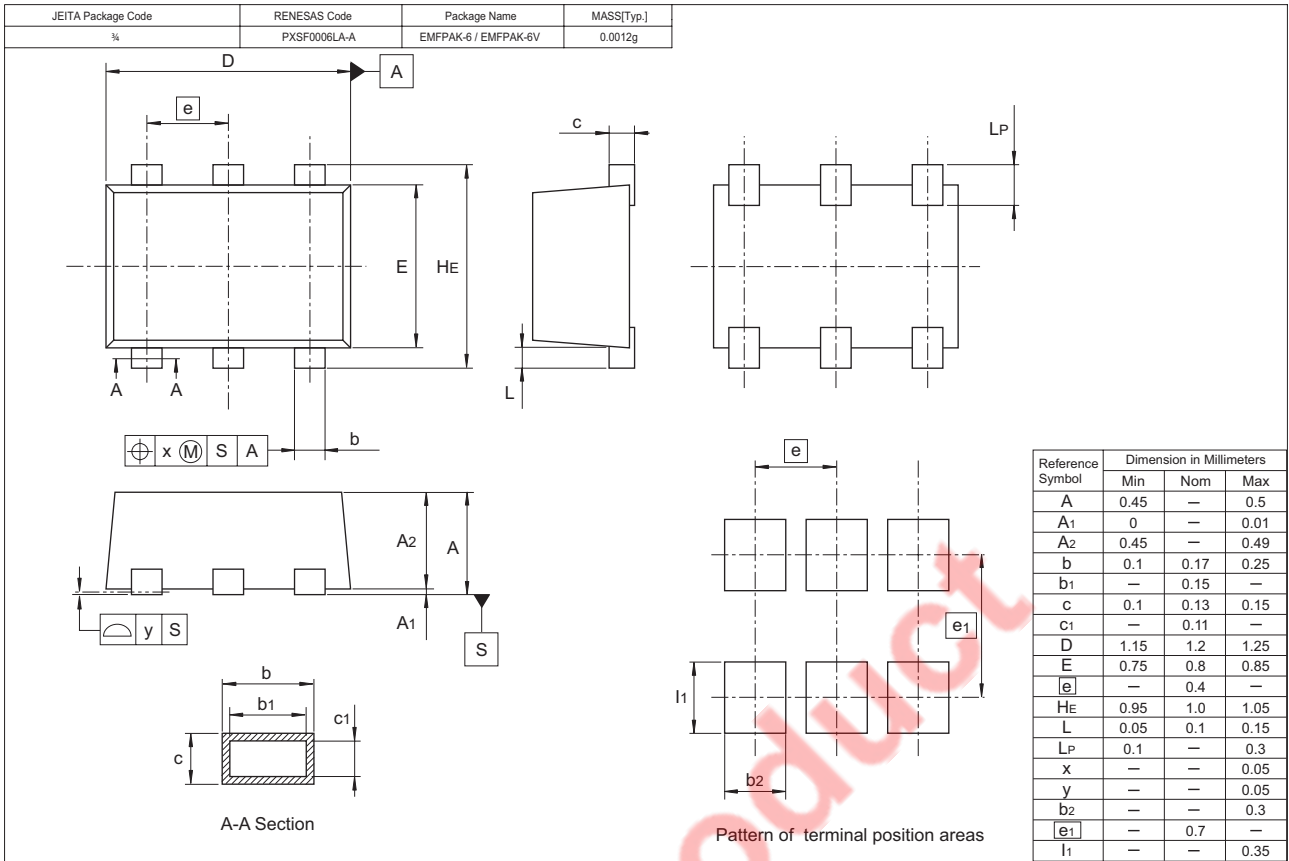
Q2 Main Characteristics





EOL Product

Package Dimensions



Ordering Information

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

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Renesas Technology America, Inc.

450 Holger Way, San Jose, CA 95134-1368, U.S.A.
Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

Renesas Technology Europe Limited

Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

Renesas Technology Hong Kong Ltd.

7th Floor, North Tower, World Finance Centre, Harbour City, 1 Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2730-6071

Renesas Technology Taiwan Co., Ltd.

10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

Renesas Technology (Shanghai) Co., Ltd.

Unit2607 Ruijing Building, No.205 Maoming Road (S), Shanghai 200020, China
Tel: <86> (21) 6472-1001, Fax: <86> (21) 6415-2952

Renesas Technology Singapore Pte. Ltd.

1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: <65> 6213-0200, Fax: <65> 6278-8001

Renesas Technology Korea Co., Ltd.

Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea
Tel: <82> 2-796-3115, Fax: <82> 2-796-2145

Renesas Technology Malaysia Sdn. Bhd.

Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510