

To our customers,

Old Company Name in Catalogs and Other Documents

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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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NPN SILICON RF TWIN TRANSISTOR

μPA895TS

Phase-out/Discontinued

**NPN SILICON RF TRANSISTOR (WITH 2 ELEMENTS)
IN A 6-PIN SUPER LEAD-LESS MINIMOLD**

FEATURES

- Built-in low voltage operation, low phase distortion transistor suited for OSC applications
 $f_T = 4.5 \text{ GHz TYP.}$, $|S_{21e}|^2 = 4.0 \text{ dB TYP. @ } V_{CE} = 1 \text{ V, } I_c = 5 \text{ mA, } f = 2 \text{ GHz}$
- Built-in 2 transistors (2 × 2SC5800)
- 6-pin super lead-less minimold package

BUILT-IN TRANSISTORS

	Q1, Q2
Flat-lead 3-pin thin-type ultra super minimold part No.	2SC5800

ORDERING INFORMATION

Part Number	Quantity	Supplying Form
μPA895TS	50 pcs (Non reel)	• 8 mm wide embossed taping
μPA895TS-T3	10 kpcs/reel	• Pin 1 (Q1 Collector), Pin 6 (Q1 Base) face the perforation side of the tape

Remark To order evaluation samples, contact your nearby sales office.
 The unit sample quantity is 50 pcs.

Caution Observe precautions when handling because these devices are sensitive to electrostatic discharge.

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 Not all devices/types available in every country. Please check with local NEC Compound Semiconductor Devices representative for availability and additional information.

ABSOLUTE MAXIMUM RATINGS (T_A = +25°C)

Parameter	Symbol	Ratings	Unit
Collector to Base Voltage	V _{CB0}	9	V
Collector to Emitter Voltage	V _{CEO}	5.5	V
Emitter to Base Voltage	V _{EBO}	1.5	V
Collector Current	I _c	100	mA
Total Power Dissipation	P _{tot} ^{Note}	110 in 1 element	mW
		130 in 2 elements	
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-65 to +150	°C

Note Mounted on 1.08 cm² × 1.0 mm (t) glass epoxy PCB

ELECTRICAL CHARACTERISTICS (T_A = +25°C)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Collector Cut-off Current	I _{CB0}	V _{CB} = 5 V, I _E = 0 mA	-	-	600	nA
Emitter Cut-off Current	I _{EBO}	V _{EB} = 1 V, I _c = 0 mA	-	-	600	nA
DC Current Gain	h _{FE} ^{Note 1}	V _{CE} = 1 V, I _c = 5 mA	100	120	145	-
Gain Bandwidth Product (1)	f _T	V _{CE} = 1 V, I _c = 5 mA, f = 2 GHz	3.0	4.5	-	GHz
Gain Bandwidth Product (2)	f _T	V _{CE} = 1 V, I _c = 15 mA, f = 2 GHz	5.0	6.5	-	GHz
Insertion Power Gain (1)	S _{21e} ²	V _{CE} = 1 V, I _c = 5 mA, f = 2 GHz	3.0	4.0	-	dB
Insertion Power Gain (2)	S _{21e} ²	V _{CE} = 1 V, I _c = 15 mA, f = 2 GHz	4.5	5.5	-	dB
Noise Figure	NF	V _{CE} = 1 V, I _c = 10 mA, f = 2 GHz, Z _S = Z _{opt}	-	1.9	2.5	dB
Reverse Transfer Capacitance	C _{re} ^{Note 2}	V _{CB} = 0.5 V, I _E = 0 mA, f = 1 MHz	-	0.6	0.8	pF

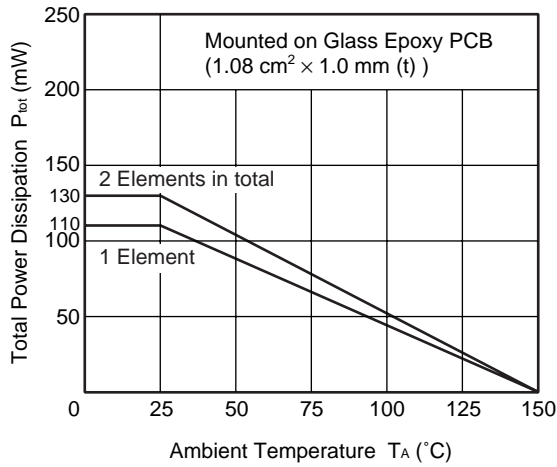
- Notes** 1. Pulse measurement: PW ≤ 350 μs, Duty Cycle ≤ 2%
 2. Collector to base capacitance when the emitter grounded

h_{FE} CLASSIFICATION

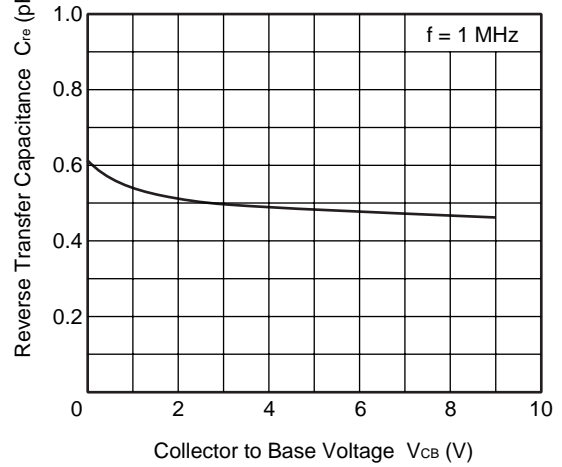
Rank	FB
Marking	kP
h _{FE} Value	100 to 145

★ TYPICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, unless otherwise specified)

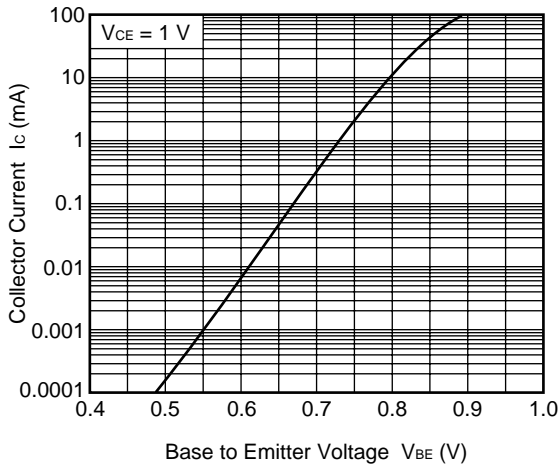
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



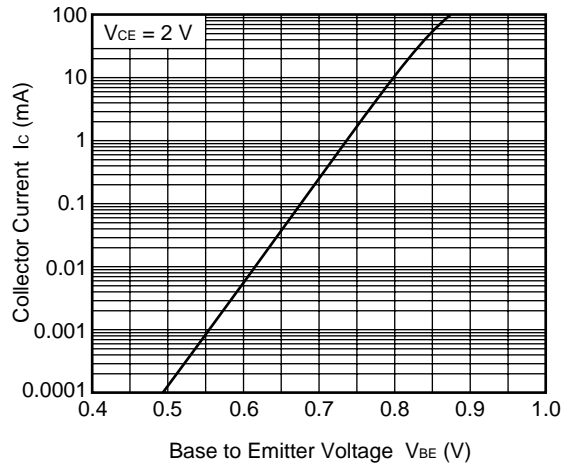
REVERSE TRANSFER CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



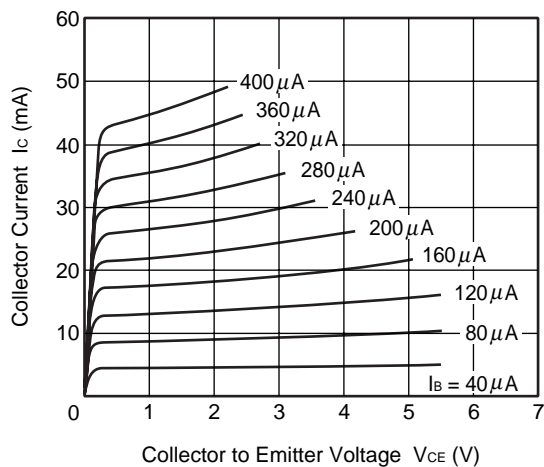
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE

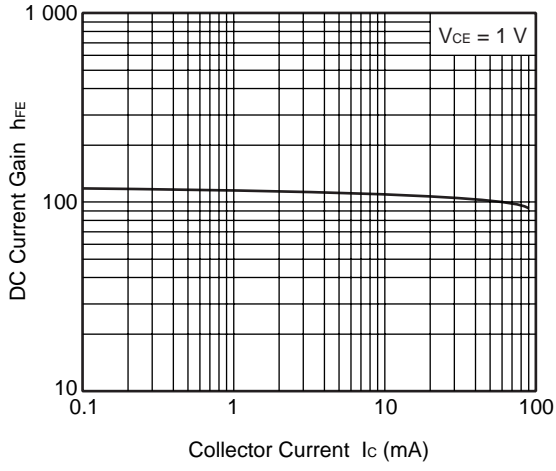


COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE

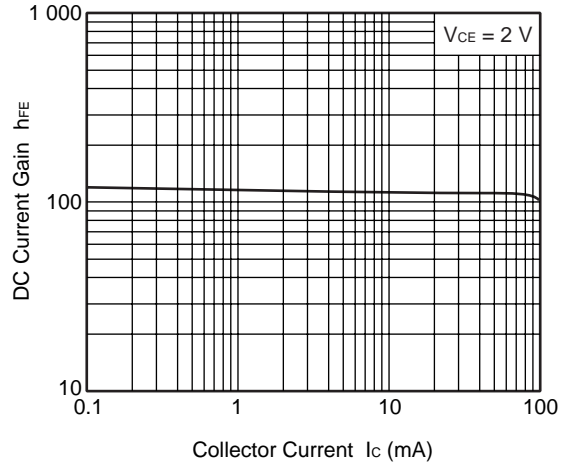


Remark The graphs indicate nominal characteristics.

DC CURRENT GAIN vs. COLLECTOR CURRENT



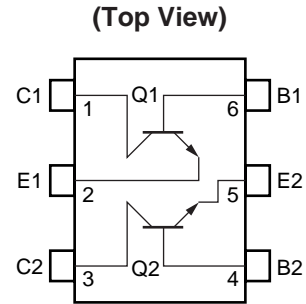
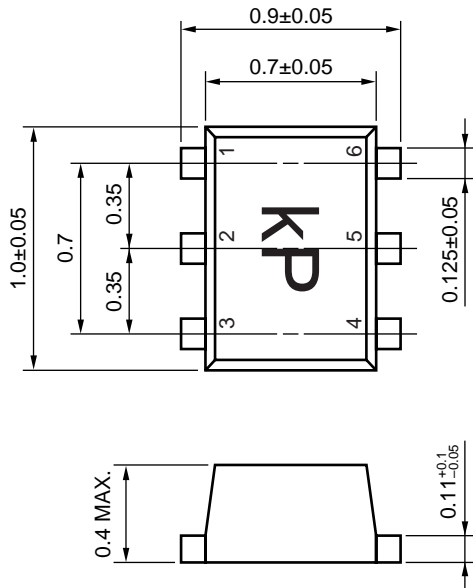
DC CURRENT GAIN vs. COLLECTOR CURRENT



Remark The graphs indicate nominal characteristics.

PACKAGE DIMENSIONS

6-PIN SUPER LEAD-LESS MINIMOLD (UNIT: mm)



PIN CONNECTIONS

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

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