

DATA SHEET

NEC

NPN SILICON RF TWIN TRANSISTOR μ PA828TD

NPN SILICON RF TRANSISTOR (WITH 2 ELEMENTS) IN A 6-PIN LEAD-LESS MINIMOLD (M16, 1208 PACKAGE)

FEATURES

- Built-in low phase distortion transistor suited for OSC applications
 $f_T = 9.0 \text{ GHz TYP.}$, $|S_{21e}|^2 = 7.5 \text{ dB TYP. @ } V_{CE} = 1 \text{ V, } I_C = 10 \text{ mA, } f = 2 \text{ GHz}$
 $NF = 1.3 \text{ dB TYP. @ } V_{CE} = 1 \text{ V, } I_C = 3 \text{ mA, } f = 2 \text{ GHz}$
- Built-in 2 transistors ($2 \times 2SC5436$)
- 6-pin lead-less minimold (M16, 1208 package)

BUILT-IN TRANSISTORS

	Q1, Q2
3-pin thin-type ultra super minimold part No.	2SC5436

ORDERING INFORMATION

Part Number	Quantity	Supplying Form
μ PA828TD	50 pcs (Non reel)	• 8 mm wide embossed taping
μ PA828TD-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.

The information in this document is subject to change without notice. Before using this document, please confirm that this is the latest version.
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 _{CBO}	5	V
Collector to Emitter Voltage	V _{CEO}	3	V
Emitter to Base Voltage	V _{EBO}	2	V
Collector Current	I _C	30	mA
Total Power Dissipation	P _{tot} ^{Note}	90 in 1 element	mW
		180 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)

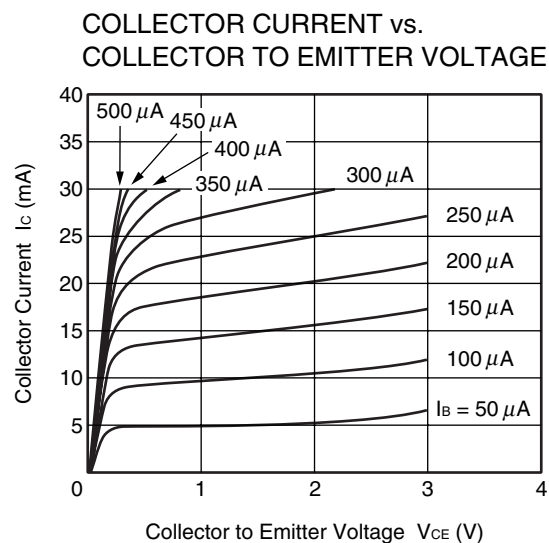
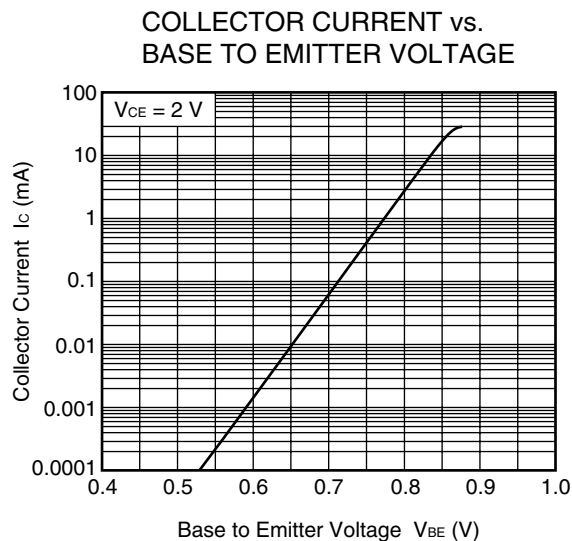
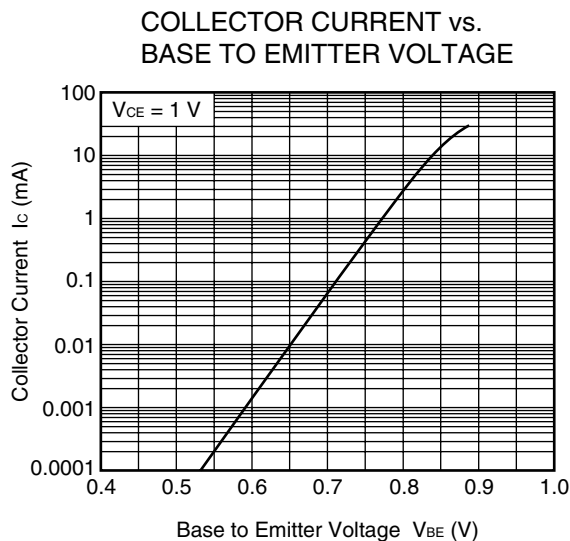
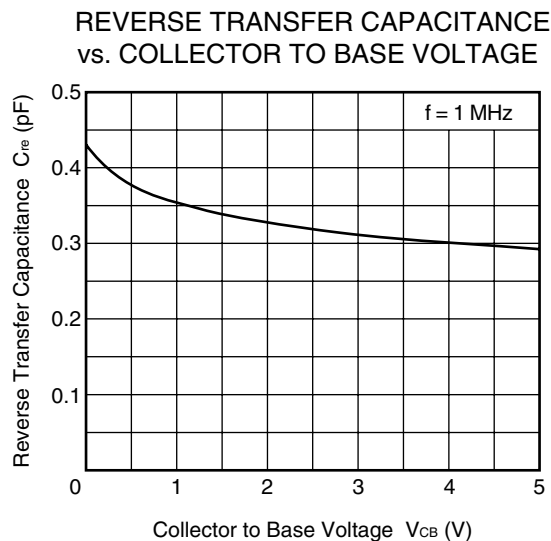
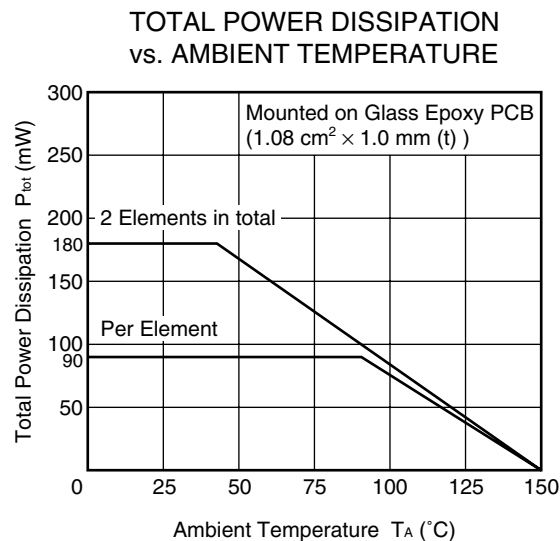
Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Collector Cut-off Current	I _{CBO}	V _{CB} = 5 V, I _E = 0 mA	–	–	100	nA
Emitter Cut-off Current	I _{EBO}	V _{EB} = 1 V, I _C = 0 mA	–	–	100	nA
DC Current Gain	h _{FE} ^{Note 1}	V _{CE} = 2 V, I _C = 20 mA	70	–	140	–
Gain Bandwidth Product (1)	f _T	V _{CE} = 1 V, I _C = 10 mA, f = 2 GHz	7.0	9.0	–	GHz
Gain Bandwidth Product (2)	f _T	V _{CE} = 2 V, I _C = 20 mA, f = 2 GHz	9.0	11.0	–	GHz
Insertion Power Gain (1)	S _{21e} ²	V _{CE} = 1 V, I _C = 10 mA, f = 2 GHz	6.0	7.5	–	dB
Insertion Power Gain (2)	S _{21e} ²	V _{CE} = 2 V, I _C = 20 mA, f = 2 GHz	7.0	8.5	–	dB
Noise Figure (1)	NF	V _{CE} = 1 V, I _C = 3 mA, f = 2 GHz, Z _S = Z _{opt}	–	1.3	2.0	dB
Noise Figure (2)	NF	V _{CE} = 2 V, I _C = 3 mA, f = 2 GHz, Z _S = Z _{opt}	–	1.3	2.0	dB
Reverse Transfer Capacitance	C _{re} ^{Note 2}	V _{CB} = 2 V, I _E = 0 mA, f = 1 MHz	–	0.4	0.8	pF
h _{FE} Ratio	f _T	V _{CE} = 2 V, I _C = 20 mA, h _{FE1} : Smaller value of Q1 and Q2, h _{FE2} : Larger value of Q1 and Q2	0.85	–	–	–

- 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	kL
h _{FE} Value	70 to 140

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



Remark The graphs indicate nominal characteristics.