CEL

NEC's NPN SiGe TRANSISTOR FOR LOW NOISE, HIGH-GAIN AMPLIFICATION

NESG204619

FEATURES

- **IDEAL FOR LOW NOISE, HIGH-GAIN AMPLIFICATION APPLICATIONS:**
  NF = 0.8 dB TYP., G_a = 11.0 dB TYP. @ V_{CE} = 1 V, I_C = 3 mA, F = 2 GHZ
- **HIGH BREAKDOWN VOLTAGE TECHNOLOGY FOR SIGE TRANSISTORS:**
  V_{CEO} (ABSOLUTE MAXIMUM RATINGS) = 5.0 V
- **3-PIN SUPER MINIMOLD (19) PACKAGE**

ORDERING INFORMATION

PART NUMBER	QUANTITY	SUPPLYING FORM
NESG204619-A	50 pcs (Non reel)	• 8 mm wide embossed taping
NESG204619-T1-A	3 kpcs/reel	• Pin 3 (Collector) face the perforation side of the tape

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

ABSOLUTE MAXIMUM RATINGS (T_A =+25ºC)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector to Base Voltage	V_{CBO}	13	V
Collector to Emitter Voltage	V_{CEO}	5	V
Emitter to Base Voltage	V_{EBO}	1.5	V
Collector Current	I_C	40	mA
Total Power Dissipation	P_{tot} Note	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	–65 to +150	°C

Note Mounted on 1.08 cm^2 × 1.0 mm (t) glass epoxy PCB

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

ELECTRICAL CHARACTERISTICS (T_A =+25ºC)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
DC Characteristics						
Collector Cut-off Current	I_{CBO}	V_{CB} = 5 V, I_E = 0 mA	–	–	100	nA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 0.5 V, I_C = 0 mA	–	–	100	nA
DC Current Gain	h_{FE} Note 1	V_{CE} = 1 V, I_C = 2 mA	140	180	220	–
RF Characteristics						
Gain Bandwidth Product	f_T	V_{CE} = 1 V, I_C = 15 mA, f = 2 GHz	15	18	–	GHz
Insertion Power Gain	$\|S_{21e}\|^2$	V_{CE} = 1 V, I_C = 15 mA, f = 2 GHz	10	12	–	dB
Noise Figure	NF	V_{CE} = 1 V, I_C = 3 mA, f = 2 GHz, $Z_S = Z_{Sopt}$, $Z_L = Z_{Lopt}$	–	0.8	1.5	dB
Associated Gain	G_a	V_{CE} = 1 V, I_C = 3 mA, f = 2 GHz, $Z_S = Z_{Sopt}$, $Z_L = Z_{Lopt}$	9.0	11.0	–	dB
Reverse Transfer Capacitance	C_{re} Note 2	V_{CB} = 1 V, I_E = 0 mA, f = 1 MHz	–	0.2	0.4	pF

Notes 1. Pulse measurement: PW ≤ 350 μs, Duty Cycle ≤ 2%

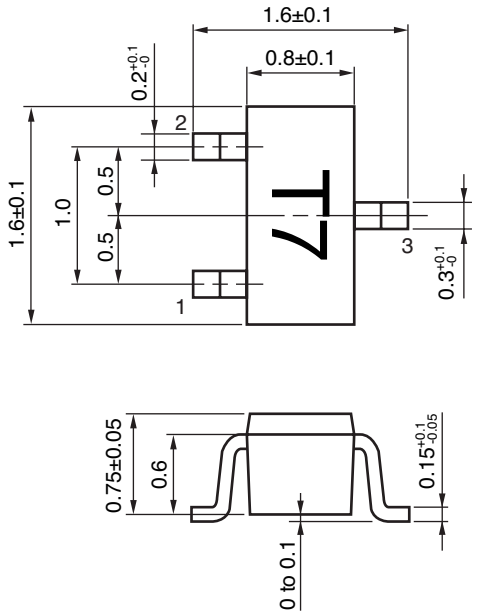
2. Collector to base capacitance when the emitter is grounded.

h_{FE} CLASSIFICATION

RANK	FB
Marking	T7
h_{FE} Value	140 to 220

PACKAGE DIMENSIONS

3-PIN SUPER MINIMOLD (19 PACKAGE) (UNIT: mm)



PIN CONNECTIONS

1. Emitter
2. Base
3. Collector