

PRELIMINARY DATA SHEET

CEL NEC's NPN SiGe TRANSISTOR FOR LOW NOISE, HIGH-GAIN AMPLIFICATION NESG210719

FEATURES

- IDEAL FOR OSC., HIGH-GAIN AMPLIFICATION APPLICATIONS
- HIGH BREAKDOWN VOLTAGE TECHNOLOGY FOR SiGe TRANSISTOR
- 3-PIN SUPER MINIMOLD (19) PACKAGE

ORDERING INFORMATION

PART NUMBER	QUANTITY	SUPPLYING FORM
NESG210719	50 pcs (Non reel)	• 8 mm wide embossed taping • Pin 3 (Collector) face the perforation side of the tape
NESG210719-T1	3 kpcs/reel	

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

ABSOLUTE MAXIMUM RATINGS (TA=+25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector to Base Voltage	V _{CBO}	13.0	V
Collector to Emitter Voltage	V _{CEO}	5.0	V
Emitter to Base Voltage	V _{EBO}	1.5	V
Collector Current	I _c	100	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 cm² × 1.0 mm (t) glass epoxy PCB

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



ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
DC Characteristics						
Collector Cut-off Current	I_{CBO}	$V_{CB} = 5\text{ V}, I_E = 0\text{ mA}$	–	–	100	nA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 0.5\text{ V}, I_C = 0\text{ mA}$	–	–	100	nA
DC Current Gain	h_{FE} ^{Note 1}	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA}$	140	180	220	–
RF Characteristics						
Reverse Transfer Capacitance	C_{re} ^{Note 2}	$V_{CB} = 1\text{ V}, I_E = 0\text{ mA}, f = 1\text{ MHz}$	–	0.5	0.7	pF
Noise Figure	NF	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 2\text{ GHz}, Z_S = Z_{opt}$	–	0.9	1.5	dB
Associated Gain	G_a	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 2\text{ GHz}, Z_S = Z_{opt}$	6	9	–	dB
Gain Bandwidth Product (1)	f_T	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 2\text{ GHz}$	7	10	–	GHz
Gain Bandwidth Product (2)	f_T	$V_{CE} = 1\text{ V}, I_C = 20\text{ mA}, f = 2\text{ GHz}$	–	12	–	GHz
Insertion Power Gain (1)	$ S_{21e} ^2$	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 2\text{ GHz}$	6.5	8	–	dB
Insertion Power Gain (2)	$ S_{21e} ^2$	$V_{CE} = 1\text{ V}, I_C = 20\text{ mA}, f = 2\text{ GHz}$	–	9	–	dB

Notes 1. Pulse measurement: $PW \leq 350\ \mu\text{s}$, Duty Cycle $\leq 2\%$

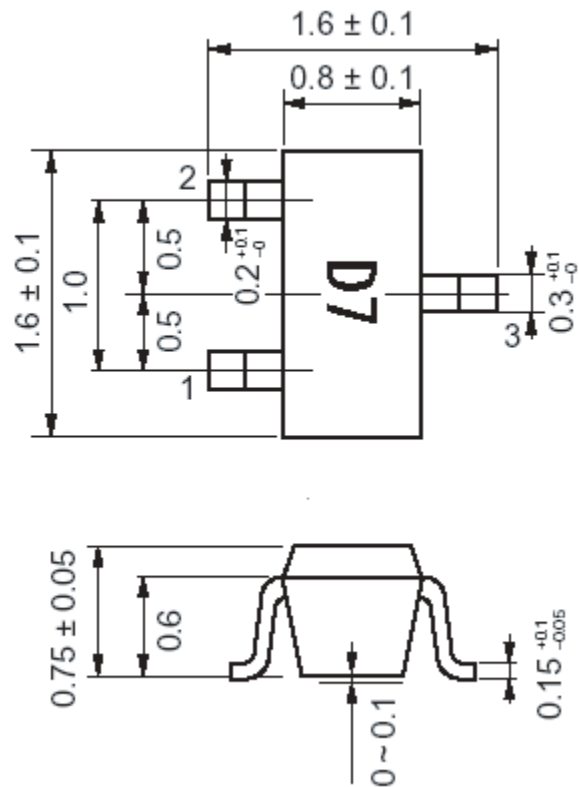
2. Collector to base capacitance when the emitter is grounded.

h_{FE} CLASSIFICATION

RANK	FB
Marking	D7
h_{FE} Value	140 to 220

PACKAGE DIMENSIONS

3-PIN SUPER MINI-MOLD (19 PACKAGE) (UNIT: mm)



PIN CONNECTIONS

1. Emitter
2. Base
3. Collector

Life Support Applications

These NEC products are not intended for use in life support devices, appliances, or systems where the malfunction of these products can reasonably be expected to result in personal injury. The customers of CEL using or selling these products for use in such applications do so at their own risk and agree to fully indemnify CEL for all damages resulting from such improper use or sale.

CEL California Eastern Laboratories, Your source for NEC RF, Microwave, Optoelectronic, and Fiber Optic Semiconductor Devices.

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