



# NEC's NPN SiGe RF TRANSISTOR FOR MEDIUM OUTPUT POWER AMPLIFICATION (1 W) 3-PIN POWER MINIMOLD (34 PACKAGE)

NESG260234

## FEATURES

- **THIS PRODUCT IS SUITABLE FOR MEDIUM OUTPUT POWER (1 W) AMPLIFICATION**  
 $P_o = 30 \text{ dBm TYP. @ } V_{CE} = 6 \text{ V, } P_{in} = 15 \text{ dBm, } f = 460 \text{ MHz}$   
 $P_o = 30 \text{ dBm TYP. @ } V_{CE} = 6 \text{ V, } P_{in} = 20 \text{ dBm, } f = 900 \text{ MHz}$
- **MAXIMUM STABLE GAIN:**  
 $MSG = 23 \text{ dB TYP @ } V_{CE} = 6 \text{ V, } I_c = 100 \text{ mA, } f = 460 \text{ MHz}$
- **SiGe TECHNOLOGY:**  
 UHS2-HV process
- **ABSOLUTE MAXIMUM RATINGS:**  
 $V_{CBO} = 25 \text{ V}$
- **3-PIN POWER MINIMOLD (34 PACKAGE)**

## ORDERING INFORMATION

PART NUMBER	ORDER NUMBER	PACKAGE	QUANTITY	SUPPLYING FORM
NESG260234	NESG260234-AZ	3-pin power minimold (Pb-Free) <sup>Note1</sup>	25 pcs (Non reel)	• Magazine case
NESG260234-T1	NESG260234-T1-AZ		1 kpcs/reel	• 12 mm wide embossed taping • Pin 2 (Emitter) face the perforation side of the tape

**Notes 1.** Contains Lead in the part except the electrode terminals.

**Remark** To order evaluation samples, contact your nearby sales office.  
 Unit sample quantity is 25 pcs.

## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = +25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector to Base Voltage	$V_{CBO}$	25	V
Collector to Emitter Voltage	$V_{CEO}$	9.2	V
Emitter to Base Voltage	$V_{EBO}$	2.8	V
Collector Current	$I_c$	600	mA
Total Power Dissipation	$P_{tot}$ <sup>Note</sup>	1.9	W
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{stg}$	-65 to +150	°C

**Note** Mounted on 34.2 cm<sup>2</sup> × 0.8 mm (t) glass epoxy PWB

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

**THERMAL RESISTANCE** ( $T_A = 25^\circ\text{C}$ )

PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance from Junction to Ambient <sup>Note</sup>	$R_{th(j-a)}$	65	$^\circ\text{C/W}$

**Note** Mounted on  $34.2\text{ cm}^2 \times 0.8\text{ mm}$  (t) glass epoxy PWB

**RECOMMENDED OPERATING RANGE** ( $T_A = 25^\circ\text{C}$ )

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector to Emitter Voltage	$V_{CE}$	–	6.0	7.2	V
Collector Current	$I_C$	–	400	500	mA
Input Power <sup>Note</sup>	$P_{in}$	–	15	20	dBm

**Note** Input power under conditions of  $V_{CE} \leq 6.0\text{ V}$ ,  $f = 460\text{ MHz}$

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

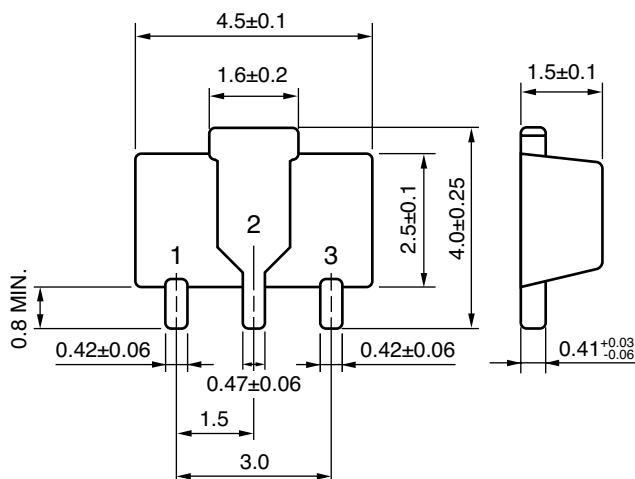
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
<b>DC Characteristics</b>						
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 9.2\text{ V}$ , $I_E = 0\text{ mA}$	-	-	1	$\mu\text{A}$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 1.0\text{ V}$ , $I_C = 0\text{ mA}$	-	-	1	$\mu\text{A}$
DC Current Gain	$h_{FE}$ <sup>Note</sup>	$V_{CE} = 3\text{ V}$ , $I_C = 100\text{ mA}$	80	120	180	-
<b>RF Characteristics</b>						
Linear gain (1)	$G_L$	$V_{CE} = 6\text{ V}$ , $I_{C(\text{set})} = 30\text{ mA}$ (RF OFF), $f = 460\text{ MHz}$ , $P_{in} = 0\text{ dBm}$	19	22	-	dB
Linear gain (2)	$G_L$	$V_{CE} = 6\text{ V}$ , $I_{C(\text{set})} = 30\text{ mA}$ (RF OFF), $f = 900\text{ MHz}$ , $P_{in} = 0\text{ dBm}$	-	19	-	dB
Output Power (1)	$P_O$	$V_{CE} = 6\text{ V}$ , $I_{C(\text{set})} = 30\text{ mA}$ (RF OFF), $f = 460\text{ MHz}$ , $P_{in} = 15\text{ dBm}$	28.5	30.0	-	dBm
Output Power (2)	$P_O$	$V_{CE} = 6\text{ V}$ , $I_{C(\text{set})} = 30\text{ mA}$ (RF OFF), $f = 900\text{ MHz}$ , $P_{in} = 20\text{ dBm}$	-	30.0	-	dBm
Collector Efficiency (1)	$\eta_c$	$V_{CE} = 6\text{ V}$ , $I_{C(\text{set})} = 30\text{ mA}$ (RF OFF), $f = 460\text{ MHz}$ , $P_{in} = 15\text{ dBm}$	-	50	-	%
Collector Efficiency (2)	$\eta_c$	$V_{CE} = 6\text{ V}$ , $I_{C(\text{set})} = 30\text{ mA}$ (RF OFF), $f = 900\text{ MHz}$ , $P_{in} = 20\text{ dBm}$	-	60	-	%

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

**h<sub>FE</sub> CLASSIFICATION**

RANK	FB
Marking	SP
$h_{FE}$ Value	80 to 180

**3-PIN POWER MINIMOLD (34 PACKAGE)** (UNIT:mm)



**PIN CONNECTIONS**

- 1. Collector
- 2. Emitter
- 3. Base

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.

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