



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) ^{Note1}	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 ($T_A = +25^\circ\text{C}$)

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} ^{Note}	1.9	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-65 to +150	$^\circ\text{C}$

Note Mounted on $34.2 \text{ cm}^2 \times 0.8 \text{ mm (t)}$ 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 ^{Note}	$R_{th(j-a)}$	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 ^{Note}	P_{in}	–	15	20	dBm

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

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

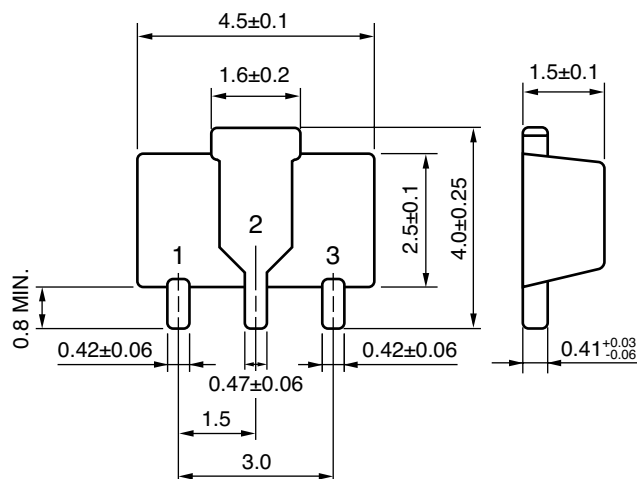
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
DC Characteristics						
Collector Cut-off Current	I_{CBO}	$V_{CB} = 9.2\text{ V}$, $I_E = 0\text{ mA}$	-	-	1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 1.0\text{ V}$, $I_C = 0\text{ mA}$	-	-	1	μA
DC Current Gain	h_{FE} ^{Note}	$V_{CE} = 3\text{ V}$, $I_C = 100\text{ mA}$	80	120	180	-
RF Characteristics						
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)	η_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)	η_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_{FE} 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.

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

4590 Patrick Henry Drive • Santa Clara, CA 95054-1817 • (408) 988-3500 • FAX (408) 988-0279 • www.cel.com

DATA SUBJECT TO CHANGE WITHOUT NOTICE

12/22/2004