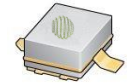


25W, 28V RF Power GaN HEMT

NGN60025L4C



Description

The NGN60025L4C is an unmatched 25W GaN HEMT, designed for applications up to 6GHz. The transistor is packaged in a surface mounted package making it a compact and versatile product that can be used in a multitude of applications with many possible signal formats such as CW, pulsed radar or complex modulation schemes.

Applications and Features

- 5G, LTE and multi-mode wireless communication
- Radar
- Wideband amplifiers
- EMC testing, ISM

Maximum Ratings

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	120	Vdc
Gate-Source Voltage	V_{GS}	-10,+2	Vdc
Operating Voltage	V_{DD}	40	Vdc
Maximum Forward Gate Current @ TC = 25°C	I_{gmax}	6	mA
Storage Temperature Range	T_{stg}	-65 to +150	°C
Case Operating Temperature	T_C	+150	°C
Operating Junction Temperature	T_J	+225	°C
Total Device Power Dissipation	P_{diss}	33	W
Thermal Resistance, $T_C=85^\circ\text{C}$, $T_J=200^\circ\text{C}$,	$R_{\theta JC}$	5.3	°C/W

Electrical Characteristics

DC Characteristics

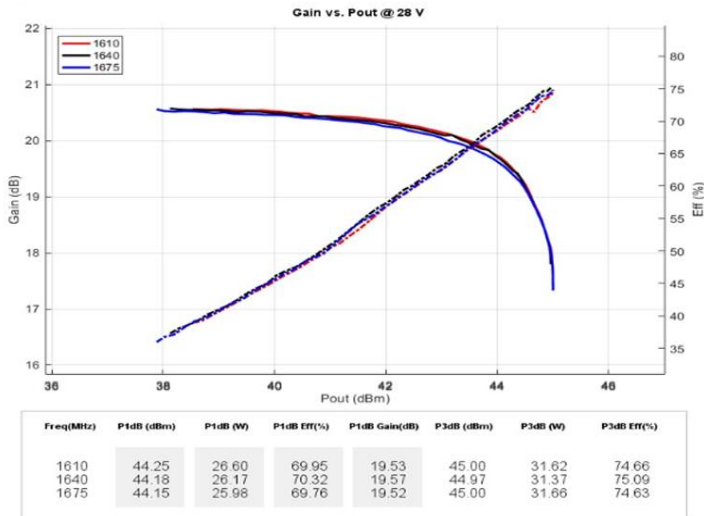
Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=-8\text{V}$; $I_{DS}=10\text{mA}$	V_{DSS}		160		V
Gate Threshold Voltage	$V_{DS}=28\text{V}$, $I_D=5\text{mA}$	$V_{GS(th)}$		-2.7		V
Gate Quiescent Voltage	$V_{DS}=28\text{V}$, $I_{DS}=120\text{mA}$,	$V_{GS(Q)}$		-2.35		V

RF Characteristics

As measured in standard test fixture $V_{DD}=28\text{V}$, $I_{DQ}=100\text{mA}$, $f=1.6\text{GHz}$, $P_{in}=25\text{dBm}$

Characteristic	Symbol	Min	Typ	Max	Unit
Power Gain	G_p		19		dB
Drain Efficiency @ P_{SAT}	η		70		%
Saturated Power	P_{SAT}		25		W
Input Return Loss	IRL		-7		dB
Mismatch stress at all phases	VSWR		10:1		Ψ

Performance as measured in standard demo circuit tuned for 1610-1675 MHz



Performance as measured in standard demo circuit tuned for 1800-2200 MHz

Pulsed Signal

Freq	Pout	η	Gain	P3dB	P3dB
(MHz)	P-1 (dBm)	@P-1 (%)	@P-1 (dB)	(dBm)	Eff(%)
1800	43.62	63.0	16.79	44.51	66.7
1900	43.76	64.1	17.19	44.63	67.4
2000	43.85	65.7	17.57	44.75	68.9
2100	43.40	62.1	17.34	44.51	66.6
2200	43.18	65.5	17.06	44.65	73.3

WCDMA, Pavg 32dBm

Freq	Ppeak	ACPR	Gain	Efficiency
(MHz)	(dBm)	(dBc)	(dB)	(%)
1800	42.05	-45.3	17.9	19.6
1900	42.05	-46.0	18.3	19.8
2000	42.01	-46.6	18.4	19.7
2100	41.84	-47.4	18.3	20.4
2200	41.67	-47.4	17.5	20.6

WCDMA, Pavg 34dBm

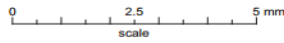
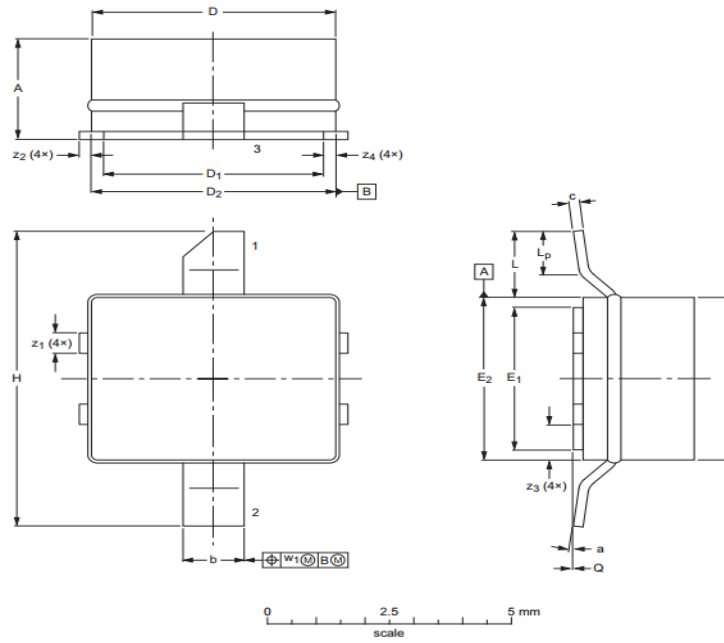
Freq	Ppeak	ACPR	Gain	Efficiency
(MHz)	(dBm)	(dBc)	(dB)	(%)
1800	43.70	-42.4	17.7	25.5
1900	43.58	-43.5	18.2	25.4
2000	43.56	-43.8	18.3	25.5
2100	43.49	-44.6	18.2	26.3
2200	43.20	-44.1	17.4	26.3

WCDMA, Pavg 36dBm

Freq	Ppeak	ACPR	Gain	Efficiency
(MHz)	(dBm)	(dBc)	(dB)	(%)
1800	43.70	-39.7	17.6	32.1
1900	43.58	-40.2	18.0	32.2
2000	43.56	-40.0	18.2	32.3
2100	43.49	-40.3	18.1	32.9
2200	43.20	-39.6	17.2	33.0

Package Outline

Earless Flange Ceramic Package; 2 leads (1:Drain, 2:Gate, 3-Source (Bottom base))



UNIT	A	b	c	D	D ₁	E	E ₁	E ₂	H	L	L _p	Q	w ₁	z ₁	z ₂	z ₃	z ₄	α
mm	2.34 2.13	1.35 1.19	0.23 0.18	5.16 5.00	4.65 4.50	4.14 3.99	3.63 3.48	4.14 3.99	7.49 7.24	2.03 1.27	1.02 0.51	0.1 0.0	0.25	0.58 0.43	0.25 0.18	0.97 0.81	0.51 0.00	7° 0°

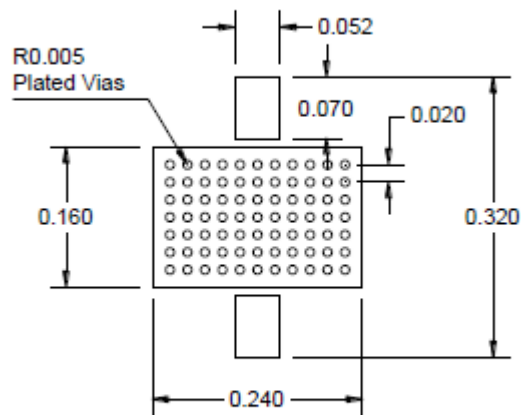
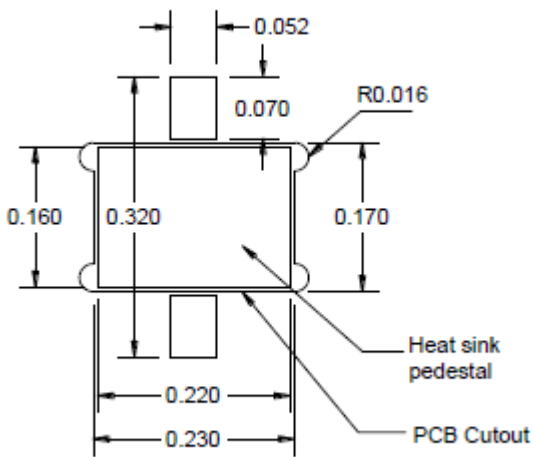
Recommendations for assembly, PCB connection layout

Option 1: Package leads straight

Device mounted on heatsink through cavity in PCB

Option 2: Package leads bent

Device mounted atop tightly stitched array of filled vias



Note: Dimensions in inches