

# CGH40010

10 W, DC - 6 GHz, RF Power GaN HEMT

## Description

Cree's CGH40010 is an unmatched, gallium nitride (GaN) high electron mobility transistor (HEMT). The CGH40010, operating from a 28 volt rail, offers a general purpose, broadband solution to a variety of RF and microwave applications. GaN HEMTs offer high efficiency, high gain and wide bandwidth capabilities making the CGH40010 ideal for linear and compressed amplifier circuits. The transistor is available in both screw-down, flange and solder-down, pill packages.



Package Types: 440166 & 440196  
PN's: CGH40010F & CGH40010P

## Features

- Up to 6 GHz Operation
- 16 dB Small Signal Gain at 2.0 GHz
- 14 dB Small Signal Gain at 4.0 GHz
- 13 W typical PSAT
- 65 % Efficiency at PSAT
- 28 V Operation

## Applications

- 2-Way Private Radio
- Broadband Amplifiers
- Cellular Infrastructure
- Test Instrumentation
- Class A, AB, Linear amplifiers suitable for OFDM, W-CDMA, EDGE, CDMA waveforms



## Absolute Maximum Ratings (not simultaneous) at 25 °C Case Temperature

Parameter	Symbol	Rating	Units	Conditions
Drain-Source Voltage	$V_{DSS}$	120	Volts	25 °C
Gate-to-Source Voltage	$V_{GS}$	-10, +2	Volts	25 °C
Storage Temperature	$T_{STG}$	-65, +150	°C	
Operating Junction Temperature	$T_J$	225	°C	
Maximum Forward Gate Current	$I_{GMAX}$	4.0	mA	25 °C
Maximum Drain Current <sup>1</sup>	$I_{DMAX}$	1.5	A	25 °C
Soldering Temperature <sup>2</sup>	$T_S$	245	°C	
Screw Torque	$\tau$	40	in-oz	
Thermal Resistance, Junction to Case <sup>3</sup>	$R_{\theta JC}$	8.0	°C/W	85 °C
Case Operating Temperature <sup>3,4</sup>	$T_C$	-40, +150	°C	

Notes:

<sup>1</sup> Current limit for long term, reliable operation

<sup>2</sup> Refer to the Application Note on soldering at [www.cree.com/RF/Document-Library](http://www.cree.com/RF/Document-Library)

<sup>3</sup> Measured for the CGH40010F at PDISS = 14 W.

<sup>4</sup> See also, the Power Dissipation De-rating Curve on Page 6.

## Electrical Characteristics (TC = 25 °C)

Characteristics	Symbol	Min.	Typ.	Max.	Units	Conditions
<b>DC Characteristics<sup>1</sup></b>						
Gate Threshold Voltage	$V_{GS(th)}$	-3.8	-3.0	-2.3	$V_{DC}$	$V_{DS} = 10 V, I_D = 3.6 mA$
Gate Quiescent Voltage	$V_{GS(Q)}$	-	-2.7	-	$V_{DC}$	$V_{DS} = 28 V, I_D = 200 mA$
Saturated Drain Current	$I_{DS}$	2.9	3.5	-	A	$V_{DS} = 6.0 V, V_{GS} = 2.0 V$
Drain-Source Breakdown Voltage	$V_{BR}$	84	-	-	$V_{DC}$	$V_{GS} = -8 V, I_D = 3.6 mA$
<b>RF Characteristics<sup>2</sup> (TC = 25 °C, F<sub>0</sub> = 3.7 GHz unless otherwise noted)</b>						
Small Signal Gain	$G_{SS}$	12.5	14.5	-	dB	$V_{DD} = 28 V, I_{DQ} = 200 mA$
Power Output <sup>3</sup>	$P_{SAT}$	10	12.5	-	W	$V_{DD} = 28 V, I_{DQ} = 200 mA$
Drain Efficiency <sup>4</sup>	$\eta$	55	65	-	%	$V_{DD} = 28 V, I_{DQ} = 200 mA, P_{SAT}$
Output Mismatch Stress	VSWR	-	-	10 : 1	Y	No damage at all phase angles, $V_{DD} = 28 V, I_{DQ} = 200 mA, P_{OUT} = 10 W CW$
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{GS}$	-	4.5	-	pF	$V_{DS} = 28 V, V_{GS} = -8 V, f = 1 MHz$
Output Capacitance	$C_{DS}$	-	1.3	-	pF	$V_{DS} = 28 V, V_{GS} = -8 V, f = 1 MHz$
Feedback Capacitance	$C_{GD}$	-	0.2	-	pF	$V_{DS} = 28 V, V_{GS} = -8 V, f = 1 MHz$

Notes:

<sup>1</sup> Measured on wafer prior to packaging.

<sup>2</sup> Measured in CGH40010-AMP.

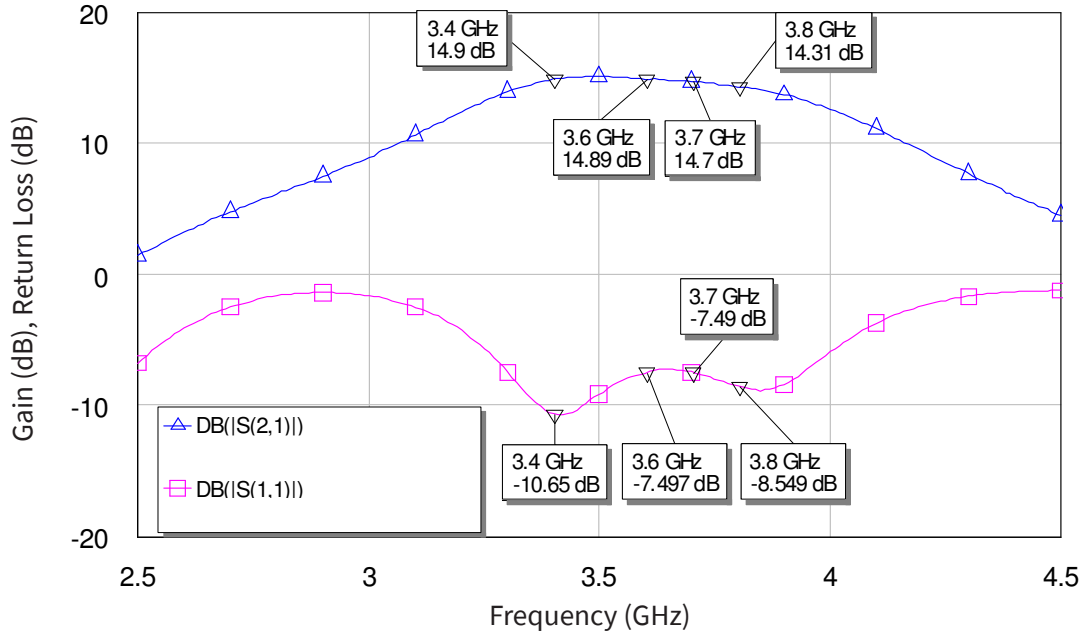
<sup>3</sup>  $P_{SAT}$  is defined as  $I_G = 0.36 mA$ .

<sup>4</sup> Drain Efficiency =  $P_{OUT} / P_{DC}$

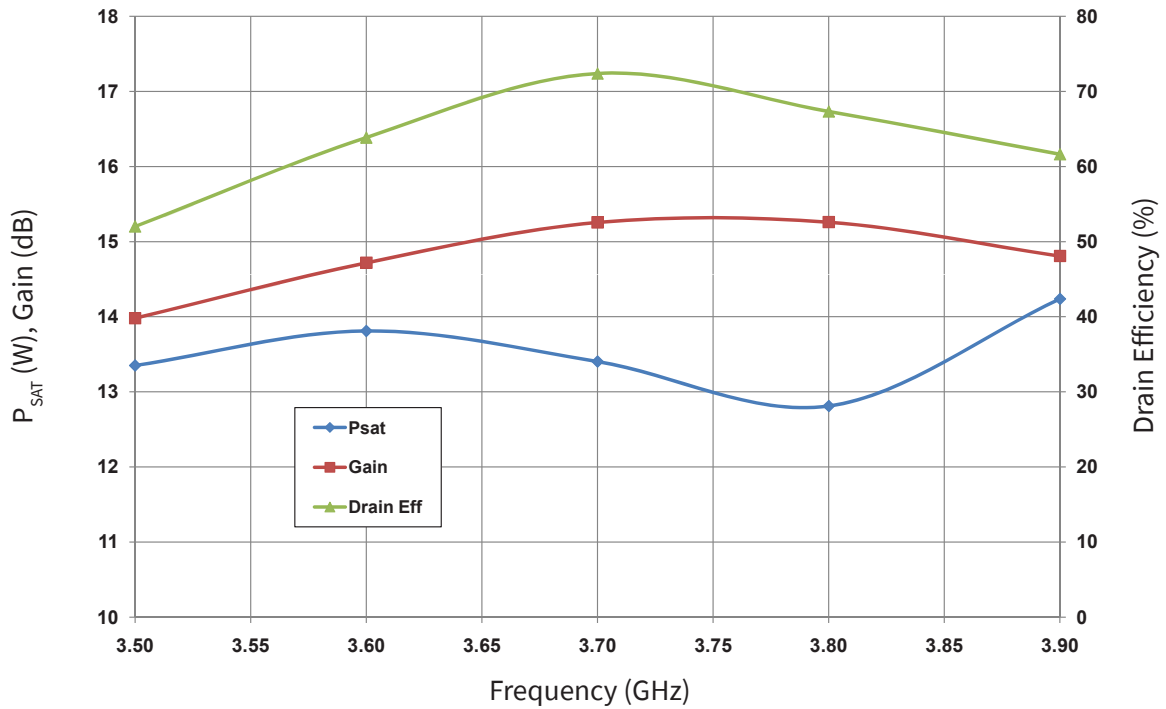


Typical Performance

Small Signal Gain and Return Loss vs Frequency of the CGH40010 in the CGH40010-AMP



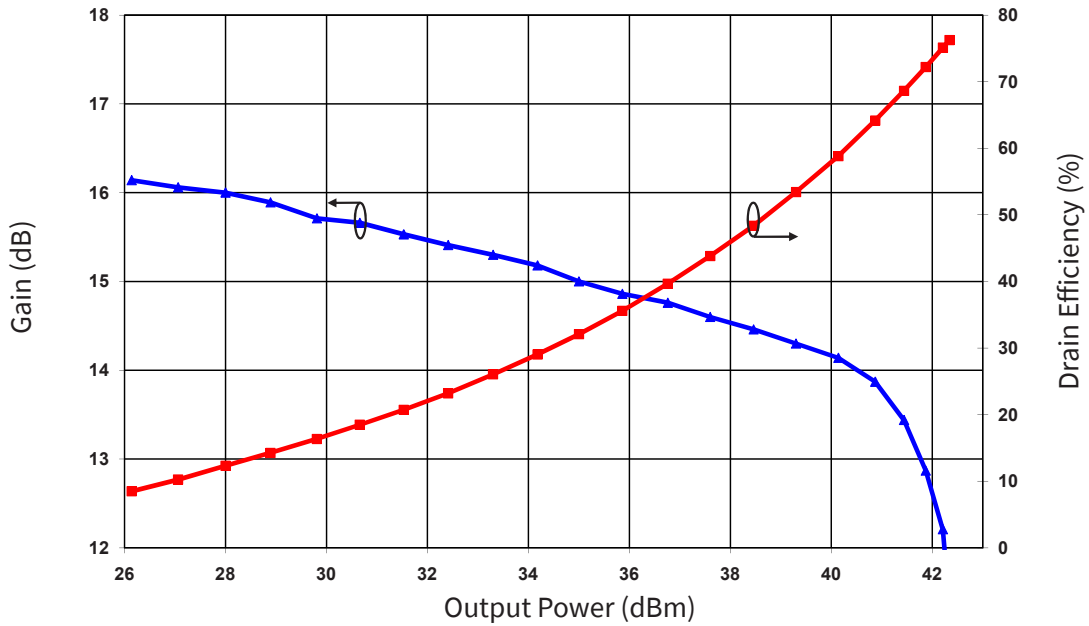
$P_{SAT}$ , Gain, and Drain Efficiency vs Frequency of the CGH40010F in the CGH40010-AMP  
 $V_{DD} = 28\text{ V}, I_{DQ} = 200\text{ mA}$



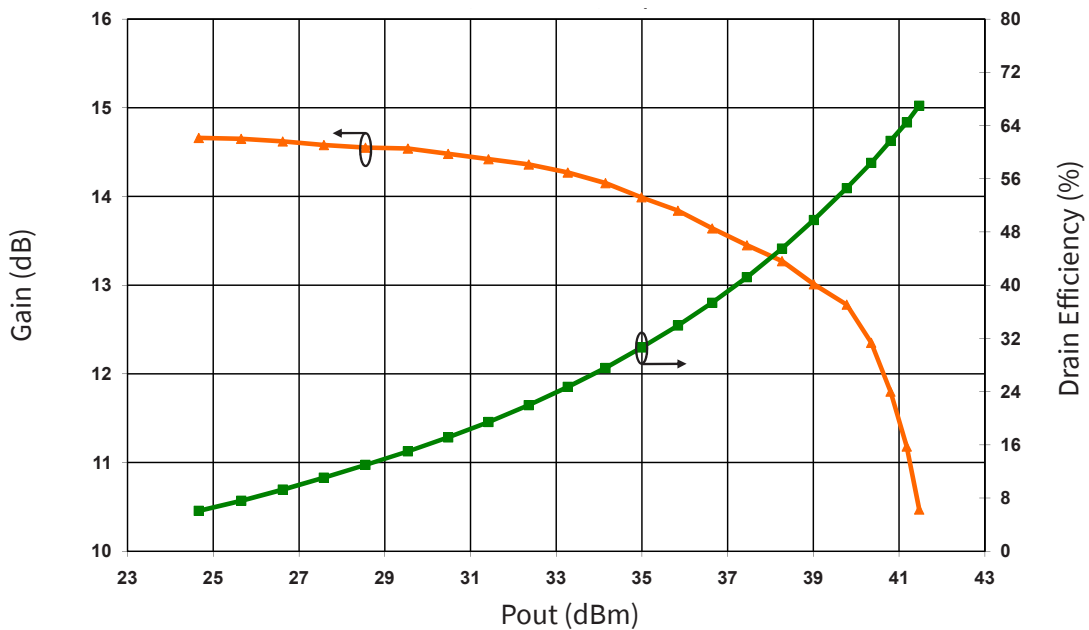


Typical Performance

Swept CW Data of CGH40010F vs. Output Power with Source and Load Impedances Optimized for Drain Efficiency at 2.0 GHz  
 $V_{DD} = 28\text{ V}, I_{DQ} = 200\text{ mA}$



Swept CW Data of CGH40010F vs. Output Power with Source and Load Impedances Optimized for Drain Efficiency at 3.6 GHz  
 $V_{DD} = 28\text{ V}, I_{DQ} = 200\text{ mA}$

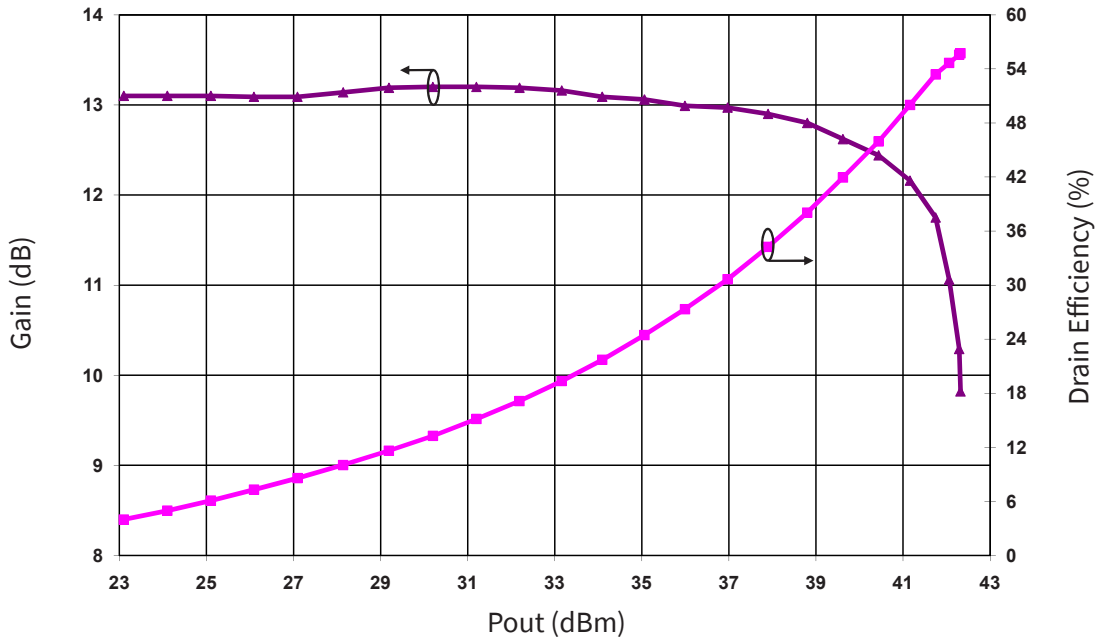




Typical Performance

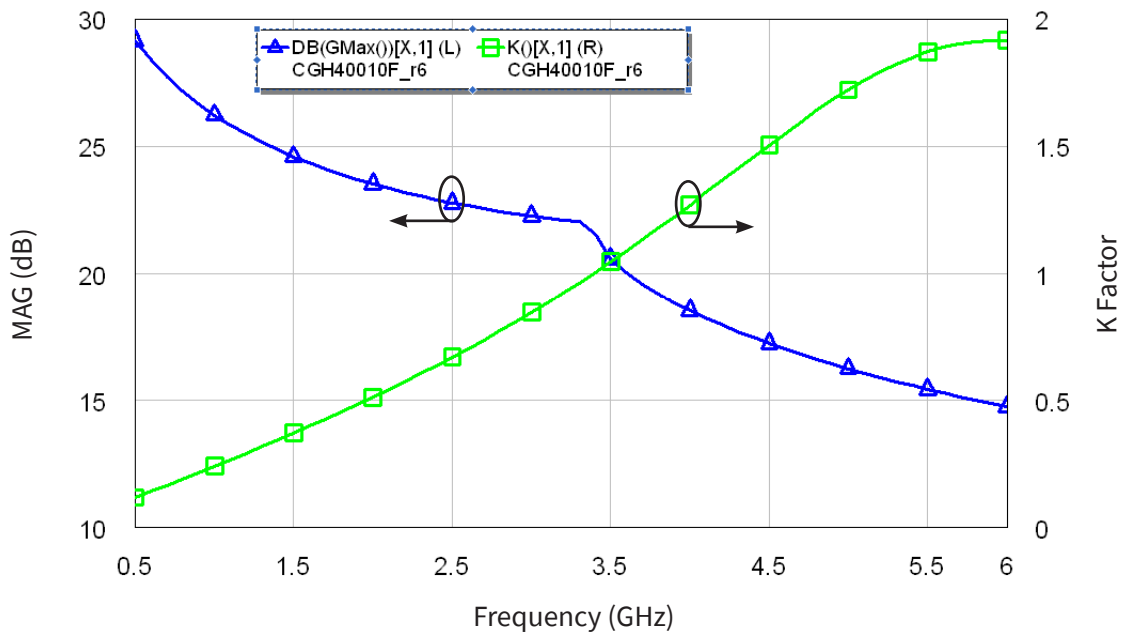
Swept CW Data of CGH40010F vs. Output Power with Source and Load Impedances Optimized for P1 Power at 3.6 GHz

$V_{DD} = 28\text{ V}$ ,  $I_{DQ} = 200\text{ mA}$



Simulated Maximum Available Gain and K Factor of the CGH40010F

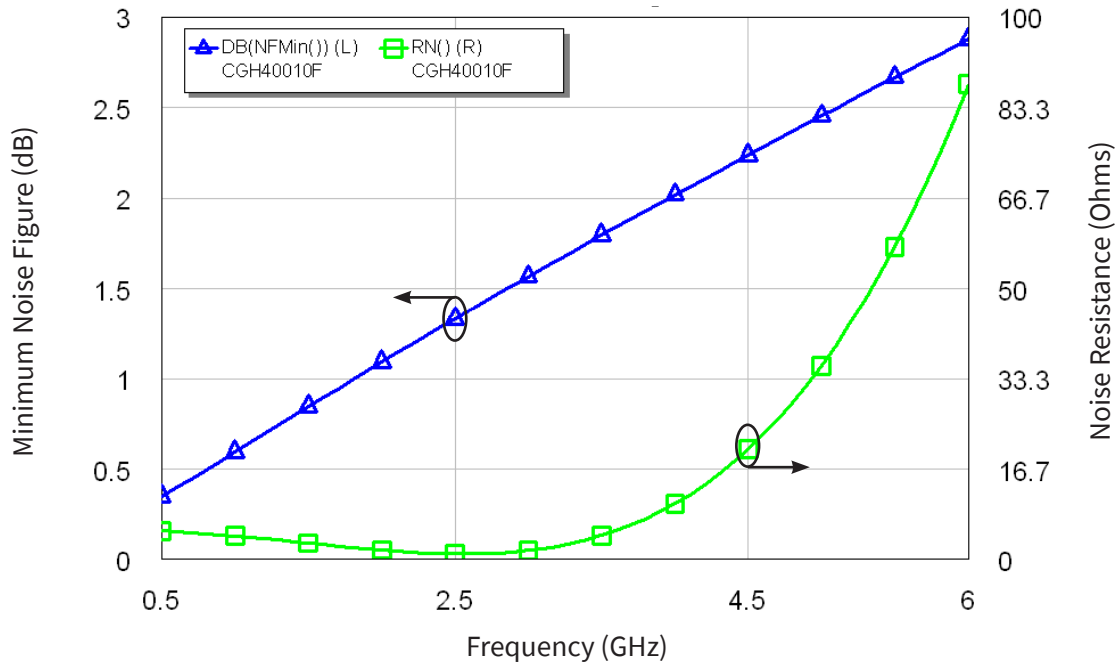
$V_{DD} = 28\text{ V}$ ,  $I_{DQ} = 200\text{ mA}$





**Typical Noise Performance**

**Simulated Minimum Noise Figure and Noise Resistance vs Frequency of the CGH40010F**  
 $V_{DD} = 28\text{ V}, I_{DQ} = 100\text{ mA}$

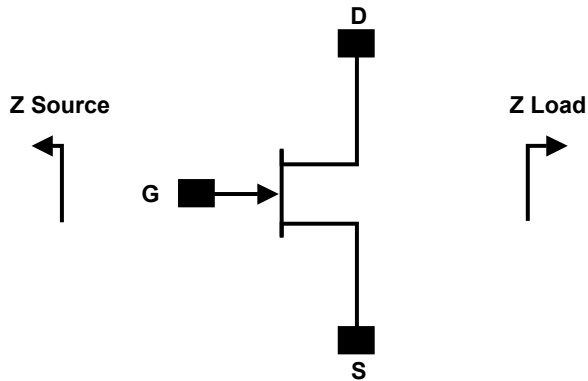


**Electrostatic Discharge (ESD) Classifications**

Parameter	Symbol	Class	Test Methodology
Human Body Model	HBM	0B (125 to < 250 V)	JEDEC JESD22 A114-D
Charge Device Model	CDM	C0b (< 100 V)	JEDEC JESD22 C101-C



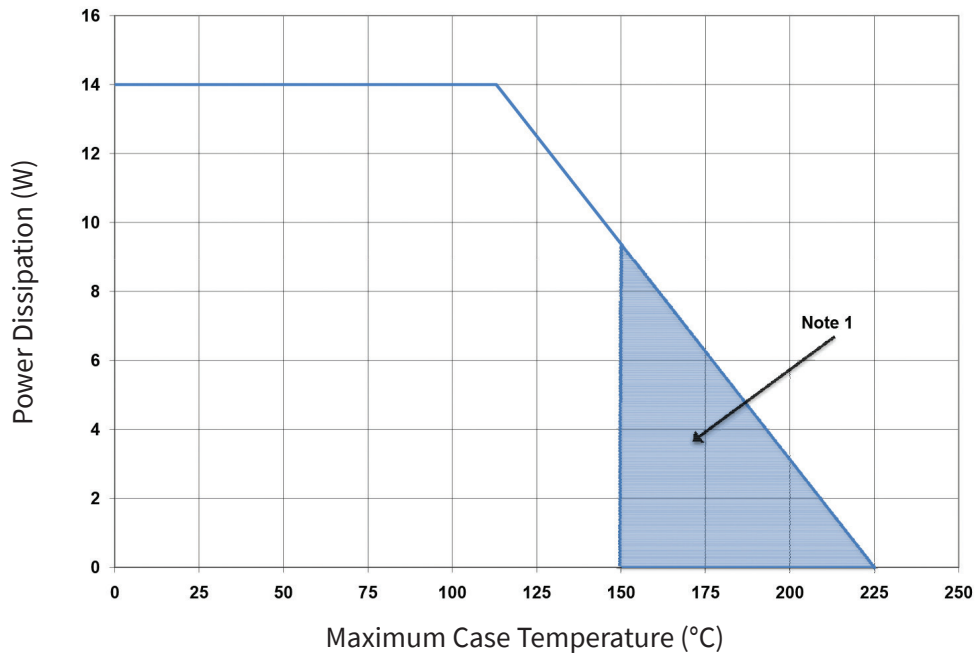
### Source and Load Impedances



Frequency	Z Source	Z Lead
500	20.2 + j16.18	51.7 + j15.2
1000	8.38 + j9.46	41.4 + j28.5
1500	7.37 + j0	28.15 + j29
2500	3.19 - j4.76	19 + j9.2
3500	3.18 - j13.3	14.6 + j7.45

- Note 1.  $V_{DD} = 28V$ ,  $I_{DQ} = 200mA$  in the 440166 package.
- Note 2. Optimized for power, gain,  $P_{SAT}$  and PAE.
- Note 3. When using this device at low frequency, series resistors should be used to maintain amplifier stability.

### CGH40010 Power Dissipation De-rating Curve

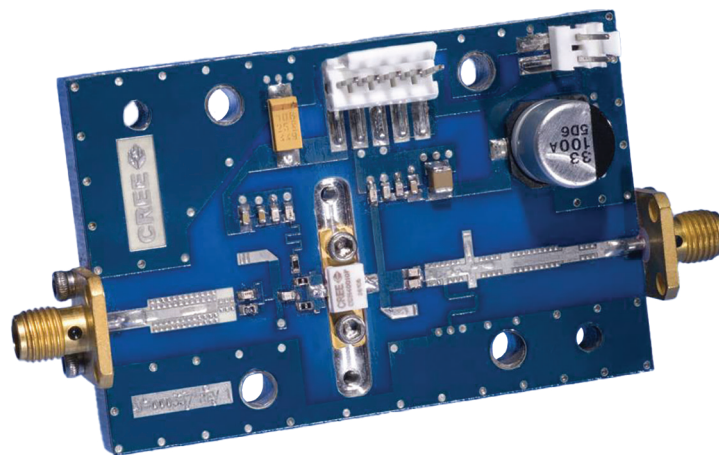


Note 1. Area exceeds Maximum Case Operating Temperature (See Page 2).

## CGH40010-AMP Demonstration Amplifier Circuit Bill of Materials

Designator	Description	Qty
R1,R2	RES,1/16W,0603,1%,0 OHMS	1
R3	RES,1/16W,0603,1%,47 OHMS	1
R4	RES,1/16W,0603,1%,100 OHMS	1
C6	CAP, 470PF, 5%,100V, 0603	1
C17	CAP, 33 UF, 20%, G CASE	1
C16	CAP, 1.0UF, 100V, 10%, X7R, 1210	1
C8	CAP 10UF 16V TANTALUM	1
C14	CAP, 100.0pF, +/-5%, 0603	1
C1	CAP, 0.5pF, +/-0.05pF, 0603	1
C2	CAP, 0.7pF, +/-0.1pF, 0603	1
C10,C11	CAP, 1.0pF, +/-0.1pF, 0603	2
C4,C12	CAP, 10.0pF,+/-5%, 0603	2
C5,C13	CAP, 39pF, +/-5%, 0603	2
C7,C15	CAP,33000PF, 0805,100V, X7R	2
J3,J4	CONN SMA STR PANEL JACK RECP	1
J2	HEADER RT>PLZ.1CEN LK 2 POS	1
J1	HEADER RT>PLZ .1CEN LK 5POS	1
-	PCB, RO4350B, Er = 3.48, h = 20 mil	1
-	STAINLESS STEEL, SOCKET HEAD SCREWS, TYPE 2-56, LENGTH 1/4"	2
Q1	CGH40010F or CGH40010P	1

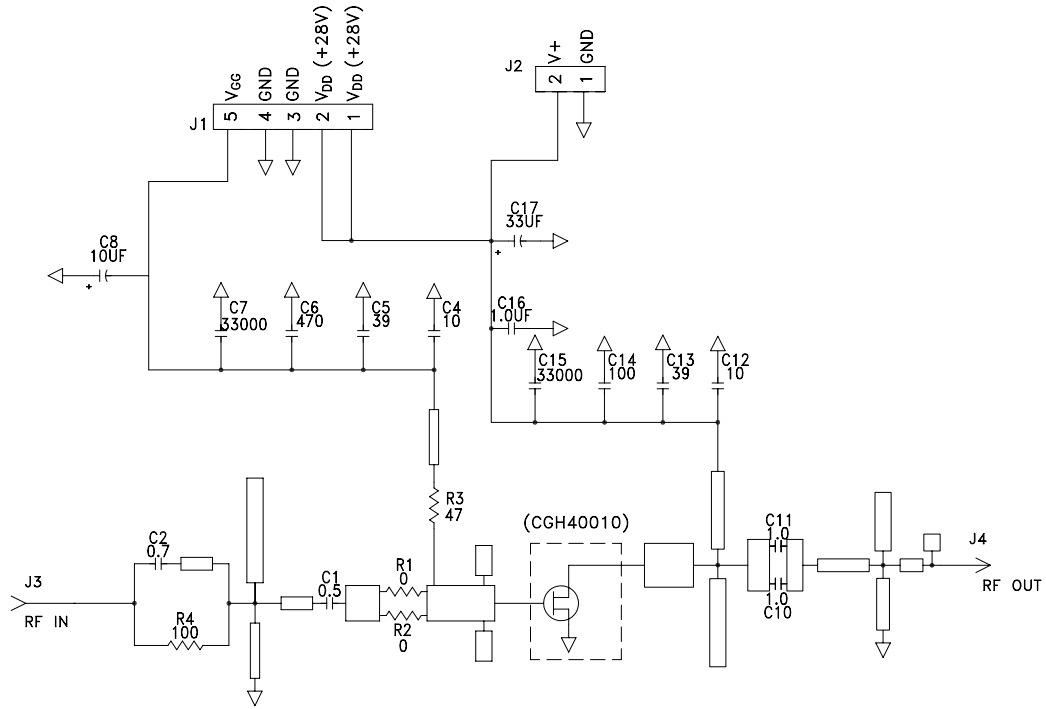
## CGH40010-AMP Demonstration Amplifier Circuit



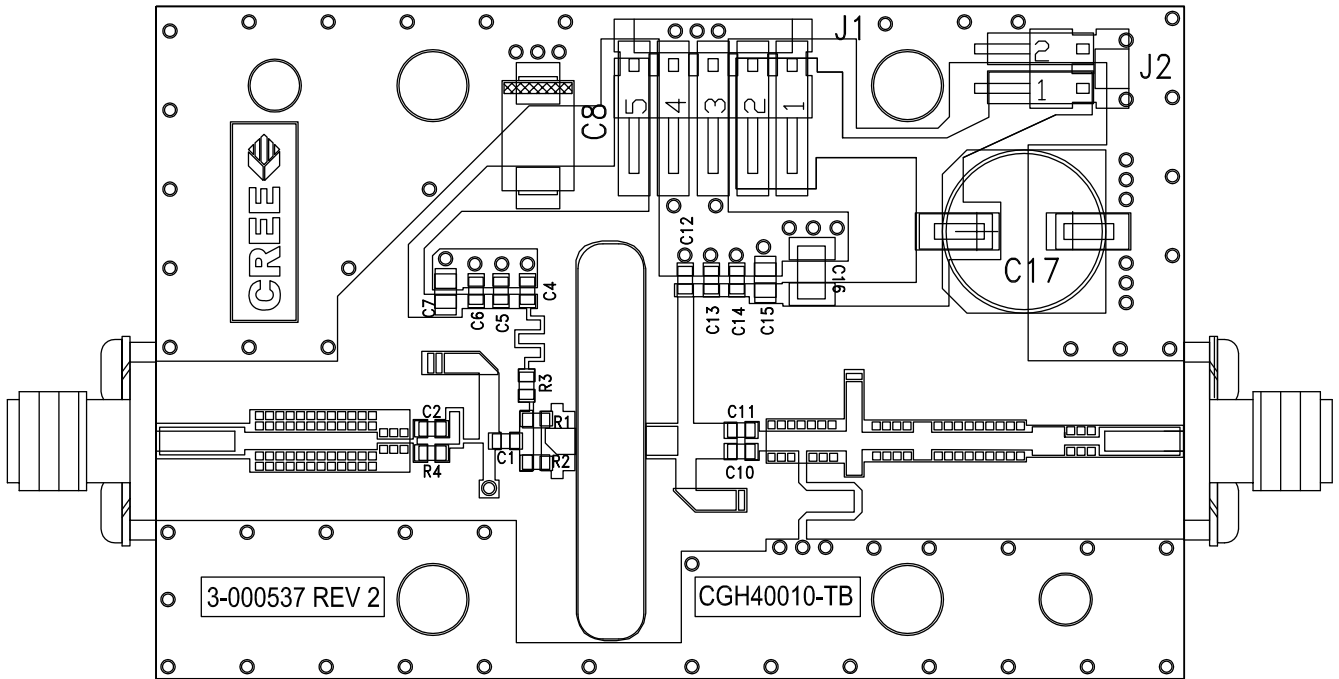




### CGH40010-AMP Demonstration Amplifier Circuit Schematic



### CGH40010-AMP Demonstration Amplifier Circuit Outline



**Typical Package S-Parameters for CGH40010**  
 (Small Signal,  $V_{DS} = 28\text{ V}$ ,  $I_{DQ} = 100\text{ mA}$ , angle in degrees)

Frequency	Mag S11	Ang S11	Mag S21	Ang S21	Mag S12	Ang S12	Mag S22	Ang S22
500 MHz	0.909	-123.34	17.19	108.22	0.027	21.36	0.343	-90.81
600 MHz	0.902	-133.06	14.86	101.82	0.028	15.60	0.329	-98.65
700 MHz	0.897	-140.73	13.04	96.45	0.028	10.87	0.321	-104.84
800 MHz	0.894	-146.96	11.58	91.78	0.029	6.84	0.317	-109.84
900 MHz	0.891	-152.16	10.41	87.61	0.029	3.33	0.316	-113.95
1.0 GHz	0.890	-156.60	9.43	83.82	0.029	0.19	0.318	-117.42
1.1 GHz	0.889	-160.47	8.62	80.31	0.029	-2.66	0.321	-120.40
1.2 GHz	0.888	-163.90	7.93	77.02	0.029	-5.28	0.326	-123.02
1.3 GHz	0.887	-166.99	7.34	73.90	0.029	-7.72	0.332	-125.36
1.4 GHz	0.887	-169.80	6.82	70.92	0.029	-10.01	0.338	-127.51
1.5 GHz	0.887	-172.39	6.38	68.05	0.029	-12.18	0.345	-129.50
1.6 GHz	0.887	-174.80	5.98	65.28	0.028	-14.24	0.353	-131.37
1.7 GHz	0.887	-177.07	5.63	62.59	0.028	-16.21	0.360	-133.15
1.8 GHz	0.887	-179.22	5.32	59.97	0.028	-18.09	0.369	-134.87
1.9 GHz	0.887	178.73	5.04	57.41	0.028	-19.91	0.377	-136.54
2.0 GHz	0.888	176.76	4.78	54.89	0.027	-21.66	0.385	-138.17
2.1 GHz	0.888	174.86	4.55	52.42	0.027	-23.35	0.393	-139.77
2.2 GHz	0.888	173.02	4.34	49.99	0.027	-24.98	0.402	-141.34
2.3 GHz	0.888	171.23	4.15	47.60	0.026	-26.56	0.410	-142.90
2.4 GHz	0.889	169.48	3.97	45.24	0.026	-28.08	0.418	-144.45
2.5 GHz	0.889	167.76	3.81	42.90	0.026	-29.55	0.426	-145.99
2.6 GHz	0.890	166.07	3.66	40.59	0.025	-30.98	0.434	-147.53
2.7 GHz	0.890	164.39	3.53	38.30	0.025	-32.36	0.442	-149.06
2.8 GHz	0.890	162.74	3.40	36.03	0.025	-33.69	0.450	-150.59
2.9 GHz	0.891	161.10	3.28	33.78	0.024	-34.97	0.458	-152.12
3.0 GHz	0.891	159.46	3.17	31.55	0.024	-36.20	0.465	-153.65
3.2 GHz	0.892	156.21	2.97	27.12	0.023	-38.51	0.479	-156.72
3.4 GHz	0.893	152.96	2.79	22.73	0.022	-40.63	0.493	-159.80
3.6 GHz	0.893	149.69	2.64	18.38	0.022	-42.52	0.505	-162.90
3.8 GHz	0.894	146.38	2.50	14.05	0.021	-44.17	0.517	-166.03
4.0 GHz	0.894	143.03	2.38	9.72	0.020	-45.56	0.527	-169.19
4.2 GHz	0.894	139.61	2.28	5.40	0.019	-46.67	0.537	-172.39
4.4 GHz	0.895	136.11	2.18	1.07	0.019	-47.46	0.546	-175.64
4.6 GHz	0.895	132.53	2.09	-3.29	0.018	-47.90	0.554	-178.95
4.8 GHz	0.895	128.85	2.01	-7.68	0.017	-47.96	0.561	177.69
5.0 GHz	0.895	125.06	1.94	-12.10	0.017	-47.61	0.568	174.25
5.2 GHz	0.895	121.15	1.88	-16.58	0.016	-46.84	0.573	170.72
5.4 GHz	0.895	117.11	1.82	-21.12	0.016	-45.67	0.578	167.10
5.6 GHz	0.895	112.94	1.77	-25.73	0.015	-44.12	0.582	163.38
5.8 GHz	0.895	108.62	1.72	-30.42	0.015	-42.30	0.586	159.54
6.0 GHz	0.895	104.15	1.68	-35.20	0.015	-40.33	0.589	155.56

To download the s-parameters in s2p format, go to the [CGH40010 Product page](#) and click on the documentation tab.

**Typical Package S-Parameters for CGH40010**  
**(Small Signal,  $V_{DS} = 28\text{ V}$ ,  $I_{DQ} = 200\text{ mA}$ , angle in degrees)**

Frequency	Mag S11	Ang S11	Mag S21	Ang S21	Mag S12	Ang S12	Mag S22	Ang S22
500 MHz	0.911	-130.62	18.41	105.41	0.022	19.44	0.303	-112.24
600 MHz	0.906	-139.65	15.80	99.47	0.023	14.31	0.299	-119.83
700 MHz	0.902	-146.70	13.80	94.50	0.023	10.17	0.298	-125.50
800 MHz	0.899	-152.41	12.22	90.19	0.023	6.68	0.299	-129.85
900 MHz	0.898	-157.17	10.96	86.34	0.024	3.67	0.302	-133.28
1.0 GHz	0.896	-161.24	9.92	82.82	0.024	0.99	0.305	-136.05
1.1 GHz	0.896	-164.79	9.06	79.56	0.024	-1.41	0.309	-138.34
1.2 GHz	0.895	-167.95	8.33	76.49	0.024	-3.62	0.314	-140.30
1.3 GHz	0.895	-170.80	7.70	73.57	0.023	-5.66	0.320	-142.01
1.4 GHz	0.894	-173.41	7.17	70.78	0.023	-7.56	0.326	-143.54
1.5 GHz	0.894	-175.82	6.70	68.08	0.023	-9.35	0.332	-144.94
1.6 GHz	0.894	-178.09	6.28	65.47	0.023	-11.05	0.338	-146.24
1.7 GHz	0.894	179.78	5.92	62.92	0.023	-12.66	0.345	-147.48
1.8 GHz	0.894	177.75	5.59	60.43	0.023	-14.19	0.352	-148.68
1.9 GHz	0.894	175.81	5.30	57.99	0.023	-15.65	0.358	-149.84
2.0 GHz	0.894	173.94	5.04	55.59	0.022	-17.05	0.365	-150.99
2.1 GHz	0.894	172.13	4.80	53.23	0.022	-18.39	0.372	-152.12
2.2 GHz	0.894	170.37	4.58	50.91	0.022	-19.67	0.379	-153.26
2.3 GHz	0.895	168.65	4.38	48.61	0.022	-20.90	0.386	-154.39
2.4 GHz	0.895	166.96	4.20	46.33	0.021	-22.08	0.393	-155.54
2.5 GHz	0.895	165.30	4.03	44.08	0.021	-23.20	0.400	-156.69
2.6 GHz	0.895	163.66	3.88	41.84	0.021	-24.27	0.407	-157.85
2.7 GHz	0.895	162.04	3.74	39.63	0.021	-25.28	0.414	-159.03
2.8 GHz	0.895	160.43	3.60	37.43	0.020	-26.25	0.420	-160.22
2.9 GHz	0.896	158.83	3.48	35.24	0.020	-27.16	0.427	-161.42
3.0 GHz	0.896	157.24	3.37	33.06	0.020	-28.02	0.433	-162.64
3.2 GHz	0.896	154.06	3.16	28.74	0.019	-29.57	0.446	-165.13
3.4 GHz	0.896	150.87	2.98	24.44	0.019	-30.88	0.457	-167.69
3.6 GHz	0.896	147.66	2.82	20.16	0.018	-31.95	0.468	-170.31
3.8 GHz	0.897	144.41	2.68	15.89	0.018	-32.76	0.478	-173.00
4.0 GHz	0.897	141.10	2.56	11.61	0.017	-33.30	0.488	-175.77
4.2 GHz	0.897	137.72	2.45	7.33	0.017	-33.55	0.497	-178.61
4.4 GHz	0.897	134.26	2.35	3.03	0.017	-33.50	0.505	178.47
4.6 GHz	0.897	130.71	2.26	-1.31	0.016	-33.18	0.512	175.46
4.8 GHz	0.896	127.06	2.17	-5.68	0.016	-32.58	0.518	172.36
5.0 GHz	0.896	123.30	2.10	-10.09	0.016	-31.74	0.524	169.16
5.2 GHz	0.896	119.42	2.04	-14.57	0.016	-30.72	0.529	165.86
5.4 GHz	0.896	115.41	1.98	-19.10	0.016	-29.60	0.534	162.44
5.6 GHz	0.896	111.26	1.92	-23.71	0.016	-28.46	0.537	158.89
5.8 GHz	0.895	106.97	1.87	-28.40	0.017	-27.41	0.540	155.20
6.0 GHz	0.895	102.53	1.82	-33.19	0.017	-26.54	0.543	151.36

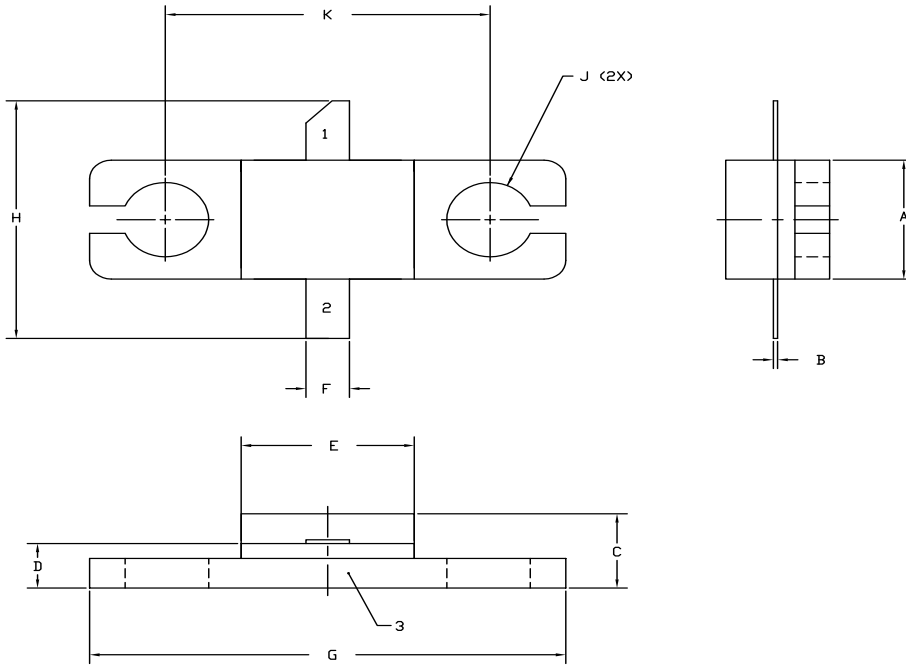
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**(Small Signal,  $V_{DS} = 28\text{ V}$ ,  $I_{DQ} = 500\text{ mA}$ , angle in degrees)**

Frequency	Mag S11	Ang S11	Mag S21	Ang S21	Mag S12	Ang S12	Mag S22	Ang S22
500 MHz	0.914	-135.02	18.58	103.70	0.020	18.36	0.300	-126.80
600 MHz	0.909	-143.57	15.88	98.05	0.020	13.67	0.302	-133.51
700 MHz	0.906	-150.23	13.83	93.33	0.021	9.90	0.304	-138.40
800 MHz	0.904	-155.61	12.23	89.23	0.021	6.77	0.307	-142.08
900 MHz	0.903	-160.09	10.95	85.56	0.021	4.08	0.311	-144.94
1.0 GHz	0.902	-163.93	9.91	82.21	0.021	1.71	0.314	-147.23
1.1 GHz	0.901	-167.29	9.04	79.09	0.021	-0.41	0.319	-149.10
1.2 GHz	0.901	-170.29	8.31	76.15	0.021	-2.35	0.323	-150.69
1.3 GHz	0.900	-173.00	7.69	73.35	0.021	-4.12	0.328	-152.07
1.4 GHz	0.900	-175.50	7.15	70.66	0.021	-5.78	0.333	-153.29
1.5 GHz	0.900	-177.81	6.69	68.07	0.021	-7.32	0.338	-154.41
1.6 GHz	0.900	-179.98	6.27	65.54	0.021	-8.77	0.344	-155.44
1.7 GHz	0.900	177.96	5.91	63.08	0.020	-10.15	0.349	-156.43
1.8 GHz	0.899	176.00	5.59	60.67	0.020	-11.45	0.355	-157.38
1.9 GHz	0.899	174.12	5.30	58.30	0.020	-12.68	0.361	-158.30
2.0 GHz	0.899	172.31	5.04	55.97	0.020	-13.85	0.366	-159.22
2.1 GHz	0.899	170.54	4.80	53.67	0.020	-14.96	0.372	-160.14
2.2 GHz	0.900	168.83	4.58	51.40	0.020	-16.01	0.378	-161.06
2.3 GHz	0.900	167.15	4.39	49.16	0.019	-17.01	0.384	-161.99
2.4 GHz	0.900	165.49	4.21	46.94	0.019	-17.95	0.390	-162.93
2.5 GHz	0.900	163.87	4.04	44.73	0.019	-18.85	0.396	-163.88
2.6 GHz	0.900	162.26	3.89	42.54	0.019	-19.69	0.402	-164.86
2.7 GHz	0.900	160.66	3.75	40.37	0.019	-20.48	0.407	-165.85
2.8 GHz	0.900	159.08	3.62	38.21	0.019	-21.21	0.413	-166.86
2.9 GHz	0.900	157.51	3.50	36.05	0.018	-21.89	0.418	-167.89
3.0 GHz	0.900	155.93	3.39	33.91	0.018	-22.52	0.424	-168.95
3.2 GHz	0.900	152.79	3.18	29.65	0.018	-23.61	0.435	-171.12
3.4 GHz	0.900	149.64	3.00	25.40	0.017	-24.48	0.445	-173.38
3.6 GHz	0.900	146.45	2.85	21.17	0.017	-25.11	0.454	-175.73
3.8 GHz	0.900	143.23	2.71	16.93	0.017	-25.51	0.463	-178.17
4.0 GHz	0.900	139.94	2.58	12.69	0.017	-25.67	0.471	179.30
4.2 GHz	0.900	136.58	2.47	8.43	0.016	-25.60	0.479	176.67
4.4 GHz	0.899	133.14	2.38	4.15	0.016	-25.32	0.486	173.94
4.6 GHz	0.899	129.61	2.29	-0.17	0.016	-24.85	0.492	171.12
4.8 GHz	0.899	125.97	2.21	-4.53	0.016	-24.24	0.498	168.18
5.0 GHz	0.898	122.23	2.13	-8.94	0.016	-23.54	0.503	165.13
5.2 GHz	0.898	118.36	2.07	-13.41	0.016	-22.80	0.507	161.96
5.4 GHz	0.898	114.36	2.01	-17.95	0.017	-22.11	0.511	158.66
5.6 GHz	0.897	110.22	1.95	-22.56	0.017	-21.54	0.514	155.22
5.8 GHz	0.897	105.94	1.90	-27.26	0.018	-21.16	0.517	151.63
6.0 GHz	0.897	101.51	1.86	-32.04	0.019	-21.04	0.519	147.87

To download the s-parameters in s2p format, go to the [CGH40010](#) Product page and click on the documentation tab.

**Product Dimensions CGH40010F (Package Type — 440166)**



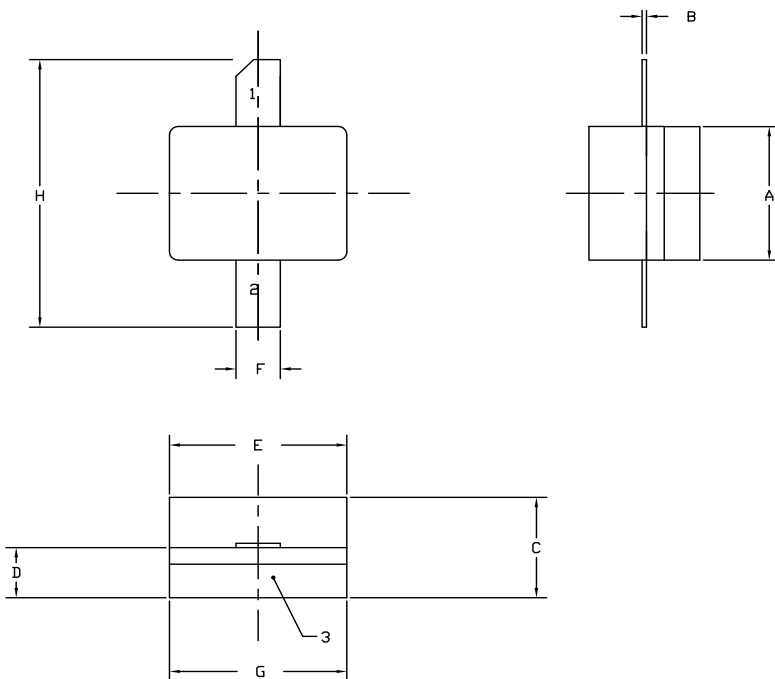
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. ADHESIVE FROM LID MAY EXTEND A MAXIMUM OF 0.020" BEYOND EDGE OF LID.
4. LID MAY BE MISALIGNED TO THE BODY OF THE PACKAGE BY A MAXIMUM OF 0.008" IN ANY DIRECTION.
5. ALL PLATED SURFACES ARE NI/AU

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.155	0.165	3.94	4.19
B	0.004	0.006	0.10	0.15
C	0.115	0.135	2.92	3.43
D	0.057	0.067	1.45	1.70
E	0.195	0.205	4.95	5.21
F	0.045	0.055	1.14	1.40
G	0.545	0.555	13.84	14.09
H	0.280	0.360	7.11	9.14
J	∅ .100		2.54	
K	0.375		9.53	

- PIN 1. GATE  
 PIN 2. DRAIN  
 PIN 3. SOURCE

**Product Dimensions CGH40010P (Package Type — 440196)**



NOTES:

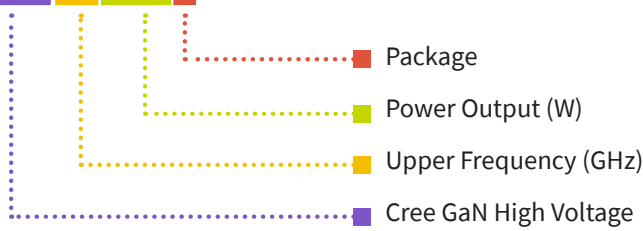
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. ADHESIVE FROM LID MAY EXTEND A MAXIMUM OF 0.020" BEYOND EDGE OF LID.
4. LID MAY BE MISALIGNED TO THE BODY OF THE PACKAGE BY A MAXIMUM OF 0.008" IN ANY DIRECTION.
5. ALL PLATED SURFACES ARE NI/AU

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.155	0.165	3.94	4.19
B	0.003	0.006	0.10	0.15
C	0.115	0.135	2.92	3.17
D	0.057	0.067	1.45	1.70
E	0.195	0.205	4.95	5.21
F	0.045	0.055	1.14	1.40
G	0.195	0.205	4.95	5.21
H	0.280	0.360	7.11	9.14

- PIN 1. GATE  
 PIN 2. DRAIN  
 PIN 3. SOURCE

**Part Number System**

**CGH40010F**



**Table 1.**

Parameter	Value	Units
Upper Frequency <sup>1</sup>	6.0	GHz
Power Output	10	W
Package	Flange or Pill	-

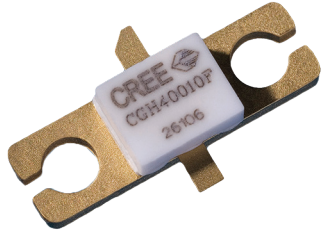

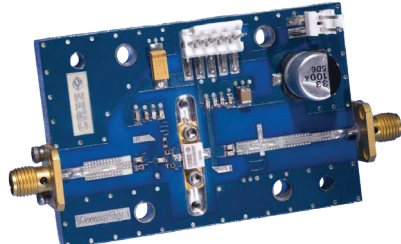
Note1: Alpha characters used in frequency code indicate a value greater than 9.9 GHz. See Table 2 for value.

**Table 2.**

Character Code	Code Value
A	0
B	1
C	2
D	3
E	4
F	5
G	6
H	7
J	8
K	9
Examples:	1A = 10.0 GHz 2H = 27.0 GHz



**Product Ordering Information**

Order Number	Description	Unit of Measure	Image
CGH40010F	GaN HEMT	Each	
CGH40010P	GaN HEMT	Each	
CGH40010F-AMP	Test board with GaN HEMT installed	Each	



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Sales Contact  
[RFSales@cree.com](mailto:RFSales@cree.com)

## Notes

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