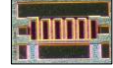


Product Features

- Up to 10 GHz Operation
- 10.0 dB Typical Small Signal Gain at 8.15 GHz
- 8 W Typical Psat at 8.15GHz
- 28V Operation
- High Breakdown Voltage
- High Efficiency
- Reliability Monitoring Supporting

Applications

- U/VHF Amplifiers
- Broadband Amplifiers
- Base Station Communication
- Drone, UAV
- WiMAX, LTE, WCDMA, GSM
- WPT, V2X
- Radar Application



WP28010008

Absolute Maximum Rating (not simultaneous) at 25°C

Parameter	Symbol	Typical Value	Units	Conditions
Threshold voltage @ Id=1mA/mm, Vd=10V	V _{to}	-3.2	V	25°C
Breakdown voltage @ Id=1mA/mm	V _{DG}	100	V	25°C
Drain-source current, Id @ Vd=10V, Vg=0	I _{dss}	880	mA/mm	25°C
Operating Junction Temperature	T _J	225	°C	
Storage Temperature	T _{STG}	-65, +150	°C	
Thermal Resistance, Junction to Case (packaged)	R _{θJC}		°C/W	
Thermal Resistance, Junction to Case (die only)	R _{θJC}		°C/W	
Mounting Temperature (30 seconds)	T _S	320	°C	30 seconds

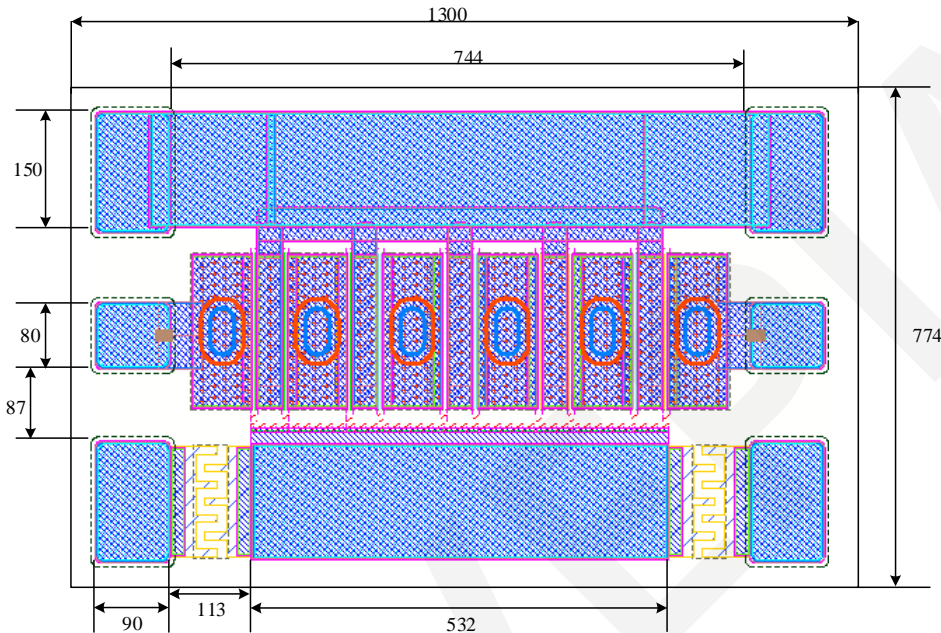
DC Characteristics (Frequency= 8.15GHz unless otherwise stated; TA=25°C)

Parameter	Symbol	Typical Value	Units	Conditions
Ohmic contact resistance	RC	0.4	Ohm-mm	25°C
Maximum Drain-source current, Id @ Vd=10V, Vg=1V (1X125μm device)	I _{dmax}	1050	mA/mm	25°C
Max. trans-conductance, @ Vd=10V, Vg=-4V ~ -1V (1X125μm device)	GM_PEAK	340	mS/mm	25°C

RF Characteristics (Frequency= 8.15GHz unless otherwise stated; TA=25°C)

Parameter	Symbol	Typical Value	Units	Conditions
Small Signal Gain	G _{SS}	>10	dB	V _{DD} =28V, I _{DQ} =100mA
Saturated Power Output	P _{SAT}	10	W	V _{DD} =28V, I _{DQ} =100mA
Drain Efficiency	η	>40	%	V _{DD} =28V, I _{DQ} =100mA
Intermodulation Distortion	IM3	<-30	dBc	V _{DD} =28V, I _{DQ} =100mA
Output Mismatch Stress	v _{SWR}	10:1	ψ	

Die Dimensions (Units in microns)

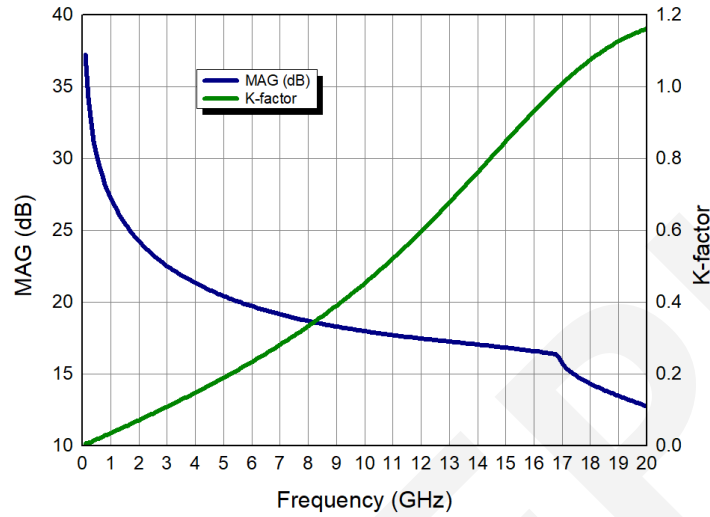


Overall die size 1300 x 774 (+0/-50) microns, die thickness 100 (+/- 10) microns.
All Gate and Drain pads must be wire bonded for electrical connection.

Assembly Notes

- Recommended solder is AuSn (80/20) solder. Refer to Wavepia's guide for the Eutectic Die Bond Procedure.
- Vacuum collet is the preferred method of pick-up.
- The backside of the die is the Source (ground) contact.
- Die back side gold plating is 5 microns thick minimum.
- Thermosonic ball or wedge bonding are the preferred connection methods.
- Gold wire must be used for connections.

Simulated Maximum Available Gain (MAG) and K Factor of the WP28010008
 VDD=28V, IDQ=100mA



Intrinsic die parameters - reference planes at centers of gate and drain bonding pads. No wire bonds assumed.

Simulated Minimum Noise Figure of the WP28010008
 VDD=28V, IDQ=100mA

Will be Updated

Small Signal Performance

VDS=28V, IDQ=100mA, magnitude / angle

Frequency	Mag S11	Ang S11	Mag S21	Ang S21	Mag S12	Ang S12	Mag S22	Ang S22
1000MHz	0.995187	-20.5602	38.41224	168.4109	0.007261	78.4696	0.646454	-15.3721
1100MHz	0.984095	-39.8592	36.48038	157.5657	0.013791	67.96535	0.623222	-29.8954
1200MHz	0.969574	-57.0515	33.81925	147.9492	0.019175	58.62725	0.591911	-43.0076
1300MHz	0.954755	-71.8265	30.91068	139.7088	0.023365	50.64955	0.558777	-54.492
1400MHz	0.941432	-84.2704	28.07755	132.7609	0.026525	43.9582	0.527844	-64.3856
1500MHz	0.930231	-94.6653	25.48069	126.9209	0.02888	38.37174	0.500937	-72.8486
1600MHz	0.921131	-103.345	23.17374	121.9877	0.030636	33.69042	0.478475	-80.0767
1700MHz	0.913852	-110.625	21.15426	117.7815	0.031953	29.73523	0.460189	-86.2582
1800MHz	0.90806	-116.77	19.39586	114.1548	0.032949	26.35897	0.445551	-91.5591
1900MHz	0.90345	-122	17.86495	110.9908	0.033708	23.4451	0.433993	-96.1204
2000MHz	0.899773	-126.485	16.52841	108.1985	0.034292	20.90287	0.424992	-100.06
2100MHz	0.896827	-130.364	15.35655	105.7073	0.034743	18.66181	0.418103	-103.475
2200MHz	0.894462	-133.744	14.32393	103.4625	0.035091	16.66709	0.412961	-106.447
2300MHz	0.892558	-136.711	13.40919	101.4208	0.03536	14.87582	0.409267	-109.044
2400MHz	0.891024	-139.332	12.59461	99.54857	0.035565	13.25414	0.406781	-111.322
2500MHz	0.889792	-141.662	11.86549	97.81868	0.03572	11.77514	0.40531	-113.328
2600MHz	0.888805	-143.746	11.20967	96.20953	0.035833	10.41721	0.404697	-115.102
2700MHz	0.888023	-145.619	10.61702	94.70361	0.035912	9.162899	0.404814	-116.677
2800MHz	0.88741	-147.312	10.07914	93.28662	0.035963	7.997943	0.405556	-118.081
2900MHz	0.88694	-148.848	9.588945	91.94681	0.035989	6.910629	0.406838	-119.339
3000MHz	0.886592	-150.248	9.140502	90.67445	0.035994	5.891257	0.408587	-120.47
3100MHz	0.886348	-151.529	8.72878	89.4614	0.035981	4.931734	0.410743	-121.492
3200MHz	0.886194	-152.705	8.349505	88.30084	0.035953	4.02527	0.413256	-122.42
3300MHz	0.886118	-153.789	7.999024	87.18701	0.035911	3.166129	0.416081	-123.266
3400MHz	0.886111	-154.791	7.674202	86.11499	0.035856	2.349439	0.419182	-124.042
3500MHz	0.886164	-155.72	7.372332	85.08061	0.03579	1.57104	0.422525	-124.756
3600MHz	0.88627	-156.584	7.09107	84.08024	0.035715	0.827363	0.426083	-125.417
3700MHz	0.886424	-157.389	6.828378	83.11079	0.03563	0.115328	0.429831	-126.031
3800MHz	0.886621	-158.142	6.582473	82.16956	0.035536	-0.56773	0.433746	-126.606
3900MHz	0.886855	-158.847	6.351791	81.25419	0.035436	-1.22413	0.43781	-127.145
4000MHz	0.887124	-159.51	6.134956	80.36263	0.035328	-1.85589	0.442005	-127.653
4100MHz	0.887425	-160.133	5.930753	79.49309	0.035213	-2.46478	0.446316	-128.135
4200MHz	0.887753	-160.721	5.738101	78.64396	0.035093	-3.05237	0.450727	-128.593
4300MHz	0.888108	-161.276	5.556043	77.81384	0.034966	-3.62003	0.455227	-129.031
4400MHz	0.888486	-161.801	5.383721	77.00149	0.034835	-4.16897	0.459804	-129.451
4500MHz	0.888885	-162.3	5.220371	76.20579	0.034698	-4.70027	0.464447	-129.856
4600MHz	0.889304	-162.773	5.065305	75.42575	0.034557	-5.21489	0.469147	-130.247
4700MHz	0.88974	-163.223	4.917904	74.66048	0.034412	-5.71369	0.473895	-130.627
4800MHz	0.890194	-163.652	4.777609	73.9092	0.034262	-6.19743	0.478682	-130.995

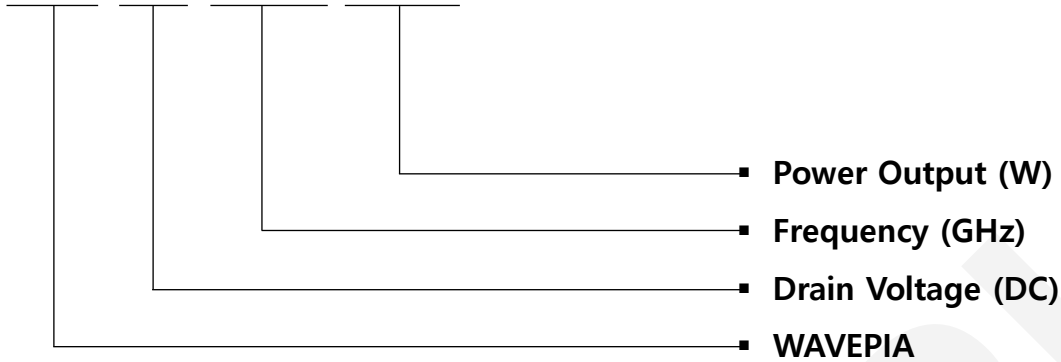
Small Signal Performance

VDS=28V, IDQ=100mA, magnitude / angle

Frequency	Mag S11	Ang S11	Mag S21	Ang S21	Mag S12	Ang S12	Mag S22	Ang S22
4900MHz	0.895368	-167.069	3.674159	67.0357	0.032584	-10.3283	0.52737	-134.321
5000MHz	0.895929	-167.345	3.586919	66.40268	0.032401	-10.6796	0.532213	-134.631
5100MHz	0.896496	-167.612	3.502943	65.77823	0.032217	-11.0208	0.537038	-134.938
5200MHz	0.897067	-167.871	3.422052	65.16208	0.032031	-11.3521	0.541839	-135.243
5300MHz	0.897641	-168.121	3.344082	64.55402	0.031843	-11.6738	0.546616	-135.546
5400MHz	0.898219	-168.364	3.268879	63.95382	0.031654	-11.986	0.551366	-135.847
5500MHz	0.8988	-168.6	3.196302	63.36129	0.031463	-12.2889	0.556087	-136.146
5600MHz	0.899383	-168.83	3.126219	62.77622	0.03127	-12.5826	0.560775	-136.443
5700MHz	0.899967	-169.053	3.058504	62.19845	0.031076	-12.8673	0.565431	-136.739
5800MHz	0.900554	-169.27	2.993045	61.62781	0.030881	-13.143	0.570052	-137.033
5900MHz	0.901141	-169.482	2.929731	61.06413	0.030685	-13.41	0.574636	-137.326
6000MHz	0.901729	-169.688	2.868464	60.50727	0.030488	-13.6683	0.579182	-137.617
6100MHz	0.902317	-169.889	2.809148	59.95709	0.03029	-13.918	0.583689	-137.906
6200MHz	0.902905	-170.086	2.751695	59.41344	0.030091	-14.1593	0.588156	-138.194
6300MHz	0.903492	-170.278	2.696021	58.87621	0.029892	-14.3921	0.592582	-138.481
6400MHz	0.904079	-170.466	2.64205	58.34527	0.029691	-14.6166	0.596965	-138.767
6500MHz	0.904664	-170.65	2.589705	57.82051	0.029491	-14.8329	0.601305	-139.051
6600MHz	0.905249	-170.83	2.53892	57.30181	0.029289	-15.041	0.605602	-139.334
6700MHz	0.905831	-171.006	2.489628	56.78907	0.029087	-15.241	0.609854	-139.615
6800MHz	0.906412	-171.179	2.441768	56.28218	0.028885	-15.4329	0.614061	-139.895
6900MHz	0.906991	-171.348	2.395281	55.78105	0.028683	-15.6168	0.618223	-140.174
7000MHz	0.907567	-171.515	2.350112	55.28558	0.02848	-15.7927	0.622339	-140.452
7100MHz	0.908141	-171.678	2.30621	54.79569	0.028278	-15.9607	0.626409	-140.728
7200MHz	0.908712	-171.839	2.263524	54.31127	0.028075	-16.1209	0.630433	-141.003
7300MHz	0.909281	-171.996	2.222009	53.83225	0.027872	-16.2732	0.63441	-141.276
7400MHz	0.909846	-172.151	2.18162	53.35854	0.02767	-16.4177	0.638341	-141.548
7500MHz	0.910408	-172.304	2.142314	52.89007	0.027467	-16.5544	0.642224	-141.818
7600MHz	0.910967	-172.454	2.104052	52.42675	0.027265	-16.6834	0.646061	-142.087
7700MHz	0.911522	-172.602	2.066795	51.96851	0.027063	-16.8046	0.649851	-142.355
7800MHz	0.912073	-172.747	2.030508	51.51528	0.026861	-16.9182	0.653594	-142.621
7900MHz	0.912621	-172.89	1.995156	51.06698	0.02666	-17.0241	0.657291	-142.886
8000MHz	0.913164	-173.032	1.960705	50.62355	0.026459	-17.1223	0.66094	-143.149
8100MHz	0.913704	-173.171	1.927125	50.18491	0.026258	-17.2129	0.664544	-143.411
8200MHz	0.91424	-173.309	1.894386	49.751	0.026058	-17.2958	0.668101	-143.672
8300MHz	0.914771	-173.444	1.86246	49.32176	0.025859	-17.3712	0.671612	-143.93
8400MHz	0.915299	-173.578	1.831318	48.89712	0.02566	-17.4389	0.675078	-144.188
8500MHz	0.915822	-173.711	1.800935	48.47701	0.025462	-17.4991	0.678497	-144.444
8600MHz	0.91634	-173.841	1.771286	48.06138	0.025264	-17.5516	0.681872	-144.698
8700MHz	0.916854	-173.97	1.742347	47.65017	0.025068	-17.5966	0.685202	-144.951

Part Number System

W P 2 8 0 1 0 0 0 8



Parameter	Value	Units
Drain Voltage	28	V
Lower Frequency	DC	GHz
Upper Frequency	10	GHz
Output Power	8	W
Transistor Type	Bare-die	-

Packaging Information

- Bare die are shipped in Wafer-level with Expander Ring or Gel-Pak® containers.
- Possible UV Curing for Wafer-level with dicing saw