MGA-43828

925–960 MHz Linear Power Amplifier Module

Data Sheet

Description

The Avago MGA-43828 is a fully matched, highly linear power amplifier (PA) designed for use in the 925-960 MHz band. Based on Avago's proprietary 0.25um GaAs E-pHEMT technology, the device features high linearity, gain and power-added efficiency (PAE) with integrated power detector and shutdown functions. The MGA-43828 is ideal for use as a final stage PA for Small Cell base transceiver station (BTS) applications.

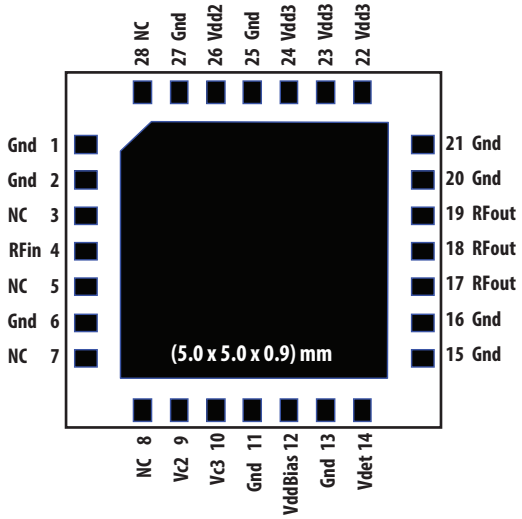
Component Image

(5.0 x 5.0 x 0.9) mm Package Outline

TOP VIEW

Notes:
Package marking provides orientation and identification
"43828" = Device part number
"YYWW" = Year and work week
"XXXX" = Assembly lot number

Pin Configuration



Attention: Observe Precautions for handling electrostatic sensitive devices.
ESD Machine Model = 60 V
ESD Human Body Model = 400 V
Refer to Avago Application Note A004R: Electrostatic Discharge Damage and Control.

Features

- High linearity performance : Max -50dBc ACLR1[1] at 27 dBm linear output power (biased with 5.0V supply)
- High gain : 33 dB
- Good efficiency
- Fully matched
- Built-in detector
- GaAs E-pHEMT Technology[2]
- Low cost small package size: (5.0 x 5.0 x 0.9) mm
- MSL3
- Lead free/Halogen free/RoHS compliance

Specifications

940MHz; 5.0V, Idqtotal =316mA (typ), W-CDMA Test model #1, 64DPCH downlink signal

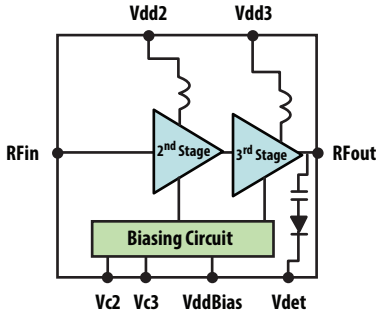
- PAE : 14.7%
- 27 dBm linear Pout @ ACLR1 = -50dBc[1]
- 33 dB Gain
- Detector range : 20dB

Applications

- Final stage high linearity amplifier for Picocell and Enterprise Femtocell PA targeted for small cell BTS downlink applications.

Note:
1. W-CDMA Test model #1, 64DPCH downlink signal
2. Enhancement mode technology employs positive Vgs, thereby eliminating the need of negative gate voltage associated with conventional depletion mode devices.

Functional Block Diagram



Absolute Maximum Rating [1] T_A=25°C

Symbol	Parameter	Units	Absolute Max.
Vdd, VddBias	Supply voltages, bias supply voltage	V	6.0
Vc	Control Voltage	V	(Vdd)
$P_{in,max}$	CW RF Input Power	dBm	20
P_{diss}	Total Power Dissipation [3]	W	4.9
T_j	Junction Temperature	°C	150
T_{STG}	Storage Temperature	°C	-65 to 150

Thermal Resistance [2,3]

θ_{jc} = 15.9 °C/W

Notes:

1. Operation of this device in excess of any of these limits may cause permanent damage.
2. Thermal resistance measured using Infra-Red Measurement Technique.
3. Board temperature (T_B) is 25 °C , for T_B >72 °C derate the device power at 63mW per °C rise in Board (package belly) temperature.

Electrical Specifications

T_A = 25 °C, Vdd = VddBias = 5.0V, Vc2=3.5V, Vc3=2.8V, Idqtotal = 316mA, RF performance at 940MHz, W-CDMA Test model #1, 64DPCH downlink signal operation unless otherwise stated.

Symbol	Parameter and Test Condition	Units	Min.	Typ.	Max.
Vdd	Supply Voltage	V	-	5.0	-
Idqtotal	Quiescent Supply Current	mA	-	316	560
Gain	Gain	dB	31	33	-
OP1dB	Output Power at 1dB Gain Compression	dBm	-	36	-
ACLR1 @ Pout=27.0dBm	W-CDMA Test model #1, 64DPCH downlink signal	dBc	-	-50	-
PAE	Power Added Efficiency	%	13	14.7	-
|S11|	Input Return Loss, 50Ω source	dB	-	13.9	-
DetR	Detector RF dynamic range	dB	-	20	-
2fo	2fo Harmonics (W-CDMA Test model #1, 64DPCH downlink signal)	dBc		-35	

Product Consistency Distribution Charts [1]

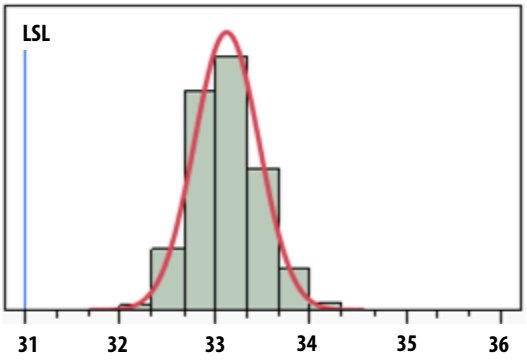


Figure 1. Gain at Pout=27dBm, LSL= 31dB, nominal = 33dB

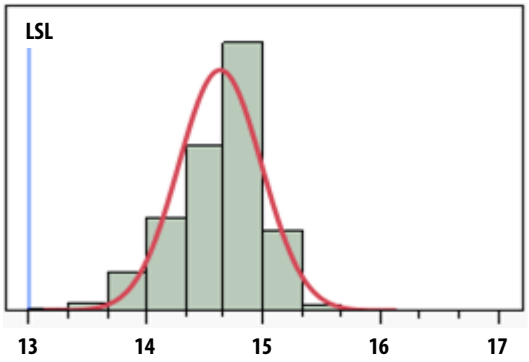


Figure 2. PAE at Pout=27dBm, LSL=13%, nominal = 14.7%

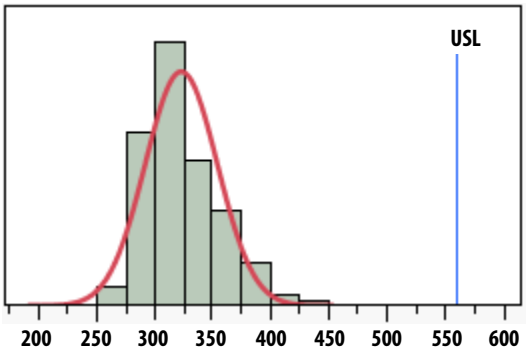


Figure 3. Idqtotal, Nominal = 316mA, USL=560mA

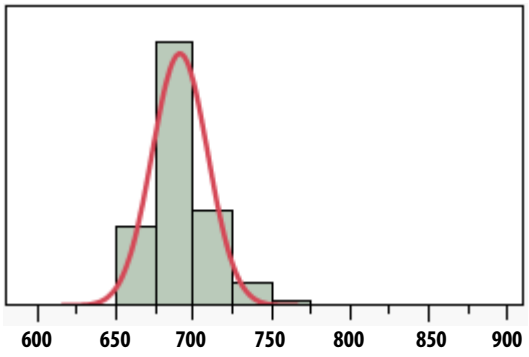


Figure 4. Idd_Total at Pout=27dBm, nominal = 687mA

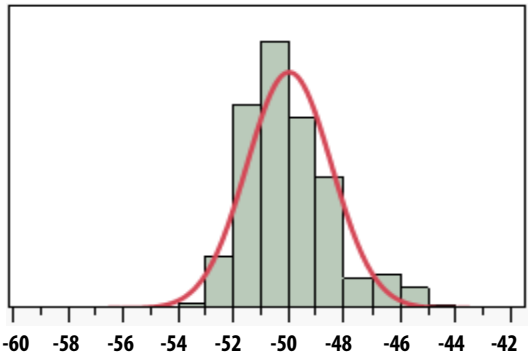


Figure 5. ACLR1 at Pout=27dBm, nominal = -50.3dBc

Note:

1. Distribution data sample size is 1500 samples taken from 3 different wafer lots. TA = 25*C, Vdd=VddBias = 5.0V, Vc2 = 3.5V, Vc3 = 2.8V, RF performance at 940MHz unless otherwise stated. Future wafers allocated to this product may have nominal values anywhere between the upper and lower limits.

MGA-43828 typical over-temperature performance at Vc2=3.5V, Vc3=2.8V (Vdd=VddBias=5V) as shown in Figure 25 and Vc2= 3.6V, Vc3=2.5V (Vdd=VddBias=5.5V) unless otherwise stated.

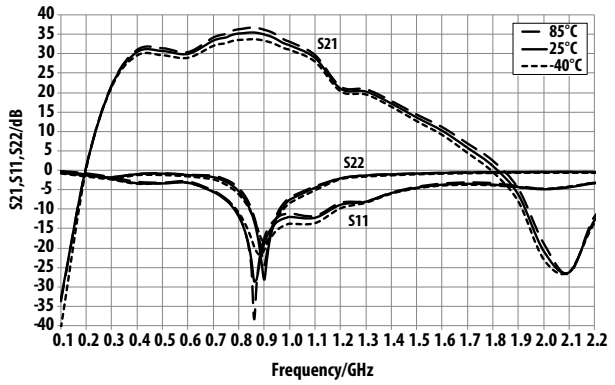


Figure 6. Small-signal performance Over-temperature Vdd=VddBias=5.0V operating voltage

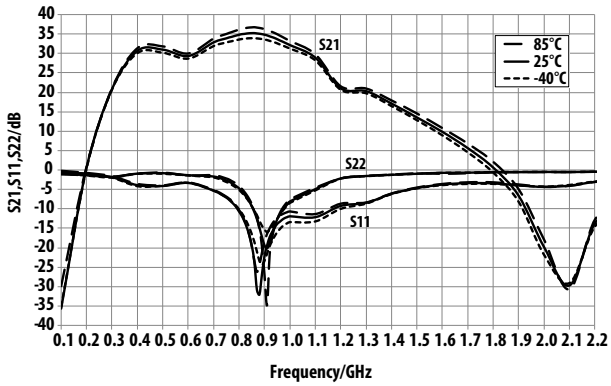


Figure 7. Small-signal performance Over-temperature Vdd=VddBias=5.5V operating voltage

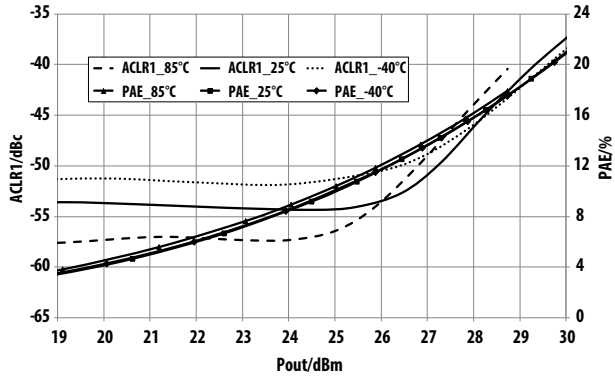


Figure 8. Over-temperature ACLR1, PAE vs Pout @ 927.4MHz Vdd=VddBias=5.0V operating voltage

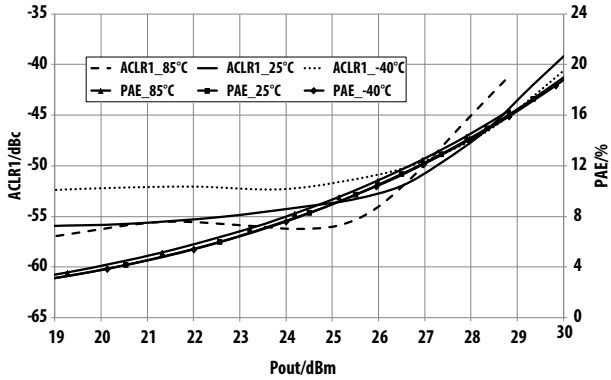


Figure 9. Over-temperature ACLR1, PAE vs Pout @ 927.4MHz Vdd=VddBias=5.5V operating voltage

MGA-43828 typical over-temperature performance at Vc2=3.5V, Vc3=2.8V (Vdd=VddBias=5V) as shown in Figure 25 and Vc2= 3.6V, Vc3=2.5V (Vdd=VddBias=5.5V) unless otherwise stated.

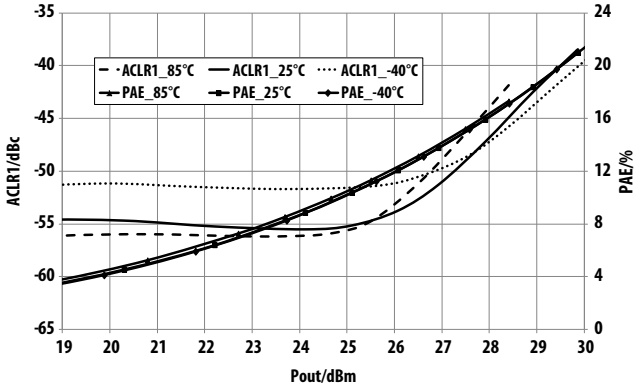


Figure 10. Over-temperature ACLR1, PAE vs Pout @ 940MHz Vdd=VddBias=5.0V operating voltage

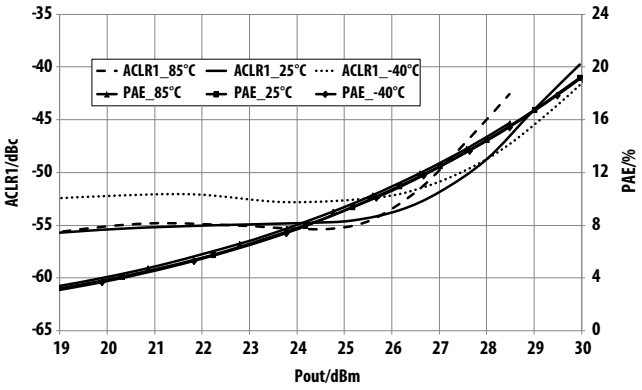


Figure 11. Over-temperature ACLR1, PAE vs Pout @ 940MHz Vdd=VddBias=5.5V operating voltage

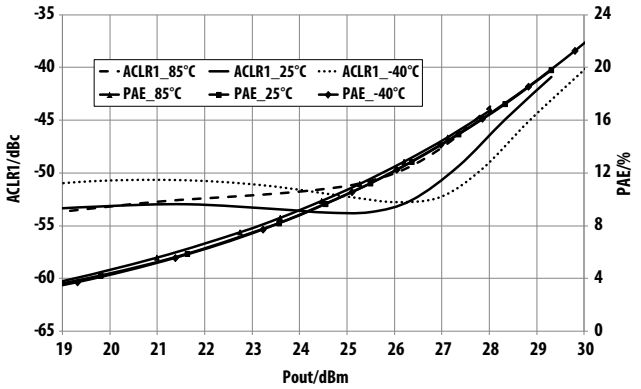


Figure 12. Over-temperature ACLR1, PAE vs Pout @ 957.6MHz Vdd=VddBias=5.0V operating voltage

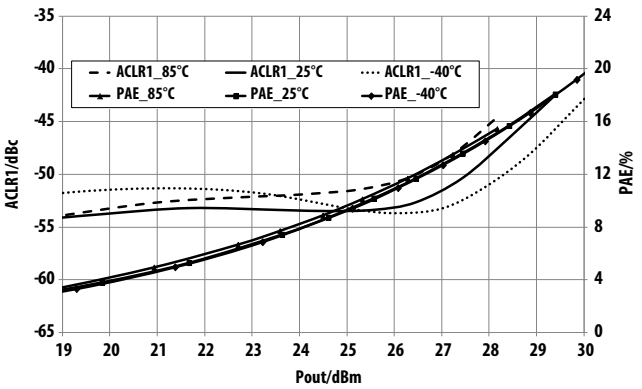


Figure 13. Over-temperature ACLR1, PAE vs Pout @ 957.6MHz Vdd=VddBias=5.5V operating voltage

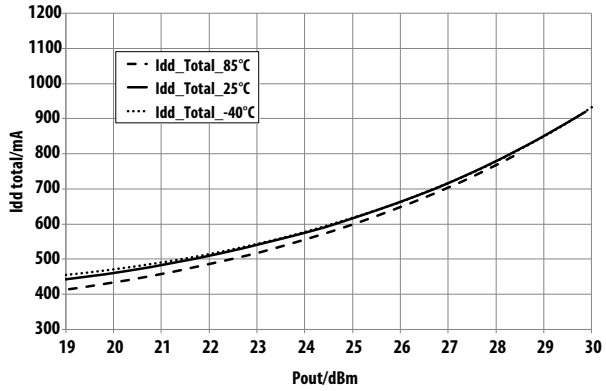


Figure 14. Over-temperature Idd_Total vs Pout @ 940MHz Vdd=VddBias=5.0V operating voltage

MGA-43828 typical over-temperature performance at Vc2=3.5V, Vc3=2.8V (Vdd=VddBias=5V) as shown in Figure 25 and Vc2= 3.6V, Vc3=2.5V (Vdd=VddBias=5.5V) unless otherwise stated.

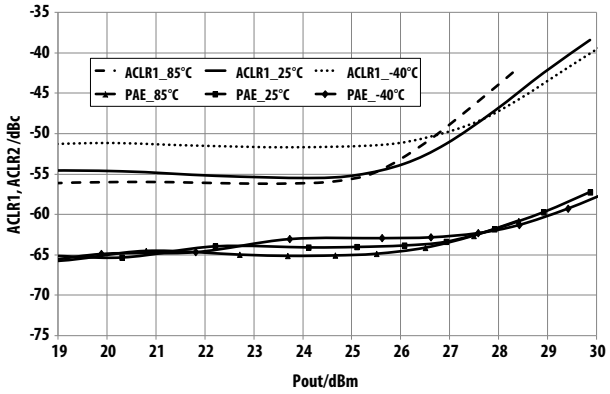


Figure 15. Over-temperature ACLR1, ACLR2 Pout @ 940MHz Vdd=VddBias=5.0V operating voltage

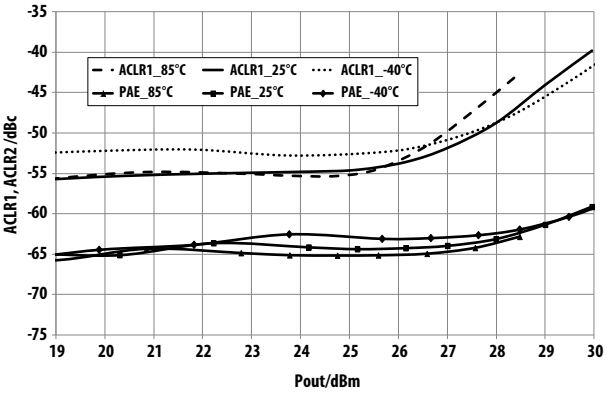


Figure 16. Over-temperature ACLR1, ACLR2 vs Pout @ 940MHz Vdd=VddBias=5.5V operating voltage

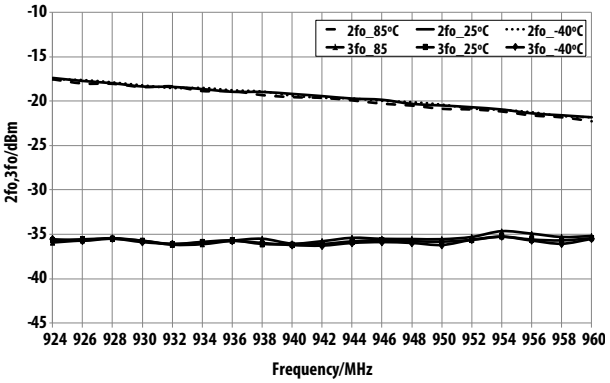


Figure 17. Over-temperature 2nd, 3rd Harmonics vs Freq at Pout=27dBm, Vdd=VddBias=5.0V operating voltage

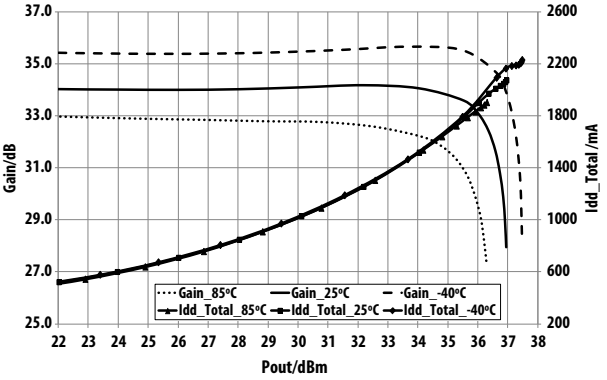


Figure 18. Over-temperature Gain, Idd_Total vs Pout @ 927.4MHz Vdd=VddBias=5.0V operating voltage

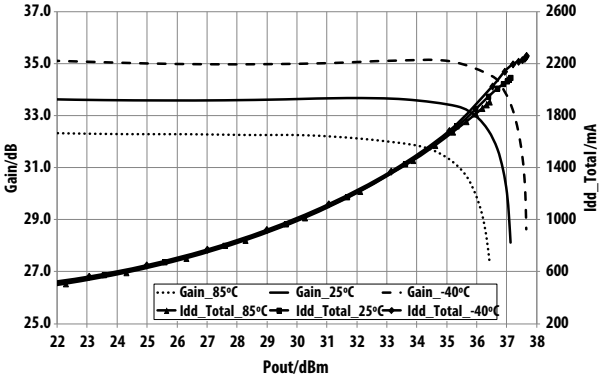


Figure 19. Over-temperature Gain, Idd_Total vs Pout @ 940MHz Vdd=VddBias=5.0V voltage

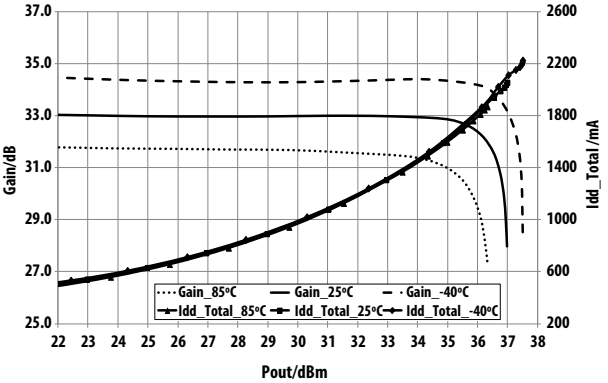


Figure 20. Over-temperature Gain, Idd_Total vs Pout @ 957.6MHz Vdd=VddBias=5.0V operating voltage

MGA-43828 typical 3GPP W-CDMA Test model #1 Spectrum Emission Mask performance at Vdd=VddBias=5.0V, Vc2=3.5V, Vc3=2.8V unless otherwise stated.

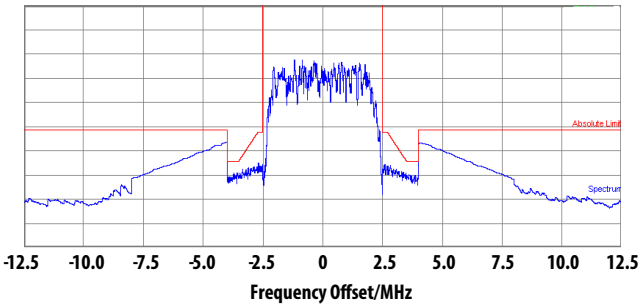


Figure 21. SEM at Pout=28dBm @ 927.4MHz

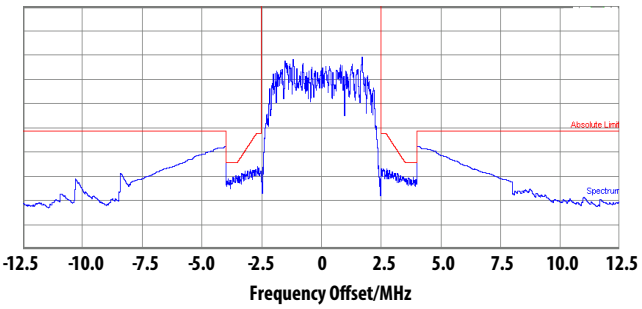


Figure 22. SEM at Pout=28dBm @ 940MHz

S-Parameter [1] (Vdd=VddBias=5.0V, Vc2=3.5V, Vc3=2.8V, T_A=25 °C, 50ohm)

Freq (GHz)	S11 (dB)	S11 (ang)	S21 (dB)	S21 (ang)	S12 (dB)	S12 (ang)	S22 (dB)	S22 (ang)
0.1	-0.359	-157.571	-34.761	-102.9	-36.702	-102.238	-0.904	164.201
0.2	-0.881	137.362	0.529	-72.729	-45.521	82.428	-1.285	153.007
0.3	-1.757	67.025	20.673	-156.637	-48.881	-65.082	-1.757	145.489
0.4	-3.964	-59.742	30.519	83.853	-50.864	151.083	-0.931	135.958
0.5	-3.995	-163.302	30.757	-4.738	-51.199	119.754	-0.871	119.03
0.6	-3.275	142.059	29.167	-52.396	-51.986	32.633	-1.332	103.983
0.70	-5.163	95.642	32.698	-103.112	-51.1	107.186	-1.661	80.291
0.75	-6.846	73.334	33.741	-131.18	-55.921	80.146	-2.667	66.154
0.76	-7.342	68.349	33.967	-137.056	-49.075	56.547	-2.92	62.95
0.77	-7.863	63.826	34.127	-143.311	-55.627	102.524	-3.276	59.029
0.78	-8.465	59.276	34.329	-149.46	-49.175	93.336	-3.672	55.503
0.79	-9.207	54.497	34.519	-155.449	-46.883	76.874	-4.105	52.346
0.80	-10.071	49.55	34.689	-161.611	-47.456	67.861	-4.623	49.093
0.81	-10.963	44.632	34.859	-168.476	-47.256	61.135	-5.32	45.102
0.82	-12.082	39.151	34.963	-175.226	-48.693	51.458	-6.041	42.262
0.83	-13.499	34.735	35.084	177.901	-46.03	64.591	-6.884	38.325
0.84	-15.307	30.159	35.157	170.998	-45.43	56.645	-7.871	34.847
0.85	-17.641	25.929	35.191	164.029	-46.723	43.339	-9.093	31.904
0.86	-20.738	23.691	35.231	156.89	-47.452	69.799	-10.718	28.809
0.87	-25.297	27.081	35.17	149.618	-49.674	28.78	-12.547	27.814
0.88	-30.69	68.189	35.097	142.575	-45.883	13.146	-14.706	28.954
0.89	-29.795	116.55	34.991	135.676	-45.028	5.629	-17.489	37.2
0.90	-24.733	149.892	34.855	128.747	-45.904	2.195	-20.79	55.762
0.91	-21.208	152.212	34.707	121.591	-44.622	5.33	-23.116	85.872
0.92	-18.628	149.76	34.476	114.705	-47.318	4.122	-20.334	115.638
0.93	-16.984	145.958	34.256	108.269	-46.64	1.502	-17.255	130.482
0.94	-15.785	142.698	34.018	101.662	-44.273	-5.232	-14.996	135.594
0.95	-14.818	139.63	33.746	95.019	-43.426	-15.692	-13.298	135.883
0.96	-13.979	135.281	33.429	88.849	-47.383	-27.149	-11.806	136.273
0.97	-13.438	131.11	33.145	82.666	-48.89	-29.658	-10.578	135.041
0.98	-12.909	127.622	32.822	76.819	-44.362	-24.384	-9.588	133.28
0.99	-12.586	125.009	32.511	71.017	-44.602	-39.641	-8.804	131.261
1.0	-12.386	122.608	32.208	65.214	-48.818	-59.526	-8.131	129.013
1.1	-12.603	109.113	28.929	11.021	-46.832	-100.49	-4.826	109.346
1.2	-9.625	102.813	21.051	-31.884	-51.572	-116.036	-2.181	99.966
1.3	-8.711	100.583	20.254	-59.035	-51.981	-108.943	-1.542	77.621
1.4	-6.245	87.113	17.062	-95.823	-63.774	-93.767	-1.24	63.215
1.5	-4.696	68.9	13.543	-129.96	-55.54	140.092	-0.952	49.655
1.6	-3.821	49.575	9.822	-162.801	-51.645	150.591	-0.766	36.848
1.7	-3.38	31.081	5.648	164.175	-55.371	133.889	-0.728	24.747
1.8	-3.417	13.393	0.717	129.544	-58.633	63.838	-0.558	13.194
1.9	-3.889	-0.984	-6.592	94.167	-57.276	13.68	-0.527	1.474
2.0	-4.37	-11.093	-19.911	67.624	-56.615	-15.052	-0.52	-9.914
2.1	-3.991	-17.321	-29.949	-106.864	-57.184	173.406	-0.544	-20.892
2.2	-3.005	-30.017	-13.616	-132.307	-57.272	-119.431	-0.469	-32.058
2.3	-2.689	-44.99	-10.868	-174.392	-56.635	156.631	-0.529	-42.577
2.4	-2.54	-58.058	-11.827	154.999	-54.139	-143.436	-0.525	-53.929
2.5	-2.396	-70.801	-8.932	153.353	-56.184	26.353	-0.688	-62.648
2.6	-2.17	-83.78	-10.65	109.066	-56.02	112.474	-0.521	-73.899
2.7	-2.069	-96.423	-12.235	86.813	-57.74	124.982	-0.499	-84.103

2.8	-2.007	-108.836	-13.701	66.954	-51.969	142.564	-0.451	-94.878
2.9	-1.898	-121.119	-15.071	48.285	-53.476	-74.177	-0.438	-105.505
3.0	-1.922	-133.57	-16.36	30.874	-53.454	101.956	-0.494	-115.896
3.5	-1.907	166.013	-18.36	-61.594	-50.776	129.344	-0.585	-166.55
4.0	-2.2	107.455	-22.351	120.744	-50.308	108.894	-0.734	142.545
4.5	-2.503	48.389	-43.708	-55.204	-55.107	-61.003	-0.775	91.568
5.0	-2.654	-10.266	-47.204	-137.021	-63.527	16.224	-0.929	38.977
5.5	-2.679	-68.289	-49.899	136.102	-55.523	-172.831	-0.968	-13.883
6.0	-2.486	-124.478	-57.512	-3.34	-58.889	168.161	-1.003	-68.181
7.0	-2.195	126.283	-51.591	113.375	-62.855	-110.466	-1.049	-176.356
8.0	-2.387	15.148	-43.87	-53.461	-55.431	-154.545	-1.187	74.532
9.0	-4.275	-107.8	-41.097	154.062	-58.909	-24.969	-1.549	-36.248
10.0	-17.076	-141.433	-42.288	-55.872	-55.416	169.511	-2.353	-170.483
11.0	-2.864	72.097	-58.161	169.438	-54.893	46.247	-2.779	35.768
12.0	-2.492	-58.091	-61.051	14.466	-52.097	-69.384	-2.87	-114.526
13.0	-3.851	-172.445	-47.829	90.467	-45.973	95.231	-3.375	93.686
14.0	-9.548	57.765	-45.557	168.472	-54.816	-17.289	-5.223	-110.742
15.0	-10.935	-161.748	-49.26	166.883	-50.717	156.985	-4.809	-73.706
16.0	-6.88	42.484	-50.838	-33.442	-55.751	83.993	-2.25	133.687
17.0	-5.916	-126.515	-46.178	160.746	-46.378	178.252	-2.079	23.243
18.0	-3.547	101.728	-44.471	-0.854	-46.377	34.175	-5.227	-132.033
19.0	-2.458	-0.217	-44.168	-135.248	-45.382	-148.213	-8.059	19.384
20.0	-4.331	-102.231	-49.442	53.435	-50.726	12.901	-6.152	-78.343

S-Parameter [1] (Vdd=VddBias=5.5V, Vc2=3.6V, Vc3=2.5V, T_A=25 °C, 50ohm)

Freq (GHz)	S11 (dB)	S11 (ang)	S21 (dB)	S21 (ang)	S12 (dB)	S12 (ang)	S22 (dB)	S22 (ang)
0.1	-0.363	-157.363	-35.738	-96.678	-43.49	-71.16	-0.955	163.27
0.2	-0.921	137.115	0.647	-72.378	-44.971	159.783	-1.324	153.1
0.3	-1.802	66.591	20.898	-155.636	-49.064	-104.929	-1.793	145.593
0.4	-3.848	-60.36	30.773	84.054	-43.433	-109.351	-0.951	136.052
0.5	-4.059	-163.859	31.07	-4.84	-48.503	97.579	-0.843	119.228
0.6	-3.277	141.315	29.427	-52.97	-50.346	169.627	-1.367	103.837
0.70	-5.288	94.48	32.957	-104.038	-48.118	129.423	-1.706	80.189
0.75	-7.071	71.736	33.992	-132.361	-47.633	100.102	-2.737	66.475
0.76	-7.59	66.889	34.209	-138.324	-48.62	70.332	-3.007	63.172
0.77	-8.204	61.85	34.364	-144.566	-54.992	73.059	-3.37	59.71
0.78	-8.839	57.262	34.557	-150.888	-52.08	77.538	-3.791	55.93
0.79	-9.666	52.151	34.742	-157.021	-47.85	73.709	-4.24	52.696
0.80	-10.678	46.766	34.908	-163.217	-46.178	64.245	-4.761	49.729
0.81	-11.702	42.002	35.065	-170.013	-48.446	58.621	-5.46	46.128
0.82	-13.053	35.782	35.13	-176.881	-48.887	34.262	-6.265	43.319
0.83	-14.705	30.718	35.235	176.197	-49.315	34.102	-7.101	39.975
0.84	-16.762	25.727	35.304	169.243	-46.939	42.351	-8.132	36.894
0.85	-19.504	20.961	35.329	162.281	-43.821	48.061	-9.406	34.825
0.86	-23.67	17.644	35.34	155.316	-42.202	42.785	-10.855	34.342
0.87	-30.802	23.733	35.257	147.911	-45.287	21.63	-12.637	33.093
0.88	-32.063	106.472	35.179	140.91	-48.414	23.704	-14.865	37.204
0.89	-26.771	157.726	35.07	134.138	-47.826	19.998	-17.307	46.456
0.90	-22.087	162.697	34.925	127.328	-45.827	15.15	-19.415	63.005
0.91	-19.398	160.14	34.756	120.188	-46.743	29.694	-20.209	89.273
0.92	-17.242	154.945	34.504	113.274	-45.944	8.5	-18.655	110.453

0.93	-15.92	150.446	34.297	106.9	-47.772	-9.175	-16.512	123.073
0.94	-14.764	146.101	34.057	100.46	-49.404	-33.987	-14.414	129.044
0.95	-13.817	141.883	33.765	93.978	-48.905	-43.971	-12.713	130.817
0.96	-13.281	137.977	33.446	87.797	-46.582	-5.476	-11.562	131.353
0.97	-12.726	133.391	33.175	81.564	-45.376	-16.291	-10.475	130.899
0.98	-12.316	129.684	32.865	75.842	-48.252	-27.024	-9.63	129.567
0.99	-12.066	126.202	32.552	70.13	-47.161	-38.937	-8.83	127.869
1.0	-11.87	123.088	32.237	64.363	-44.962	-48.601	-8.117	126.084
1.1	-12.097	109.472	28.995	10.246	-48.604	-107.732	-4.951	108.201
1.2	-9.189	102.51	21.083	-32.332	-53.627	-131.32	-2.191	99.955
1.3	-8.407	99.238	20.355	-59.812	-51.003	-153.031	-1.567	77.698
1.4	-6.052	85.94	17.145	-96.791	-55.202	150.905	-1.26	63.241
1.5	-4.585	67.96	13.551	-130.911	-51.134	124.131	-0.988	50.087
1.6	-3.684	48.898	9.848	-164.251	-61.998	75.099	-0.742	37.112
1.7	-3.321	30.388	5.634	162.691	-52.037	114.13	-0.708	24.615
1.8	-3.386	12.855	0.614	128.288	-54.707	-10.831	-0.598	13.28
1.9	-3.902	-1.305	-6.669	93.501	-47.883	-18.835	-0.586	1.717
2.0	-4.293	-11.53	-19.919	68.345	-54.356	58.042	-0.528	-9.624
2.1	-3.968	-18.142	-29.76	-111.318	-54.998	-177.471	-0.552	-20.587
2.2	-3.008	-30.788	-13.699	-130.762	-64.701	-130.559	-0.481	-31.598
2.3	-2.733	-45.473	-10.928	-173.67	-53.718	110.909	-0.513	-42.268
2.4	-2.542	-58.425	-11.76	155.771	-56.856	99.023	-0.475	-53.767
2.5	-2.375	-71.445	-8.74	154.506	-55.147	92.595	-0.678	-62.995
2.6	-2.24	-84.452	-10.513	109.311	-59.247	52.574	-0.501	-74.071
2.7	-2.15	-96.887	-12.044	86.927	-60.781	-16.77	-0.517	-84.564
2.8	-2.024	-109.285	-13.539	67.104	-61.456	102.686	-0.504	-95.311
2.9	-1.935	-122.07	-14.707	48.13	-57.916	-30.14	-0.465	-105.959
3.0	-1.967	-134.43	-16.164	30.424	-55.016	-53.787	-0.54	-116.424
3.5	-1.974	165.035	-18.119	-62.624	-54.931	-123.19	-0.607	-167.743
4.0	-2.21	107.046	-22.344	120.161	-57.185	101.398	-0.839	141.387
4.5	-2.474	48.11	-42.17	-57.868	-59.388	80.971	-0.83	91.013
5.0	-2.647	-10.421	-48.662	-139.353	-63.742	13.508	-0.93	38.913
5.5	-2.758	-68.222	-54.447	140.834	-56.238	-8.165	-0.993	-13.403
6.0	-2.645	-125.732	-63.373	74.546	-59.303	157.99	-1.145	-68.365
7.0	-2.357	124.578	-52.493	98.891	-54.818	29.866	-2.115	-176.377
8.0	-2.4	15.057	-46.215	-47.005	-58.471	-89.574	-1.492	76.606
9.0	-4.992	-106.44	-42.045	155.973	-58.601	-100.194	-1.513	-34.954
10.0	-18.2	-133.977	-42.845	-46.266	-49.614	-149.66	-2.35	-165.752
11.0	-3.179	72.763	-56.969	-166.779	-55.254	78.18	-2.776	37.529
12.0	-2.498	-56.435	-57.532	28	-56.671	-85.326	-2.762	-112.048
13.0	-4.072	-165.978	-49.529	106.178	-49.234	129.04	-3.463	96.178
14.0	-9.988	57.584	-43.317	-179.126	-44.447	-18.046	-5.046	-107.853
15.0	-10.358	-156.525	-47.425	-166.179	-51.511	158.496	-4.717	-72.741
16.0	-6.977	42.596	-49.172	7.584	-52.216	67.308	-2.068	137.07
17.0	-5.399	-124.424	-47.281	142.1	-50.398	166.878	-2.023	25.404
18.0	-3.22	103.778	-47.01	1.183	-47.386	27.591	-4.854	-129.506
19.0	-2.448	0.839	-42.578	-155.4	-44.211	-111.995	-8.384	22.683
20.0	-4.267	-102.402	-43.909	29.314	-45.786	12.927	-6.153	-78.467

Note 1. S-parameter is measured with de-embedded reference plane at DUT RFin and RFout pins. (See Figure 24)

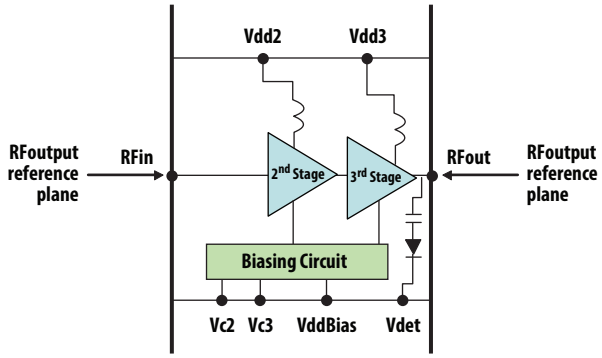
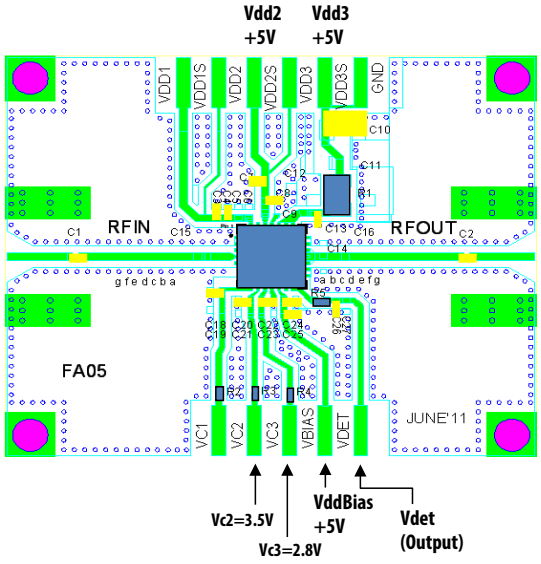


Figure 24. RFinput and RFoutput Reference Plane

Demonstration Board Top View (Vdd=VddBias=5.0V, Vc2=3.5V, Vc3=2.8V)



Component	Value	Part Number
C1, C2, C20, C22	56pF +/- 5%	GRM1555C1H056JA01D
C11, C29	0.1uF +/- 10%	GRM155R71C104KA88D
C24	82pF +/- 5%	GRM1555C1H820JA01D
C8, C25	2200pF +/- 10%	GRM155R71H222KA01D
C7, C13, C28	0.047uF +/- 10%	GRM155R71E473KA88D
C9	12pF +/- 5%	GRM1555C1H120JA01D
C26	22nF +/- 10%	CM05X7R223K16AHF
C10	2.2uF +/- 10%	GRM21BR71E225KA73L
R1	0Ω	RMC1/10 JPTP
R3, R4, R5	0Ω	RMC1/16S JPTH

Note:
For performance optimization control voltage for invidual stages can be adjusted by varying R2, R3 and R4 resistor value.

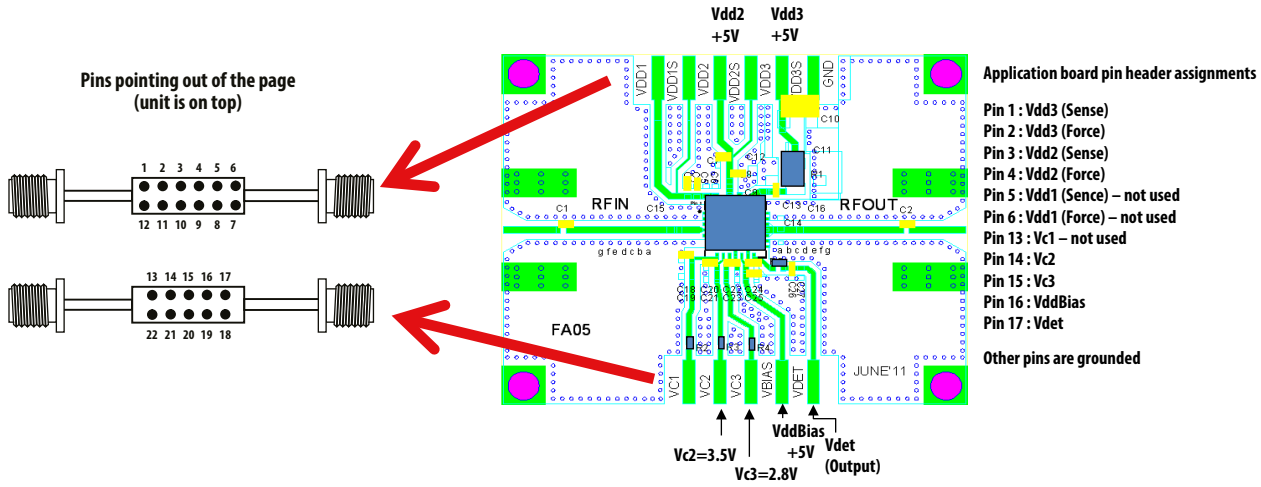


Figure 25. Demonstration board application circuit for MGA-43828 module

Application Schematic

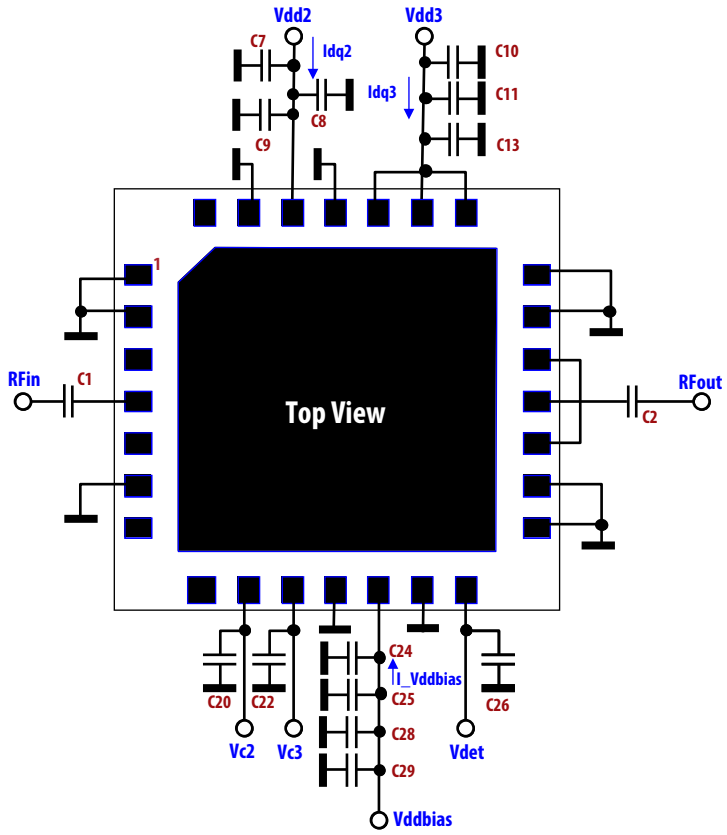


Figure 26. Application schematic in demonstration board

Notes
1. All capacitors on supply lines are bypass capacitors
2. C1 / C2 are RF coupling capacitors.
3. For Vdd=VddBias=5V, Idq2 = 110 mA, Idq3 = 235 mA, I_VddBias = 14 mA. Idq 2/3 are adjusted by voltages to CMOS-compatible control pins Vc 2/3 respectively. These typical bias currents were obtained with Vc 2/3 voltages in Fig 2 below. Adjustment of these currents enable optimum bias conditions to be achieved for best linearity and efficiency for a given modulation type.

MGA-43828 typical Ic2, Ic3 vs Vc unless otherwise stated

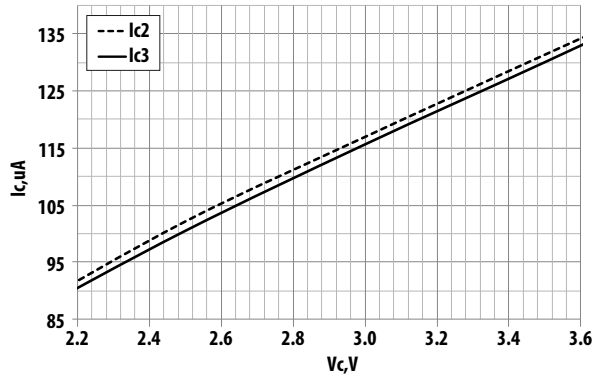


Figure 27. Ic Versus Vc at Vdd=VddBias=5.0V

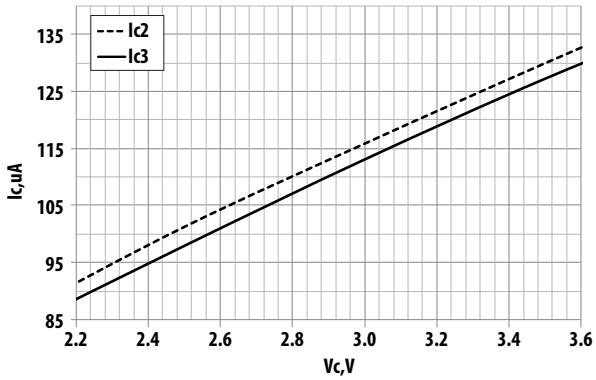
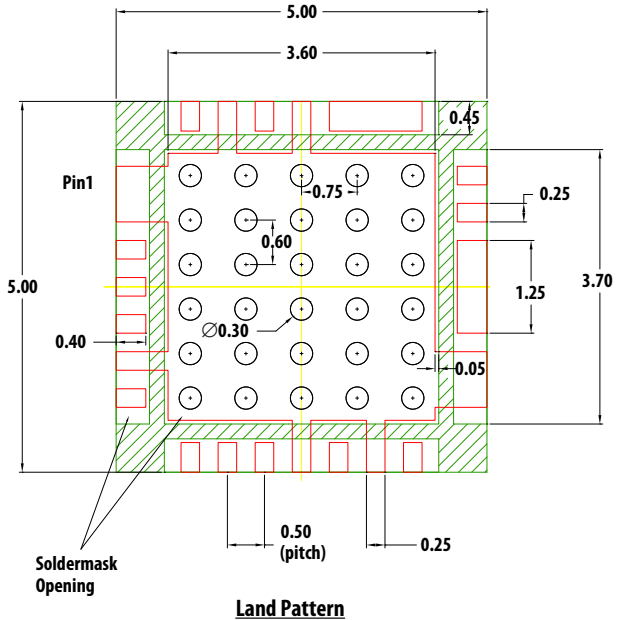
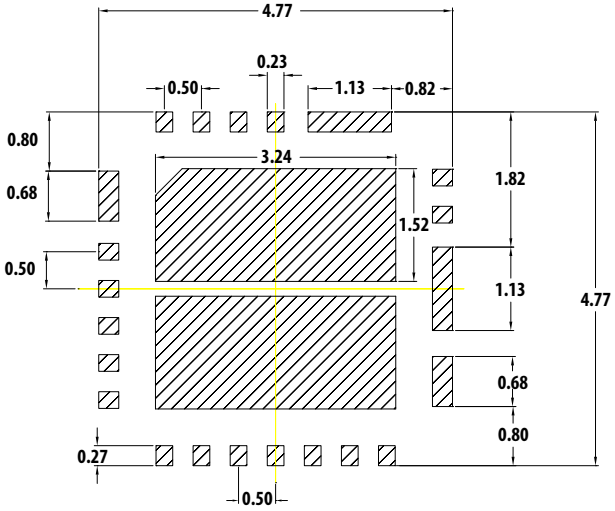


Figure 28. Ic Versus Vc at Vdd=VddBias=5.5V

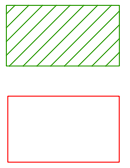
PCB Land Pattern and Stencil Outline



Land Pattern

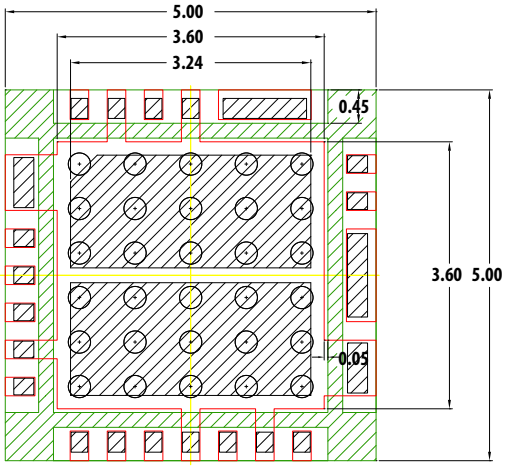


Stencil Opening



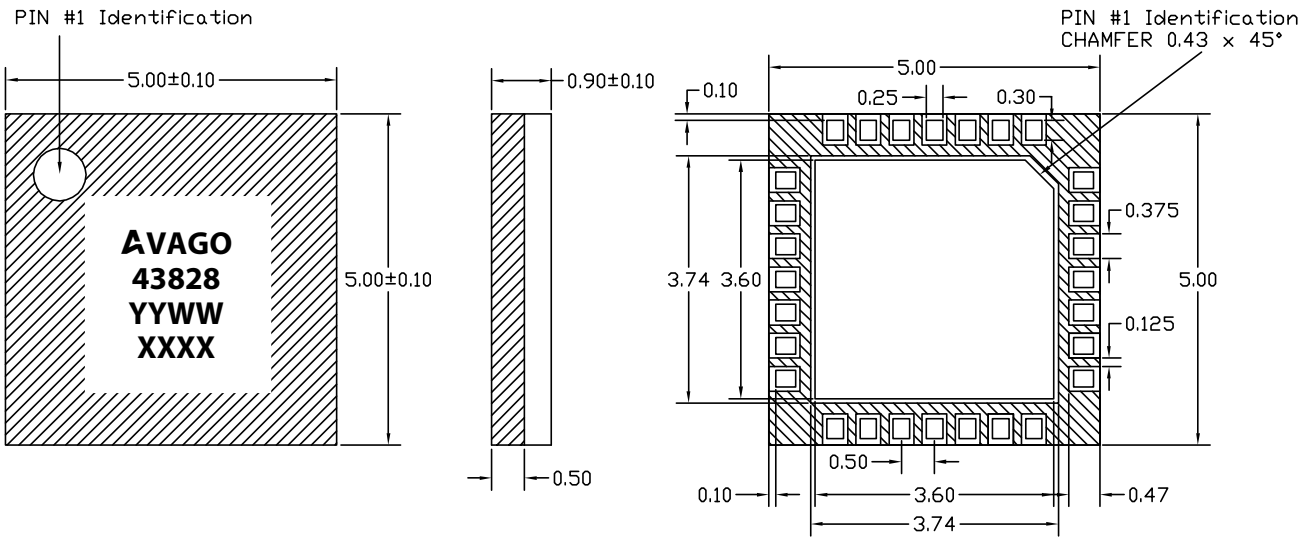
Note :

1. Recommended Land Pattern and Stencil.
2. 4 mils stencil thickness recommended.
3. All dimensions are in mm



Combination of Land Pattern & Stencil Opening

MCOB (5.0 x 5.0 x 0.9) mm 28-Lead Package Dimensions



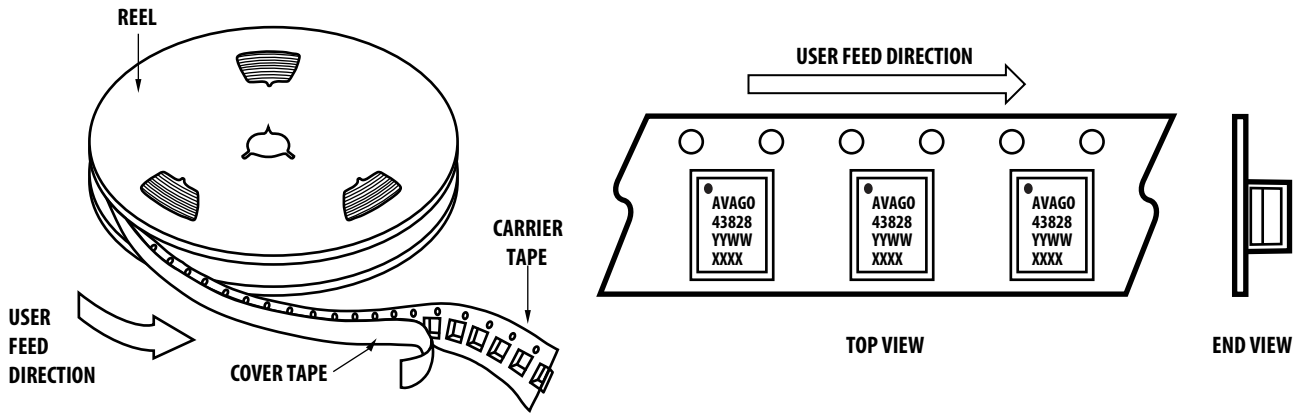
Top View **Side View** **Bottom View**

Note
1. All dimensions are in millimeters.
2. Dimensions are inclusive of plating.
3. Dimensions are exclusive of mold flash and metal burr

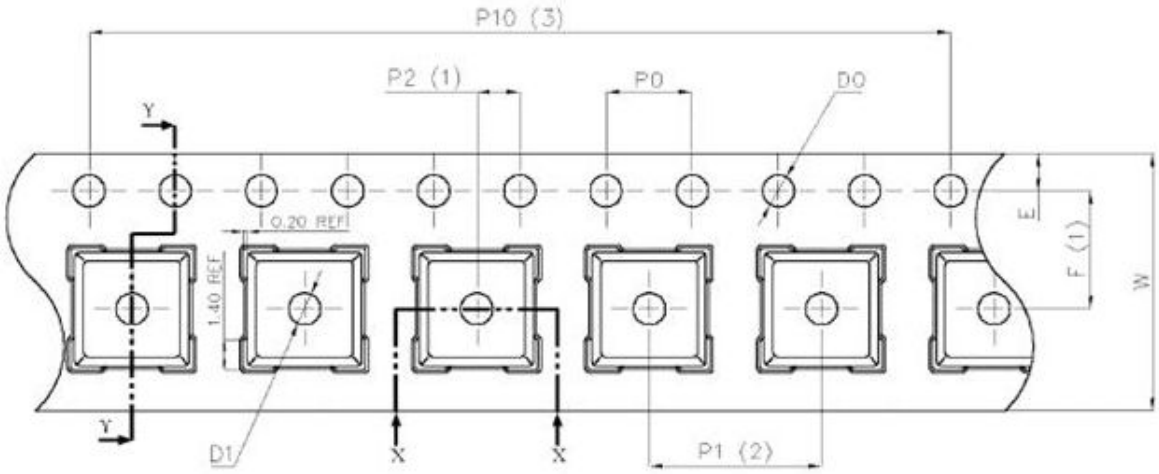
Part Number Ordering Information

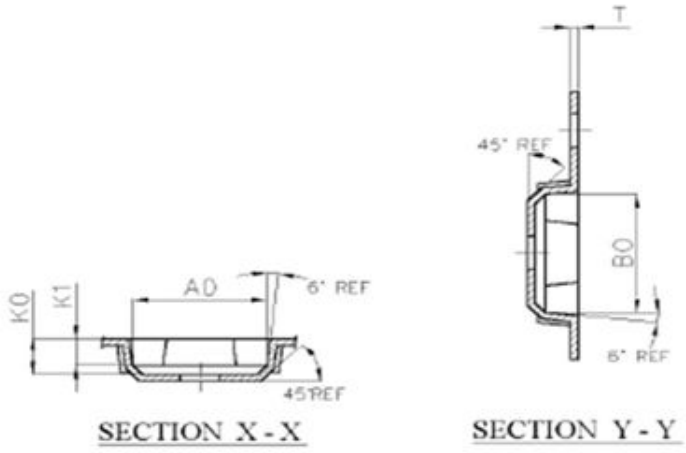
Part #	Qty	Container
MGA-43828-BLKG	100	Antistatic Bag
MGA-43828-TR1G	1000	7″ Reel

Device Orientation



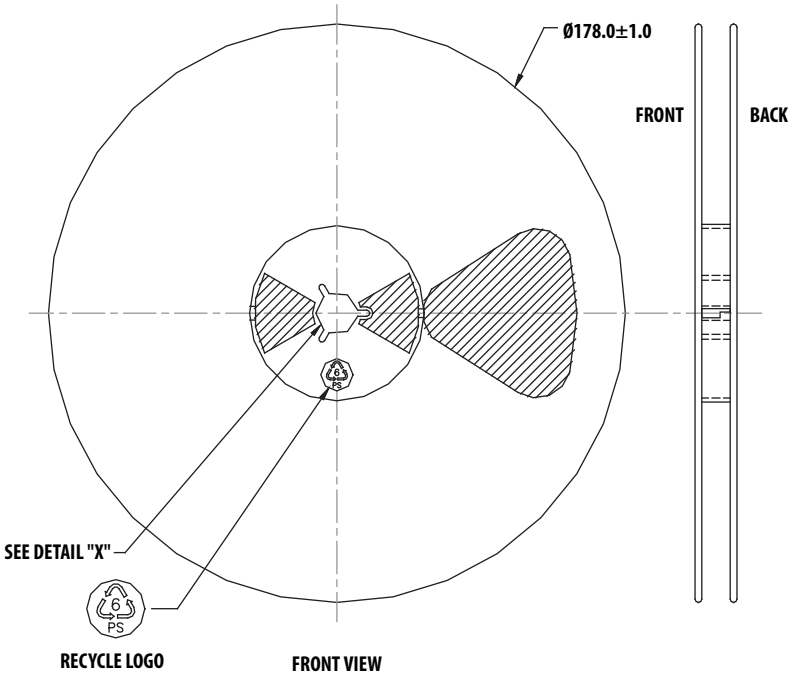
Tape Dimensions

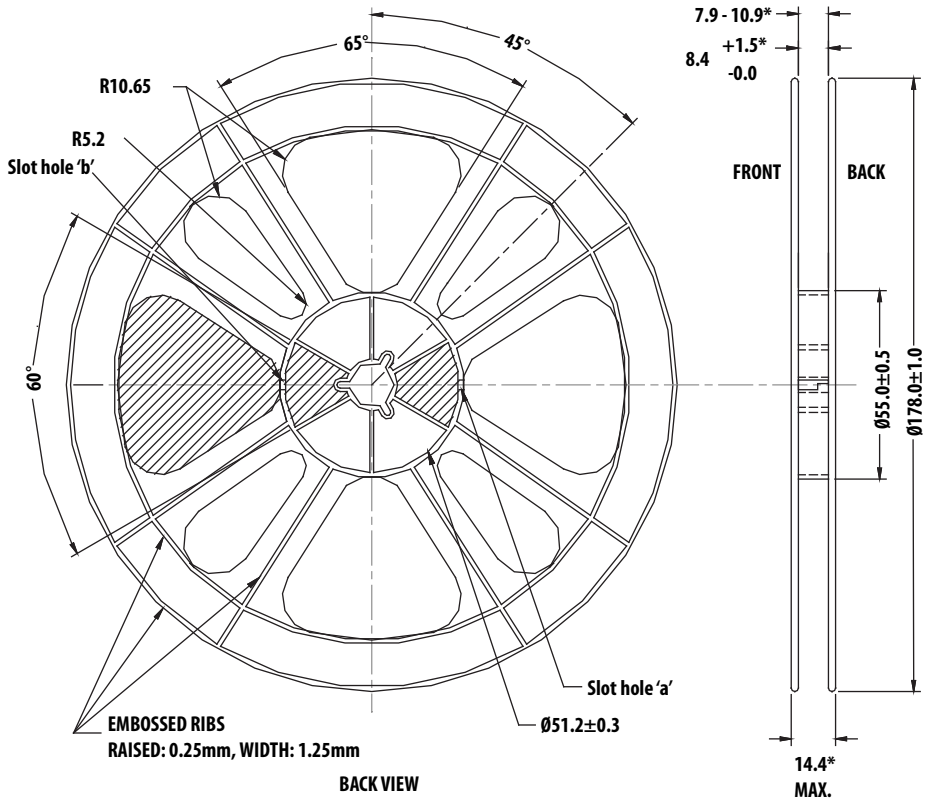




Dimension List			
Annote	Milimeter	Annote	Milimeter
A0	5.40±0.10	P0	4.00±0.10
B0	5.40±0.10	P2	2.00±0.10
D0	$1.50^{+0.10}_{-0}$	P10	40.00±0.20
D1	1.60±0.10	E	1.75±0.10
K0	1.90±0.10	F	5.50±0.10
K1	1.50±0.10	T	0.30±0.03
P1	8.00±0.10	W	12.00±0.30

Reel Dimensions (7″ reel)





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AV02-4223EN - July 16, 2013