

< C band internally matched power GaAs FET >

MGFC45B3436B

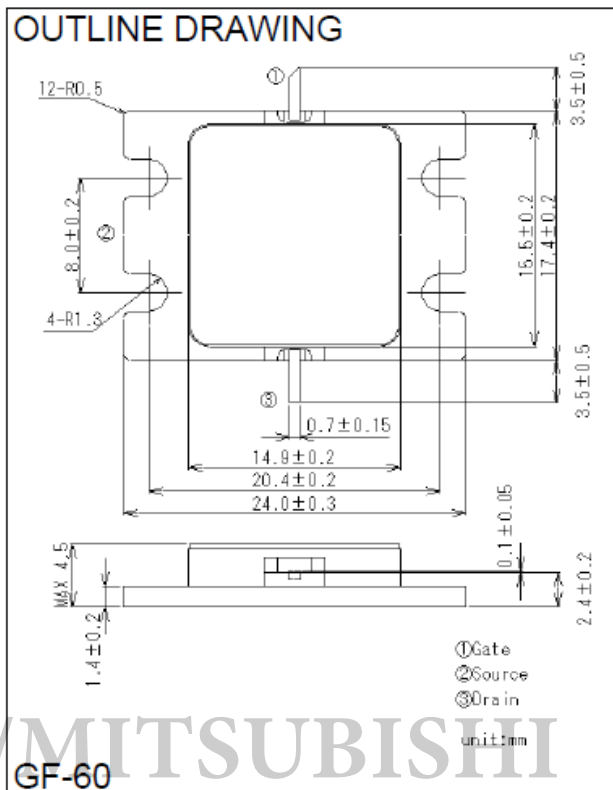
3.4 – 3.6 GHz BAND / 30W

DESCRIPTION

The MGFC45B3436B is an internally impedance-matched GaAs power FET especially designed for use in 3.4 – 3.6 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES

- Class AB operation
- Internally matched to 50(ohm) system
- High output power
Po(SAT)=30W (TYP.) @f=3.4 – 3.6GHz
- High power gain
GLP=11.0dB (TYP.) @f=3.4 – 3.6GHz
- Distortion
ACP=-45dBc (TYP.) @f=3.4 – 3.6GHz



RECOMMENDED BIAS CONDITIONS

- VDS=12V • ID=0.8A • RG=12ohm

Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain breakdown voltage	-15	V
VGSO	Gate to source breakdown voltage	-10	V
MAXID	Maximum drain current	10	A
PT *1	Total power dissipation	78	W
Tch	Channel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

*1 : Tc=25°C

Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=100mA	-0.5	-	-3.0	V
Po(SAT)	Output Power	VDS=12V, ID(RF off)=0.8A f=3.4 - 3.6GHz	-	45	-	dBm
GLP	Linear Power Gain	VDS=12V, ID(RF off)=0.8A	10	11	-	dB
ID	Drain current	f=3.4 - 3.6GHz, Pout=34dBm	-	1.2	1.5	A
ACP *2	Adjacent Channel leakage Power		-	-45	-	dBc
Rth(ch-c) *3	Thermal resistance	delta Vf method	-	-	1.9	°C/W

*2 : Mod.3GPP TEST MODEL 1 64code Signal

*3 : Channel-case

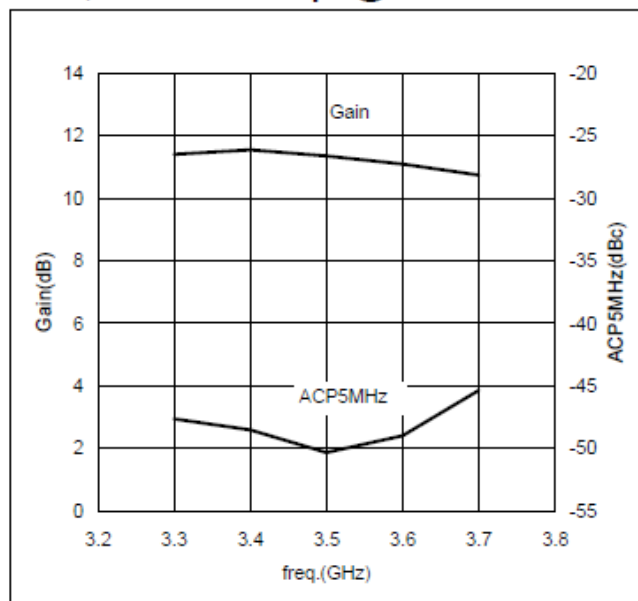
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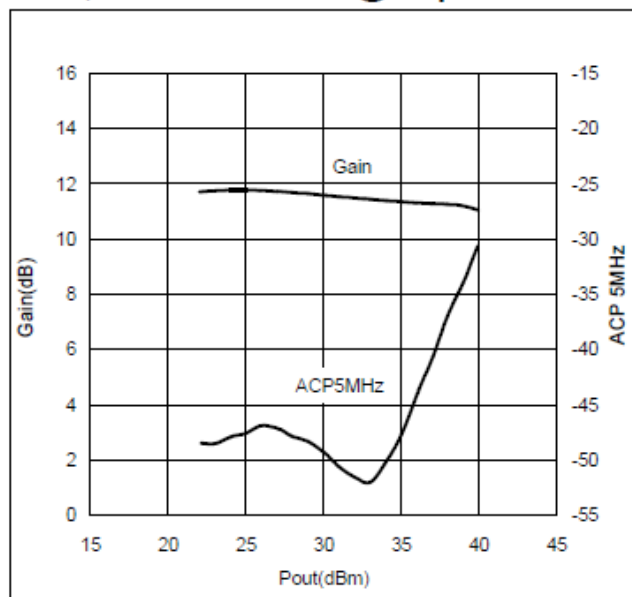
MGFC45B3436B TYPICAL CHARACTERISTICS

ACP, Gain vs. Freq. @Pout=34dBm



Test Condition:
 Pout=34dBm, VD=12V, IDQ=0.8A, Ta=25deg.C
 Mod.: 3GPP TEST MODEL 1 64code Single Signal
 Channel Bandwidth = 3.84MHz

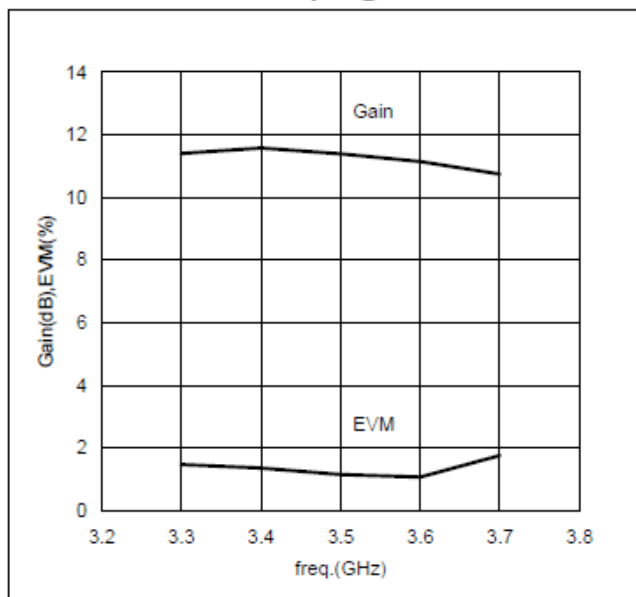
ACP, Gain vs. Pout @freq.=3.5GHz



Test Condition:
 f=3.5GHz, VD=12V, IDQ=0.8A, Ta=25deg.C
 Mod.: 3GPP TEST MODEL 1 64code Single Signal
 Channel Bandwidth = 3.84MHz

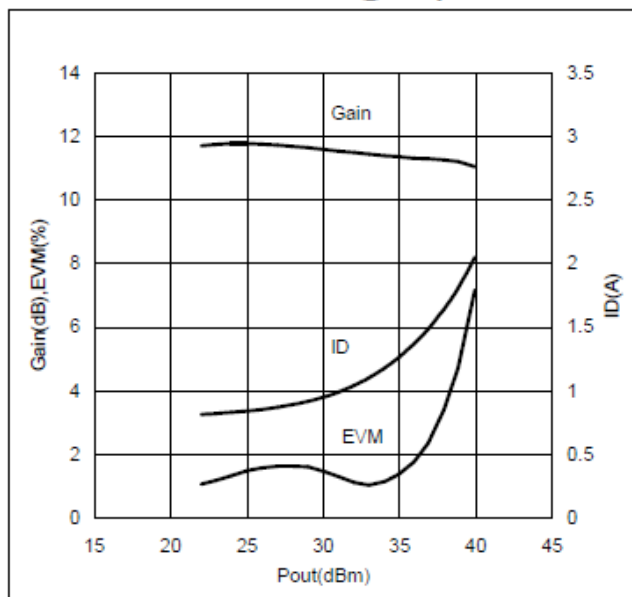
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EVM, Gain vs. Freq. @Pout=34dBm



Test Condition:
 Pout=34dBm, VD=12V, IDQ=0.8A, Ta=25deg.C
 Mod: WiMAX Downlink, 64QAM Channel Bandwidth: 3.5MHz

EVM, Gain vs. Pout @freq.=3.5GHz



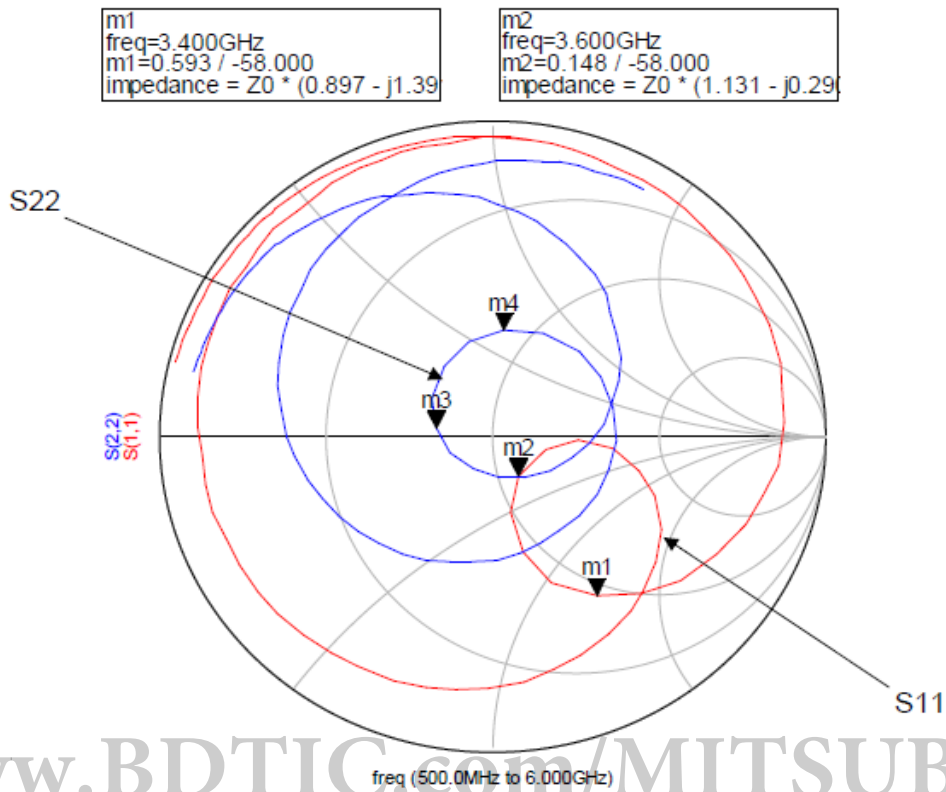
Test Condition:
 f=3.5GHz, VD=12V, IDQ=0.8A, Ta=25deg.C
 Mod: WiMAX Downlink, 64QAM Channel Bandwidth: 3.5MHz

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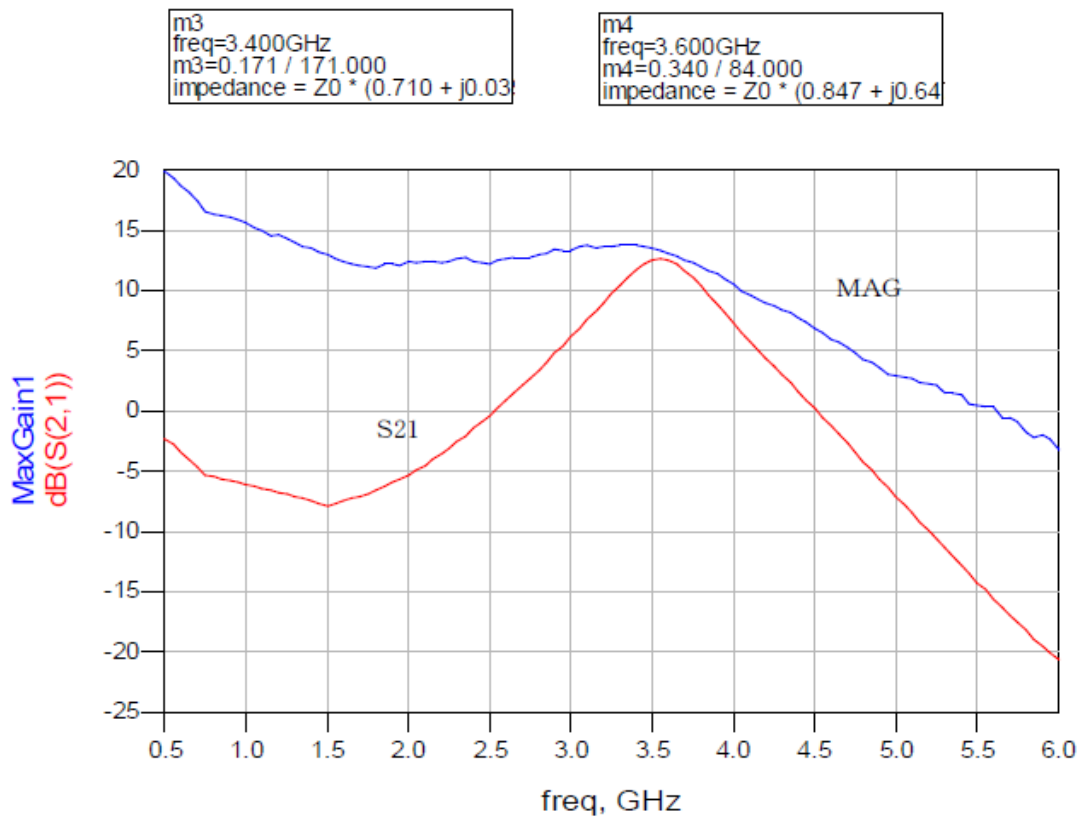
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MGFC45B3436B S-parameters(Ta=25deg.C , VDS=12(V),IDS=0.8(A))



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3.4 – 3.6 GHz BAND / 30W

MGFC45B3436B S-parameters(Ta=25deg.C , VDS=12(V),IDS=0.8(A))

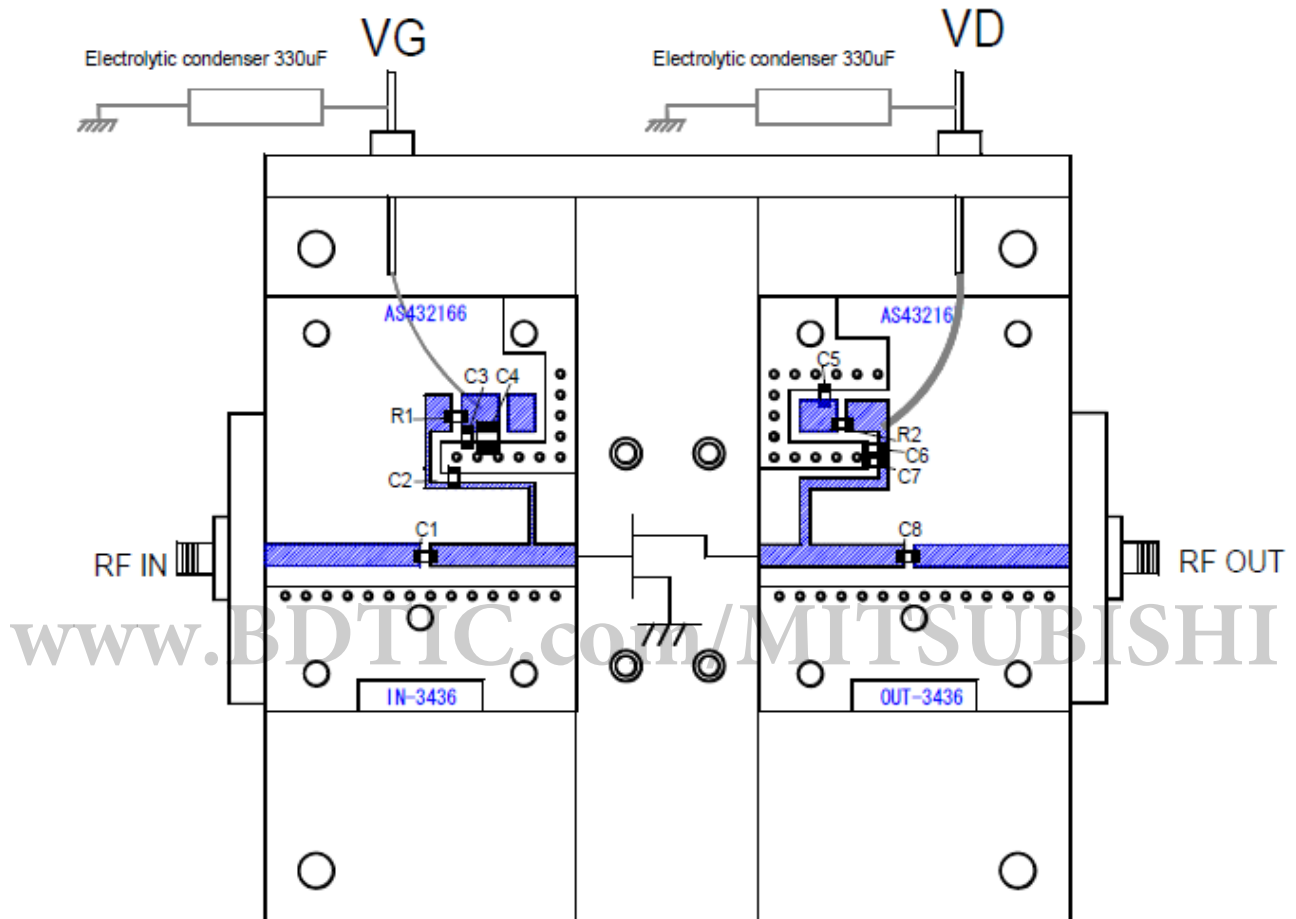
freq. GHz	S11		S21		S12		S22	
	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)
0.5	0.981	166	0.767	49	0.004	34	0.921	167
0.6	0.979	163	0.676	41	0.004	28	0.919	165
0.7	0.978	160	0.586	33	0.004	21	0.916	163
0.8	0.977	157	0.531	26	0.004	16	0.913	160
0.9	0.977	155	0.522	22	0.004	15	0.912	158
1.0	0.976	153	0.513	18	0.005	14	0.910	157
1.1	0.976	149	0.495	10	0.005	12	0.907	154
1.2	0.975	146	0.476	2	0.005	10	0.904	150
1.3	0.974	142	0.458	-6	0.006	8	0.901	147
1.4	0.973	139	0.440	-14	0.006	6	0.898	144
1.5	0.973	135	0.422	-22	0.006	4	0.895	141
1.6	0.972	132	0.403	-29	0.007	2	0.892	137
1.7	0.969	127	0.422	-38	0.007	-2	0.881	134
1.8	0.966	122	0.440	-46	0.008	-6	0.870	130
1.9	0.963	117	0.468	-56	0.008	-12	0.857	125
2.0	0.961	111	0.504	-66	0.009	-20	0.844	119
2.1	0.958	106	0.540	-76	0.010	-28	0.831	113
2.2	0.957	97	0.592	-88	0.010	-36	0.806	108
2.3	0.950	90	0.663	-100	0.011	-41	0.785	101
2.4	0.946	83	0.741	-111	0.012	-52	0.760	93
2.5	0.940	75	0.844	-125	0.012	-64	0.717	84
2.6	0.929	66	0.954	-139	0.014	-74	0.673	75
2.7	0.927	56	1.104	-155	0.013	-87	0.624	65
2.8	0.918	46	1.273	-170	0.014	-108	0.566	53
2.9	0.912	34	1.476	-172	0.011	-120	0.495	41
3.0	0.905	23	1.733	-154	0.011	-148	0.418	25
3.1	0.882	10	2.016	-135	0.008	-179	0.339	7
3.2	0.864	-6	2.400	-113	0.006	-110	0.246	-16
3.3	0.809	-20	2.807	-90	0.011	-54	0.161	-53
3.4	0.728	-39	3.326	-64	0.020	-6	0.118	-119
3.5	0.593	-58	3.853	-36	0.033	-26	0.171	171
3.6	0.375	-76	4.244	-2	0.046	-60	0.267	123
3.7	0.148	-58	4.228	-32	0.058	-93	0.340	84
3.8	0.259	-2	3.835	-65	0.061	-127	0.374	46
3.9	0.452	-14	3.294	-96	0.058	-156	0.374	14
4.0	0.587	-30	2.775	-122	0.054	-178	0.366	-17
4.1	0.666	-47	2.317	-147	0.052	-159	0.361	-44
4.2	0.716	-61	1.939	-168	0.049	-136	0.367	-67
4.3	0.760	-76	1.648	-171	0.044	-113	0.393	-88
4.4	0.799	-91	1.415	-151	0.037	-93	0.418	-108
4.5	0.820	-104	1.204	-130	0.031	-69	0.460	-126
4.6	0.833	-119	1.023	-111	0.026	-53	0.502	-143
4.7	0.846	-132	0.867	-92	0.021	-36	0.545	-159
4.8	0.859	-145	0.734	-74	0.017	-20	0.596	-174
4.9	0.863	-158	0.617	-57	0.014	-5	0.641	-172
5.0	0.875	-170	0.520	-40	0.011	-6	0.684	-160
5.1	0.886	-178	0.440	-25	0.010	-22	0.724	-147
5.2	0.901	-166	0.377	-8	0.008	-30	0.761	-136
5.3	0.910	-155	0.319	-6	0.008	-59	0.791	-124
5.4	0.915	-144	0.268	-21	0.007	-69	0.815	-114
5.5	0.929	-135	0.228	-35	0.006	-73	0.838	-105
5.6	0.930	-124	0.193	-47	0.006	-75	0.859	-96
5.7	0.941	-115	0.166	-61	0.005	-91	0.874	-89
5.8	0.944	-107	0.141	-72	0.005	-118	0.885	-80
5.9	0.938	-98	0.122	-84	0.005	-117	0.897	-73
6.0	0.951	-92	0.106	-94	0.003	-133	0.899	-67

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MGFC45B3436B RF TEST FIXTURE



C1,C2,C7,C8=8pF

C4=100nF

C3,C5= 1000pF

C6=470nF

R1=12ohm

R2=51ohm

Board material :Teflon, t=0.8mm, Specific dielectric constant=2.6

UNIT:(mm)

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