

# TOSHIBA

MICROWAVE SEMICONDUCTOR  
TECHNICAL DATA

MICROWAVE POWER MMIC AMPLIFIER

**TMD1925-3**  
**Preliminary**

FEATURES

- Suitable for Digital Communications
- High Power P1dB=34dBm(min) @1.9 to 2.5GHz
- Low Intermodulation Distortion
- High Gain G1dB=27dB(min)@1.9 to 2.5GHz

**ABSOLUTE MAXIMUM RATINGS ( Ta= 25°C )**

CHARACTERISTICS	SYMBOL	UNIT	RATINGS
DRAIN SUPPLY VOLTAGE	VDD	V	15
GATE SUPPLY VOLTAGE	VGG	V	-4
INPUT POWER	Pin	dB	13
STORAGE TEMPERATURE	Tstg	°C	-65 ~ +175

**RF PERFORMANCE SPECIFICATIONS ( Ta= 25°C )**

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Operating Frequency	f		GHz	1.9	—	2.5
Output Power at 1dB Gain Compression Point	P1dB	VDD=10V IDDset=1.2A	dBm	34.0	35.0	—
Power Gain at 1dB Gain Compression Point	G1dB					
Drain Current	IDD	@ P1dB	A	—	1.6	1.9
Input Return Loss	—	Small Signal Level	dB	10	—	—
Output Return Loss	—		dB	—	10	—
3rd Order Intermodulation Distortion	IM3	NOTE	dBc	—	-52	—

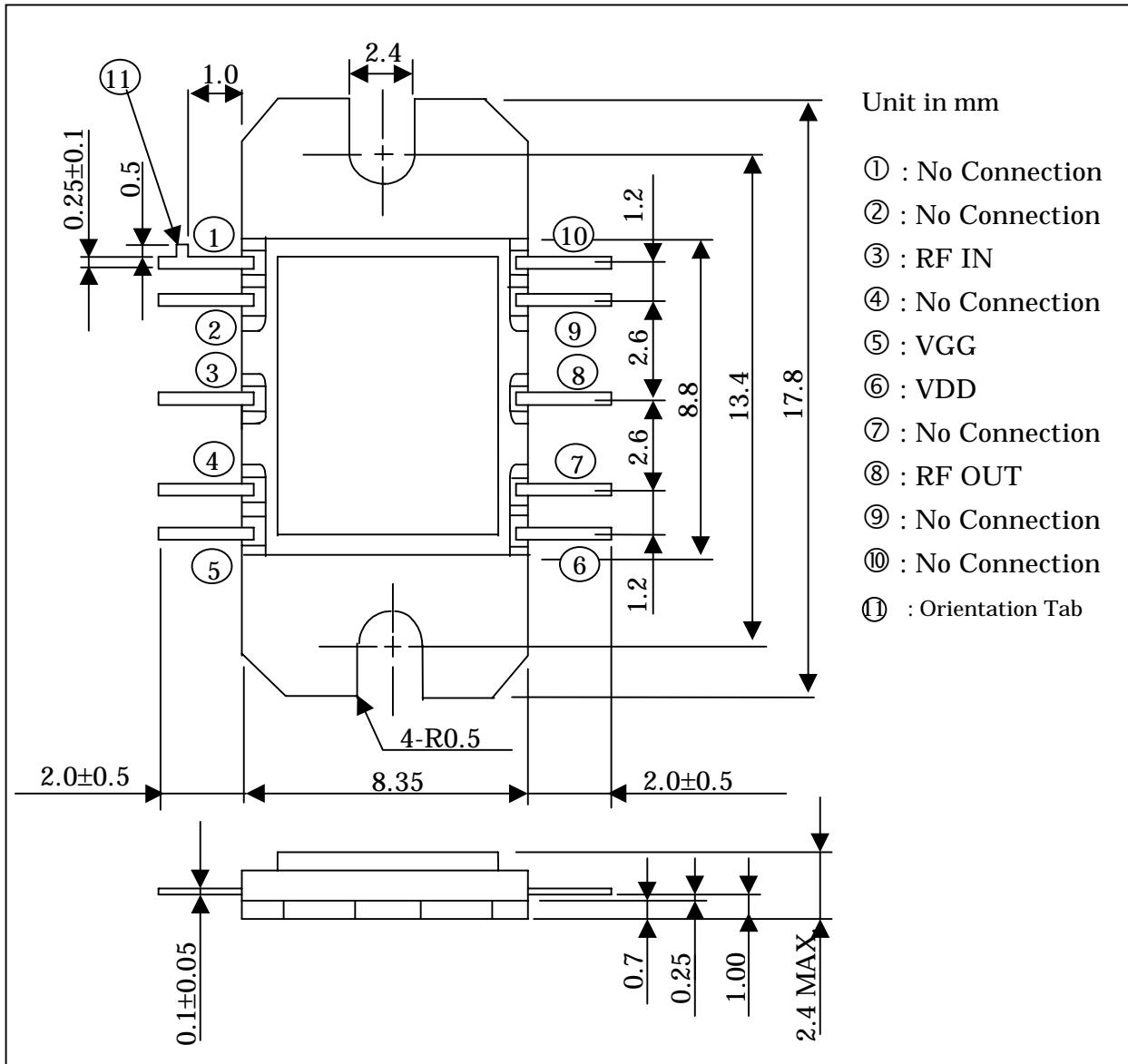
NOTE: Two Tone Test, Po=17dBm(Single Carrier Level)

**ELECTRICAL CHARACTERISTICS ( Ta= 25°C )**

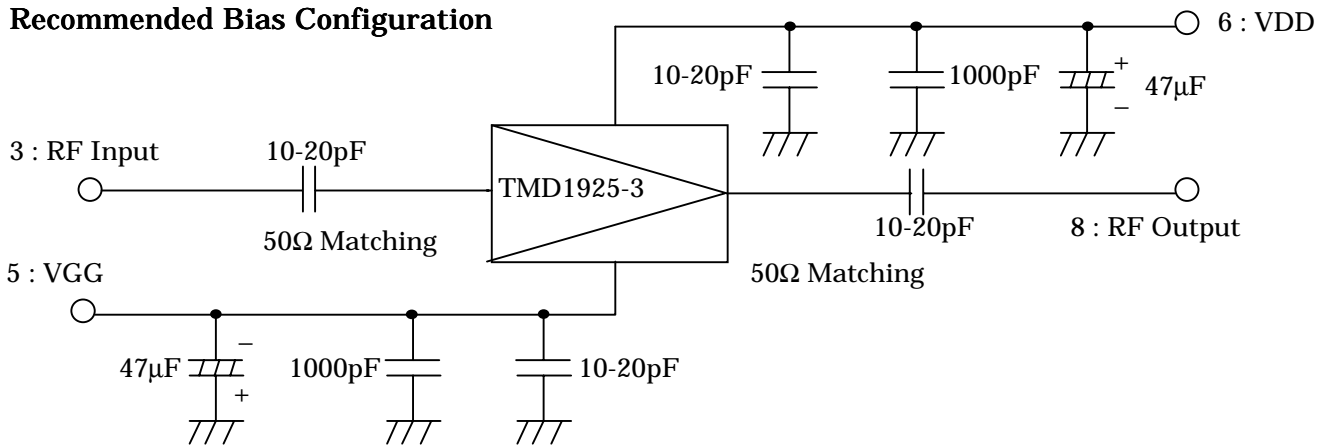
CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN	TYP	MAX
Thermal Resistance	Rth (c-c)	Channel to Case	°C/W	—	6	6.5

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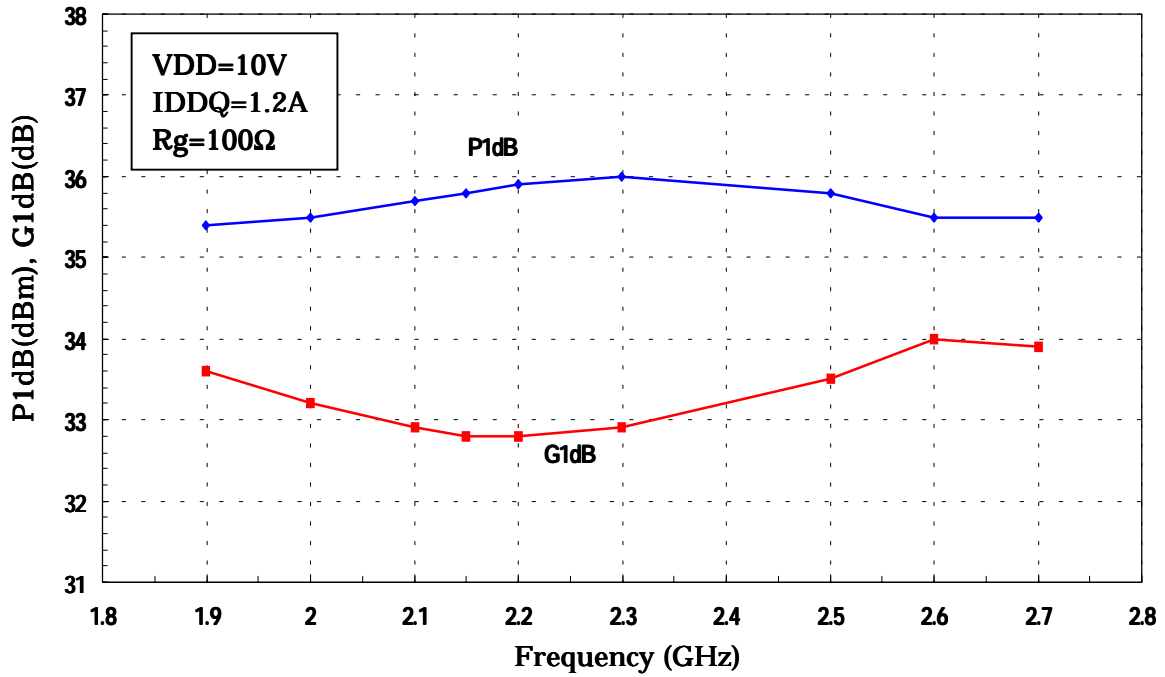
Package Outline (2-9E1H)



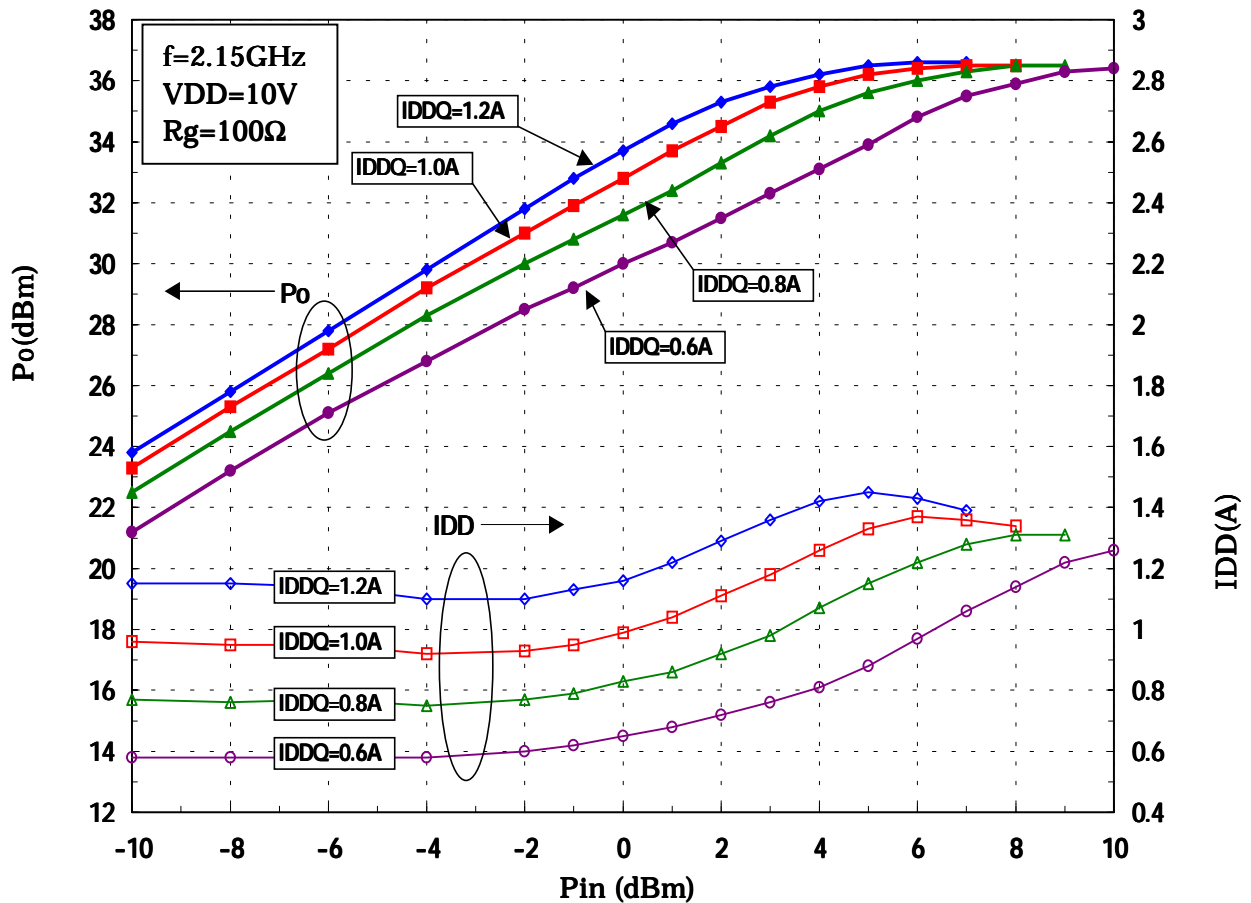
Recommended Bias Configuration



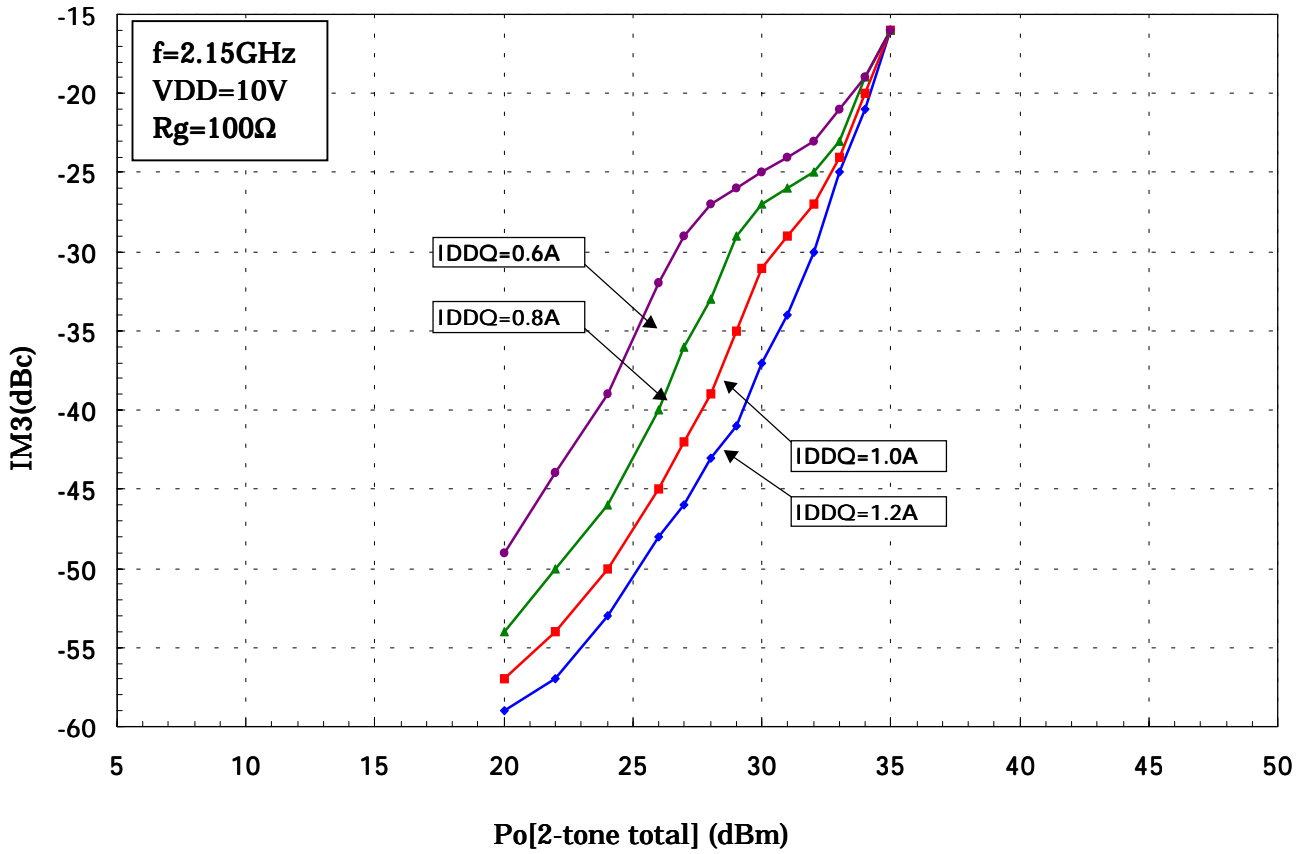
P1dB, G1dB vs. Frequency



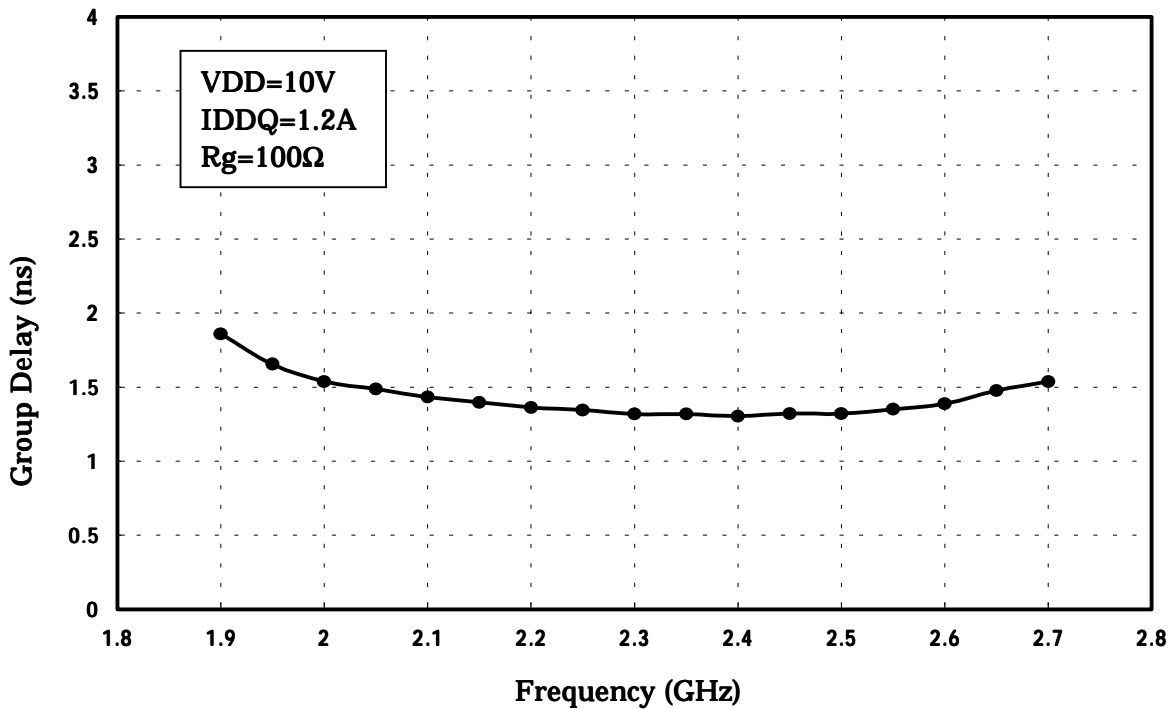
Output Power vs. Input Power



IM3 vs. Output Power



Group Delay vs. Frequency



**TMD1925-3 S-PARAMETERS**

VDD=10V, IDDQ (IDDset)=1.2A

Frequency (MHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1500	0.36	71	5.80	-43	0.001	-109	0.36	122
1600	0.24	4	17.2	-111	0.001	152	0.20	80
1700	0.20	-61	40.9	163	0.001	62	0.15	-87
1800	0.19	-98	54.3	71	0.002	2	0.33	-170
1900	0.19	-123	51.9	-1	0.001	-13	0.29	148
2000	0.16	-144	49.8	-59	0.001	-83	0.20	125
2100	0.12	-163	49.3	-112	0.001	-142	0.13	122
2150	0.10	-174	49.1	-137	0.001	-89	0.11	125
2200	0.07	175	49.1	-161	0.001	-55	0.09	133
2300	0.03	125	50.1	152	0.001	-122	0.11	147
2400	0.06	18	51.7	104	0.002	-145	0.14	141
2500	0.13	-10	54.3	56	0.001	169	0.18	120
2600	0.22	-30	54.7	5	0.001	-150	0.22	93
2700	0.30	-47	54.9	-52	0.001	-135	0.27	56
2800	0.36	-65	47.2	-110	0.002	-112	0.31	15
2900	0.39	-77	34.8	-164	0.002	-126	0.33	-20
3000	0.41	-87	23.5	148	0.001	143	0.34	-48
3100	0.43	-94	15.5	107	0.001	176	0.35	-69
3200	0.47	-101	10.5	72	0.002	157	0.37	-88
3300	0.49	-108	7.7	40	0.001	134	0.36	-103
3400	0.51	-113	5.7	6	0.001	117	0.35	-111
3500	0.54	-119	4.1	-26	0.001	172	0.35	-117

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