# TOSHIBA

# MICROWAVE POWER MMIC AMPLIFIER **TMD1013-1-431**

MICROWAVE SEMICONDUCTOR TECHNICAL DATA

#### **FEATURES**

- •BROAD BAND INTERNALLY MATCHED •HIGH POWER
  - P1dB= 33.0dBm at 9.5GHz to 12.0GHz

#### **HIGH GAIN**

G1dB= 25.0dB at 9.5GHz to 12.0GHz

**·HERMETICALLY SEALED PACKAGE** 



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

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Gain Compression Point	P1dB		dBm	31.0	33.0	_
Power Gain at 1dB Gain Compression Point	G1dB	VDD= 10V VGG= -5V f = 9.5 to 12.0GHz	dB	21.0	25.0	_
Gain Flatness	ΔG		dB		_	±2.5
Drain Current	IDD		А	_	1.4	1.8
Power Added Efficiency	ηadd		%		14	
3rd Order Intermodulation Distortion	IM3	Two-Tone Test Po=19.0dBm, ∆f= 5MHz (Single Carrier Level)	dBc	-42	-45	

## ABSOLUTE MAXIMUMRATINGS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	UNIT	MAX.
Drain Supply Voltage	VDD	V	15
Gate Supply Voltage	VGG	V	-10
Input Power	Pin	dBm	15
Flange Temperature	Tf	°C	-30 to +80
Storage Temperature	Tstg	°C	-65 to +175

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## **RECOMMENDED BIAS CONFIGURATION**



## HANDLING PRECAUTIONS FOR PACKAGE MODEL

Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C. Flanges of devices should be attached using screws and washers. Recommended torque is 0.18-0.20 N·m.

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# TYPCAL RF PERFORMANCE

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#### P1dB, G1dB vs. Freguency



#### **Output Power, Gain vs. Input Power**



#### IM3 vs. Frequency



#### IM3 vs. Output Power

