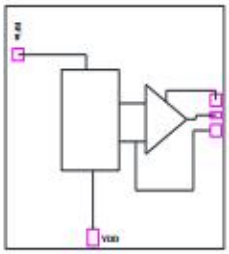
★1.Product Features

- Frequency range: 0.3 ~3 GHz
- Dynamic range: -20 dBm~-5 dBm
- Quiescent current: 6 mA @ +5 V
- Proportional amplification factor: 47
- Die size: 4 mm × 4 mm × 0.15 mm

Functional Block Diagram



★2.Product Introduction

TFDET1750-H is a die-type power detection device that integrates a GaAs power detector chip and a CMOS differential amplifier/comparator chip. The device performs power detection of signals in the 300 MHz~3 GHz band, and can output either the detected voltage or the compared TTL level (for power judgement).

The device features small size, high integration and good temperature characteristics. It uses a 4 mm × 4 mm molybdenum-copper carrier as the substrate with thick gold plating on the surface, and is suitable for conductive adhesive bonding.

★3.Electrical Characteristics

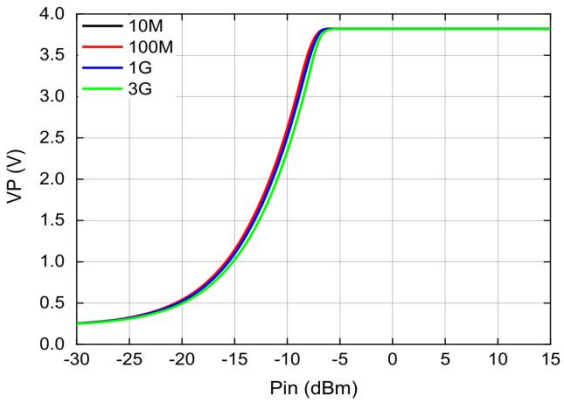
TA=+25℃, VDD=+5 V, Freq=1 GHz, 50Ω system

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Dynamic range	Pin	—	-20	—	-5	dBm
Proportional amplified output voltage	VP	Pin=0 dB	0.3	—	3.82	GHz
Comparator reference voltage	VDJ	R=5.1 k	—	1.1	—	V
Switching level	—	—	—	-15	—	dBm
Input VSWR	VSWR	—	—	1.4	—	—
Quiescent current	Idc	No input power	—	6	—	mA

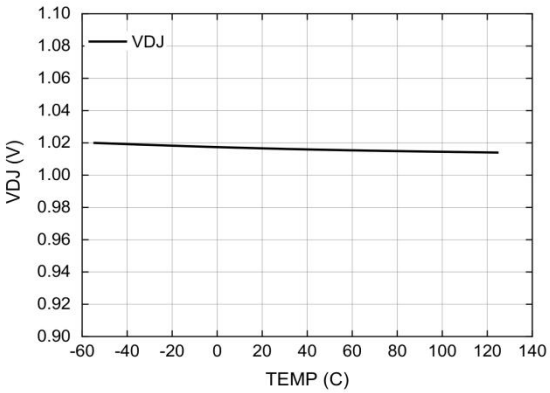
Email: ttf@ttfelectronic.com
Website:ttfelectronic.com
Address: Building 16, Area C, Entrepreneurship and R&D Park, Xi'an High-tech Industrial Development Zone, China

★4.Typical Test Curves

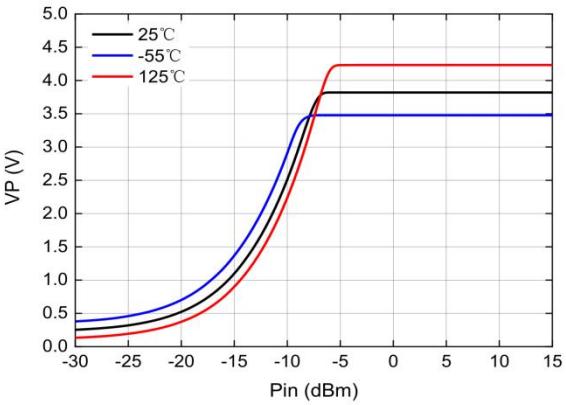
Proportional Output Voltage vs. Input Power



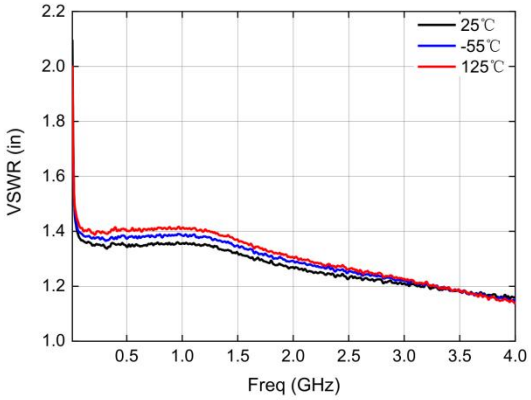
Comparator Reference Voltage vs. Temperature



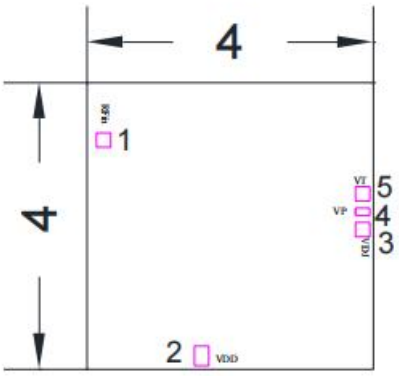
Proportional Output Voltage vs. Input Power
(Three Temperatures @ 1 GHz)



Input VSWR vs. Frequency



★5.Outline Dimensions



Notes:

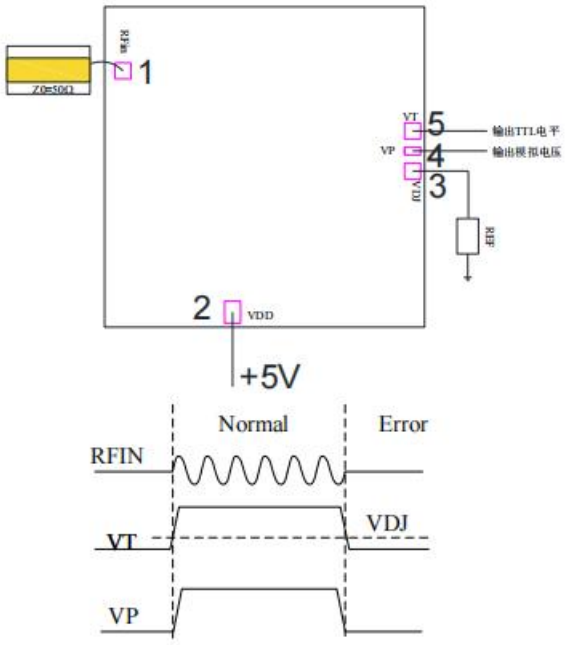
1. Unit: mm
2. The backside of the chip is gold plated and grounded
3. Outline dimension tolerance: ±50 μm

Email: ttf@ttfelectronic.com
Website:ttfelectronic.com
Address: Building 16, Area C, Entrepreneurship and R&D Park, Xi'an High-tech Industrial Development Zone, China

★6.Bond Pad Definition

Pad No.	Function Definition	Function Description
1	RFin	RF signal input, connected to a 50Ω system
2	VDD	DC supply +5 V
3	VDJ	Comparator reference voltage
4	VP	Analog voltage output
5	VT	TTL level output

★7.Reference Circuit



1. VDJ reference resistor REF default: 10.0 kΩ;
2. Minimum detectable power level at ambient temperature: -15 dBm;
3. For RF pulse operation, pulse period ＜ 100 μs; higher frequency pulses can be customized upon request.

★8.Precautions

Absolute Maximum Ratings	Numerical value
Input Power (Pin)	15 dBm
Storage Temperature	-65℃～+150℃
Operating Temperature	-55～+85℃
Operating Voltage	6 V
Exceeding the above conditions may cause permanent damage to the chip.	



This product is sensitive to static electricity.

Please take precautions against static electricity during use.

Email: ttf@ttfelectronic.com
Website:ttfelectronic.com
Address: Building 16, Area C, Entrepreneurship and R&D Park, Xi'an High-tech Industrial Development Zone, China