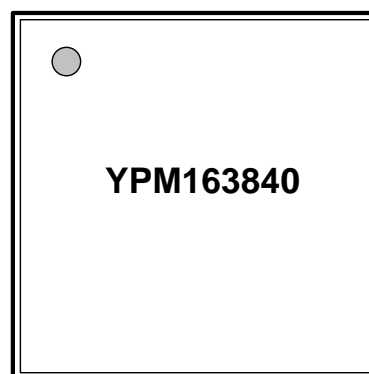


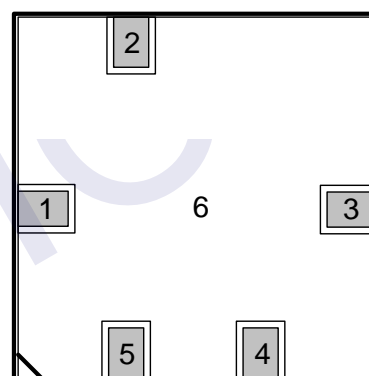
Pb-free & RoHs Product

Features

- 1.4~1.8GHz Frequency Range
- 38dB Gain (Typ)
- 10W Output Power with Pulse Signal Input (Typ)
- ≥ 20 dB Input Return Loss
- 12V Operation
- 200mA Quiescent Current
- Integrated ESD Protection Unit
- Input and Output Matched
- Minimum External Components
- Advanced InGaP/GaAs HBT Technology
- LGA Package $10 \times 10 \times 1.1 \text{mm}^3$



Top View



Bottom View

Applications

- Satellite Communication
- Satellite Navigation

Product Description

The YPM163840 is a high-gain, high-power, and highly integrated Power Amplifier Module (PAM) intended for Compass Satellite Communication requiring up to 10W output power. The PAM provides a typical gain of 38 dB and output power of 10W with pulse signal input, typical quiescent bias condition is 12V at 200mA, the input and output are internally matched and require a minimum of external matching components, it is internally integrated with ESD protect unit. The YPM163840 is housed inside a miniature 6-lead, $10 \times 10 \times 1.1 \text{mm}^3$ LGA package.

Ordering Information

- YPM163840 1.6GHz Power Amplifier Module
- YPM163840-EVB 1.6GHz YPM163840 Evaluation Board

Pin Description

Pin No.	Symbol	Description
1	RF IN	RF input
2	VREF	Bias reference voltage
3	RF OUT	RF output
4	VCC2	2nd Stage Supply voltage
5	VCC1	1st Stage Supply voltage
6	GND	Ground connect



Caution! ESD sensitive device.

ESD Rating: Class1C
 Value: Passes $\geq 1000V$ min.
 Test: Human Body Model (HBM)
 Standard: JEDEC Standard JESD22-A114

Absolute Maximum Ratings

Parameter	Rating	Unit
Input RF Power	+15	dBm
1st Stage Supply Voltage	-0.5 to +6.0	V
2nd Stage Supply voltage	-0.5 to +13.0	
Bias Voltage	-0.5 to +3.3	V
DC Supply Current	3500	mA
Operating Ambient Temperature	-40 to +85	$^{\circ}C$
Storage Temperature	-55 to +150	$^{\circ}C$

ESD Rating: Class IV
 Value: Passes $\geq 1000V$ min.
 Test: Charged Device Model (CDM)
 Standard: JEDEC Standard JESD22-C101

MSL Rating: Level 3 at +260 $^{\circ}C$ convection reflow
 Standard: JEDEC Standard J-STD-020

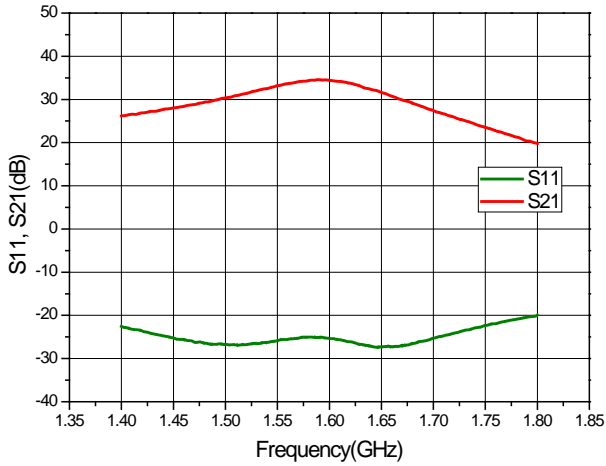
Electrical Specifications

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
					$VCC1=5V, VCC2=12V, Temp=+25^{\circ}C$
Frequency range		1.615		GHz	
Output power		41		dBm	Pulse Mode: Period=1s, Width=100ms, Input Power=3dBm
Small signal gain		38		dB	Pin=-10dBm
Input return loss		20		dB	
Operating voltage for VCC1	3.3	5.0	6.0	V	
Operating voltage for VCC2	10.0	12.0	13.0	V	
Bias voltage		3.3		V	
Bias current		5.0		mA	
Quiescent current for VCC1		50		mA	$V_B=3.3V$
Quiescent current for VCC2		150		mA	$V_B=3.3V$
Operation current for VCC1		1000			$V_B=3.3V, P_{out}=41dBm$
Operation current for VCC2		2580		mA	$V_B=3.3V, P_{out}=41dBm$

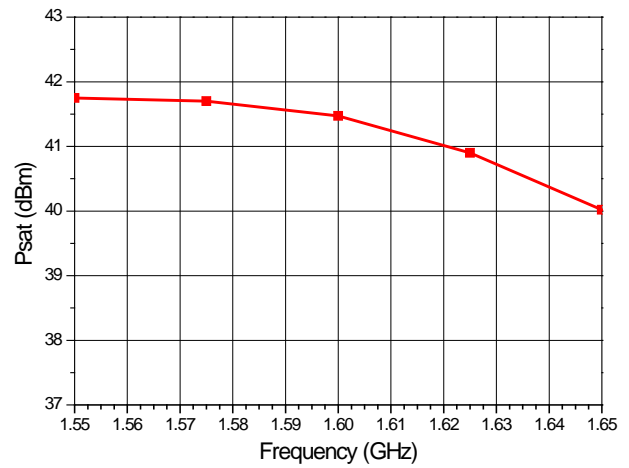
Typical Performance

(Test Condition: VCC1 =5V, ICQ1=50mA, VCC2=12V, ICQ2=150mA, T=25°C)

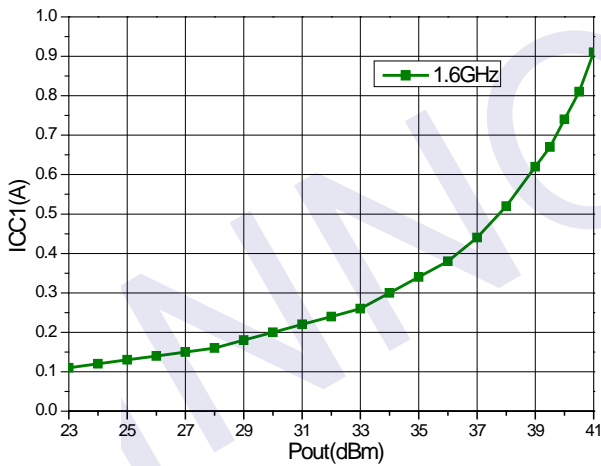
Broadband Gain & Return Loss



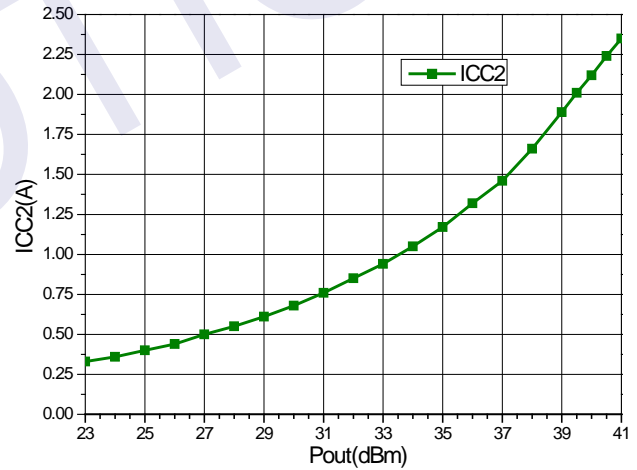
Psat vs. Frequency (Pulse Mode)



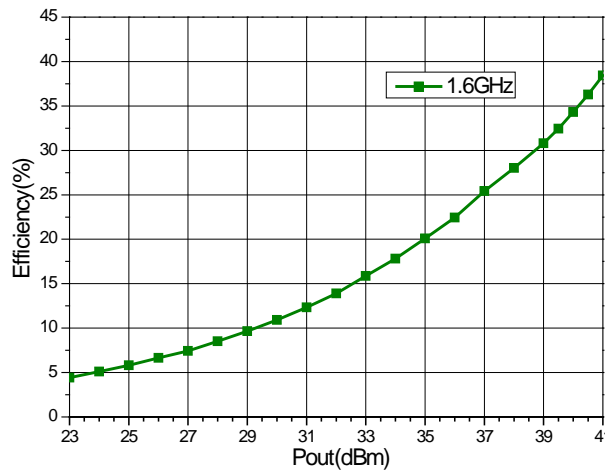
ICC1 vs. Output Power



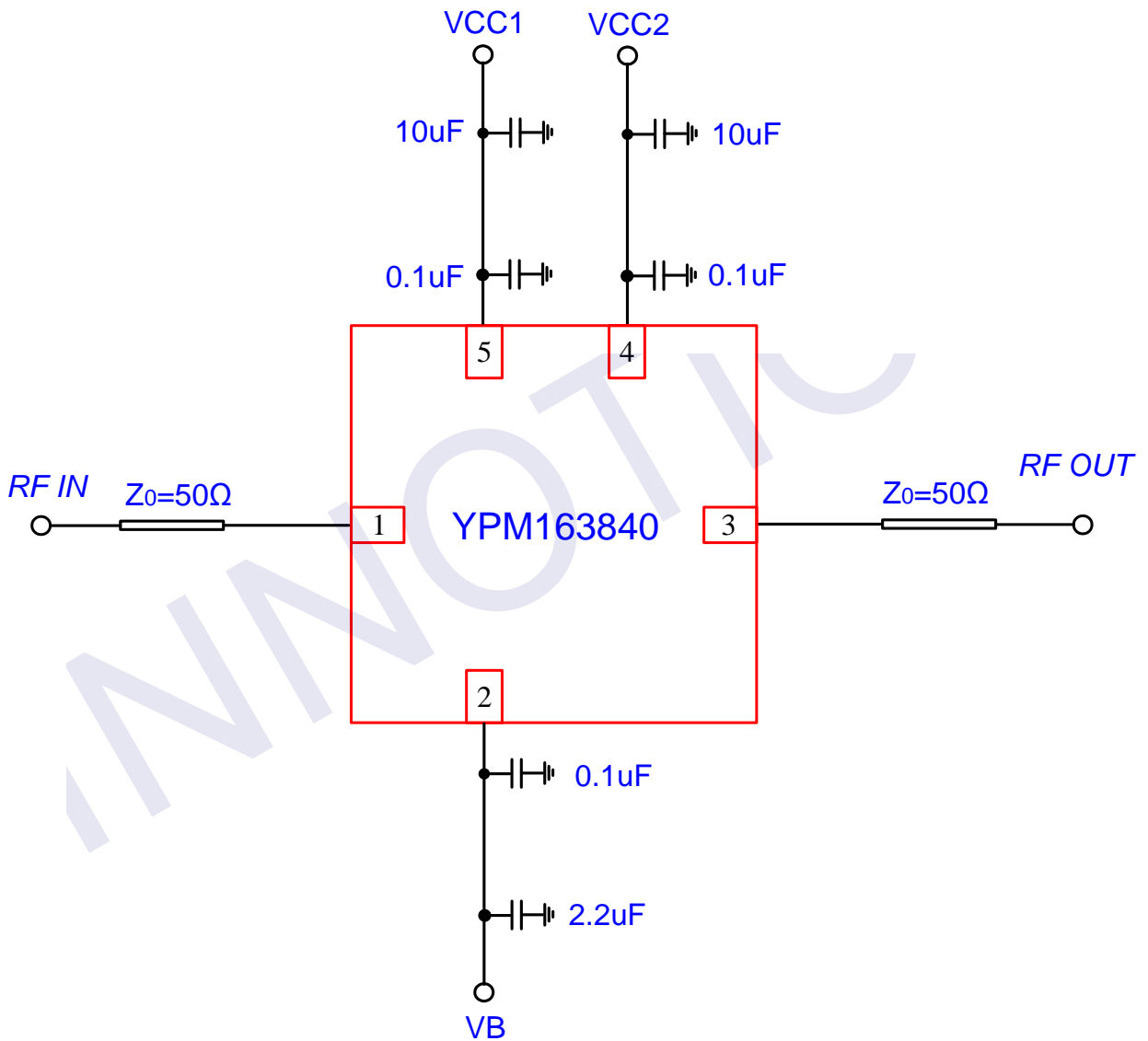
ICC2 vs. Output Power



Efficiency vs. Output Power

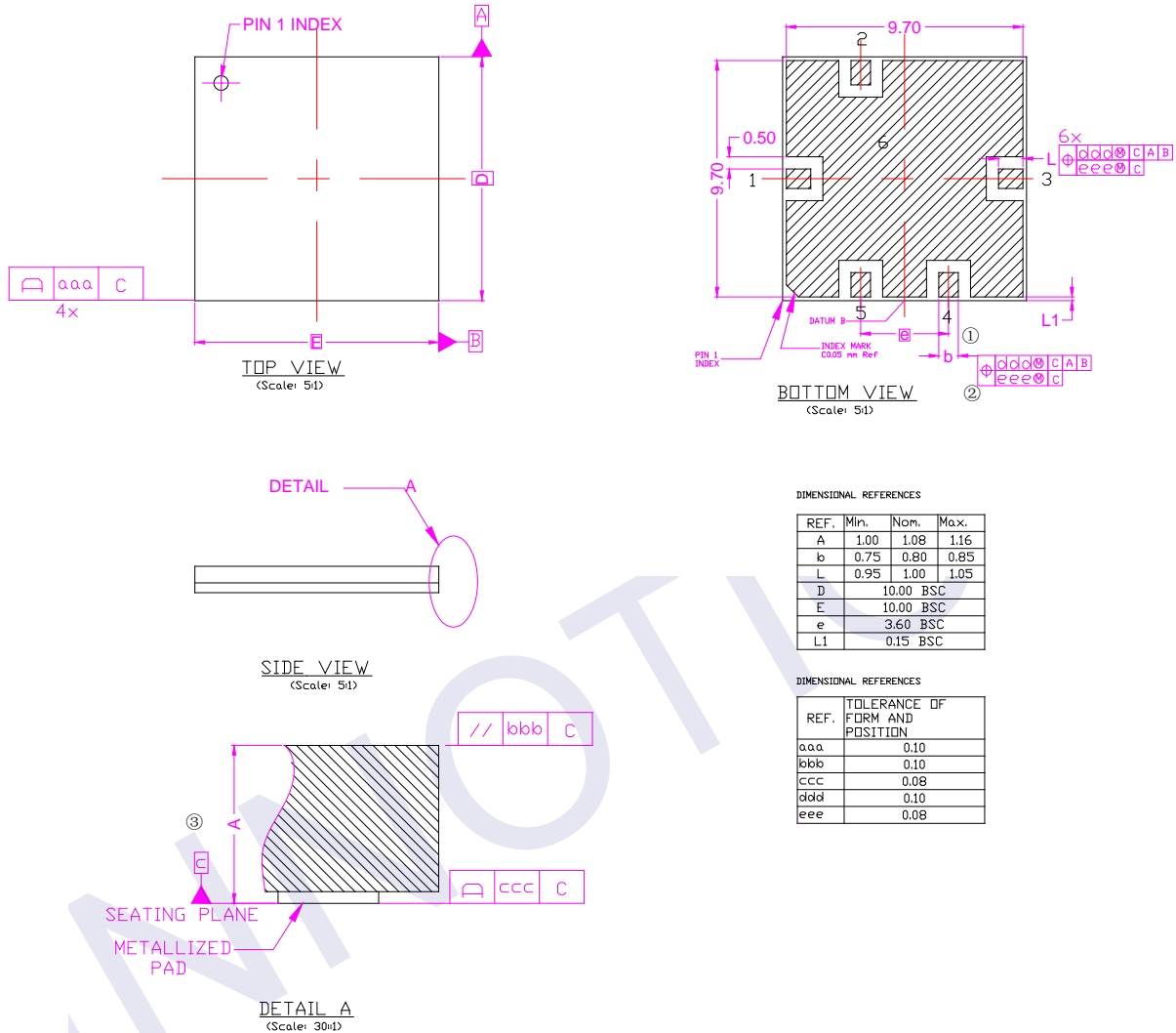


Evaluation Board Schematic



Package Diagram

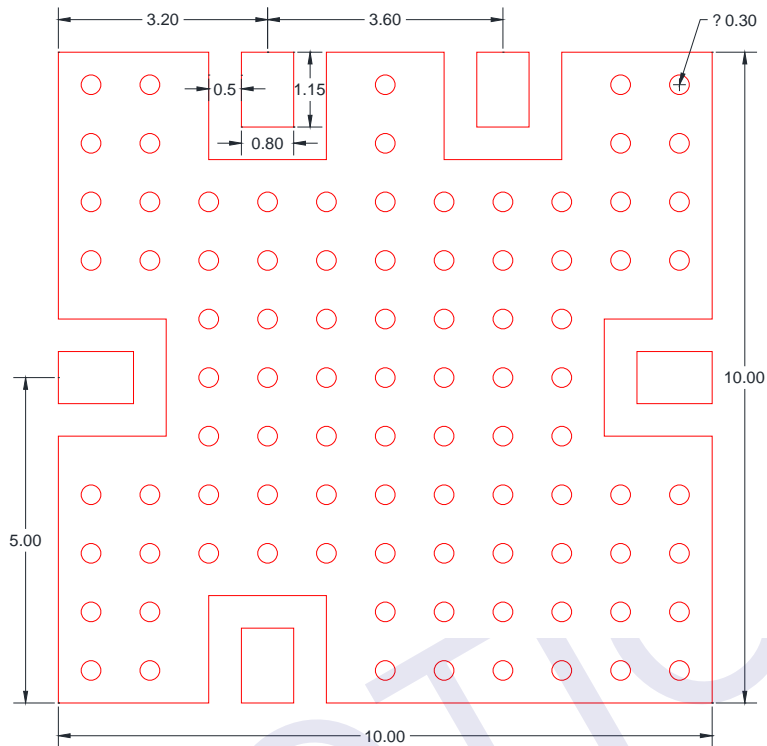
(Units: millimeters)



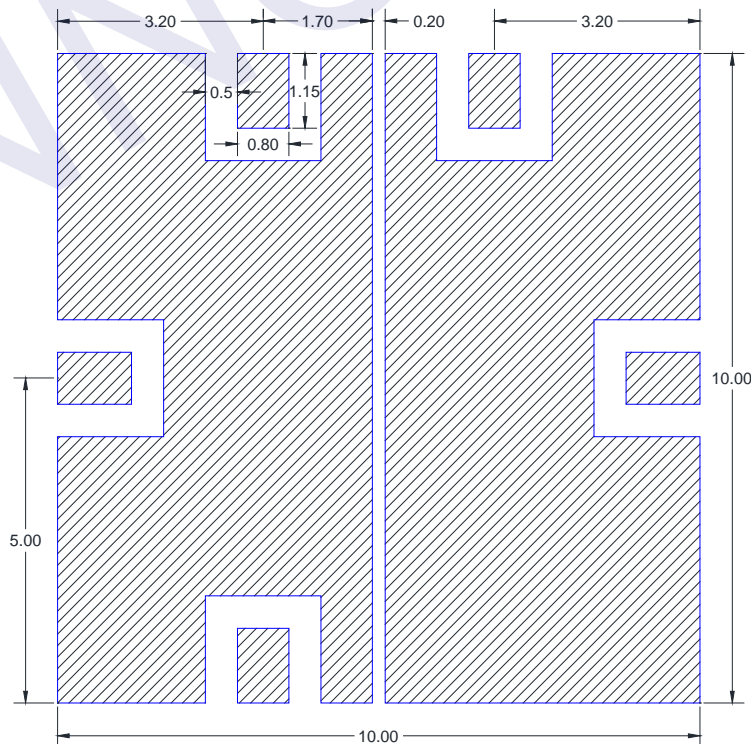
Notes:

- ① 'e' REPRESENTS THE BASIC TERMINAL PITCH. SPECIFIES THE TRUE GEOMETRIC POSITION OF THE TERMINAL AXIS.
- ② DIMENSION 'b' APPLIES TO METALLIZED TERMINAL AND IS MEASURED BETWEEN 0.00mm AND 0.25mm FROM TERMINAL TIP.
- ③ DIMENSION 'A' INCLUDES PACKAGE WARPAGE.
- ④ EXPOSED METALLIZED PADS ARE CU PADS WITH SURFACE FINISH PROTECTION.
- ⑤ PACKAGE DIMENSIONS TAKE REFERENCE TO JEDEC MO-208 REV.C EXCEPT DIMENSION A, A2, b, L, e, L1.

PCB Land Pattern and Stencil Outline (Units: millimeters)



PCB Land Pattern (Top View)



Stencil Outline