



Product Features

- 1.9 GHz Power Amp Module
- +36 dBm PHS Output Power
- 35 dB Gain
- Single +12V Supply
- No negative voltage required
- Low cost metal package
- MTTF > 100 Years

Applications

- PAS/PHS Base Stations
- PAS/PHS Repeaters

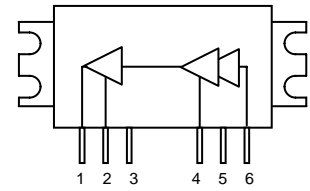
Product Description

The ECM178 is a high performance PAS Amplifier Module offering excellent linearity. The internally matched multi-stage amplifier has 35 dB gain while achieving +36 dBm linear output power to meet PAS/PHS's stringent ACLR requirements.

The ECM178 uses a high reliability InGaP/GaAs HBT process technology and does not require any external matching components. The module has an added benefit by not require any negative biasing voltages; an internal active bias allows the ECM178 to maintain high linearity over temperature and operate directly off a single +12V supply. A low-cost metal housing allows the device to have a low thermal resistance and achieves over 100 years MTTF. All devices are 100% RF and DC tested.

The ECM178 is targeted for use as a driver amplifier in wireless infrastructure where high linearity and high power is required. This combination makes the device an excellent candidate for next generation PAS/PHS base stations.

Functional Diagram



Top View

Pin No.	Function
1	RF Output
2	Vcc2
3	No Connect
4	Vcc1
5	No Connect
6	RF Input
Case	Ground

Specifications ⁽¹⁾

Parameter	Symbol	Units	Min	Typ	Max	Test Conditions
Frequency	f	MHz	1880 – 1920			
Power Gain	Ga	dB		35		Pout = +36 dBm, Vd = 12V
ACLR (±600kHz)	Padj1	dBc		-70		Pout = +36 dBm, Vd = 12V
ACLR (±900kHz)	Padj2	dBc		-74		Pout = +36 dBm, Vd = 12V
Input VSWR				2.5		Pout = +36 dBm, Vd = 12V
2 nd Order Harmonic Distortion	2fo	dBc		-45		Pout = +36 dBm, Vd = 12V
3 rd Order Harmonic Distortion	3fo	dBc		-45		Pout = +36 dBm, Vd = 12V
Supply Voltage	Vcc1, Vcc2	V		+12		
Operating Current	Icc	mA		1500		Pout = +36 dBm, Vd = 12V

1. Test conditions unless otherwise noted: 25 °C, Supply Voltage = +12 V, Output Power = +36 dBm, RF signal modulation is per PHS RCR-28.

Absolute Maximum Rating

Parameter	Rating
Operating Case Temperature	-35 to +55 °C
Storage Temperature	-55 to +150 °C

Operation of this device above any of these parameters may cause permanent damage.

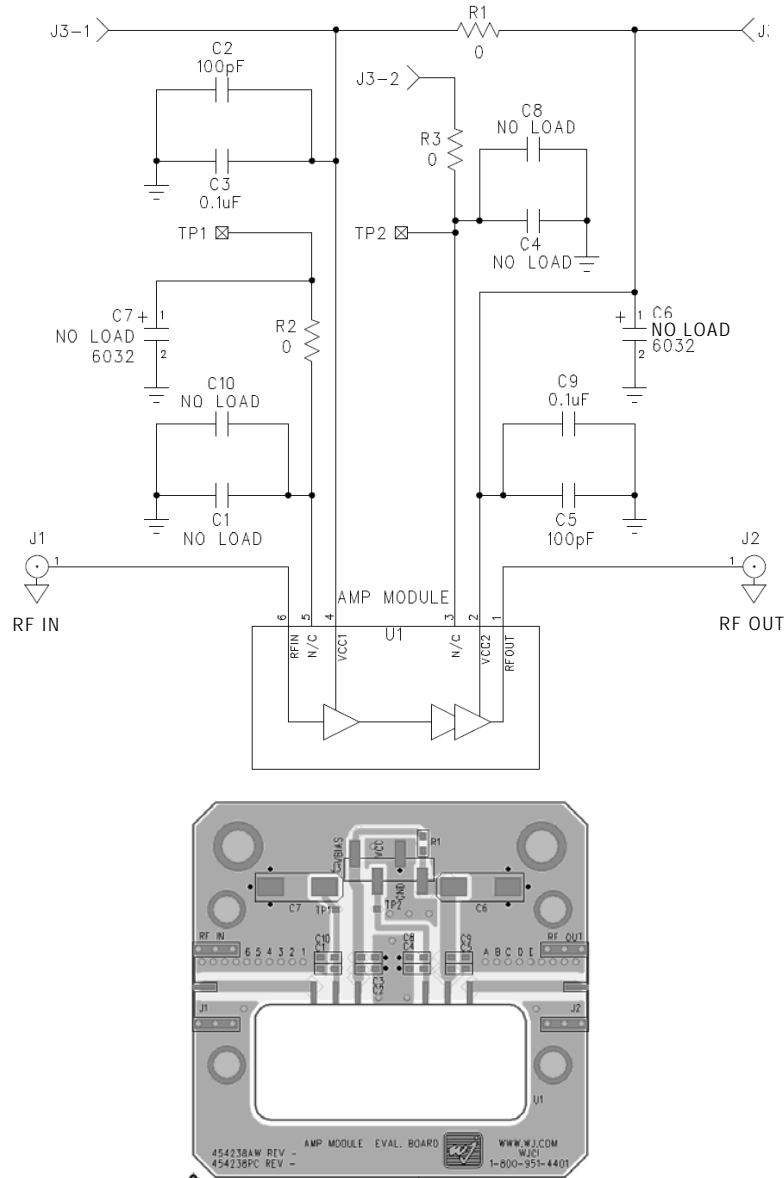
Ordering Information

Part No.	Description
ECM178	PHS +36 dBm 12V Module
ECM178-PCB	Fully Assembled Evaluation Board

Specifications and information are subject to change without notice



Recommended Application Circuit



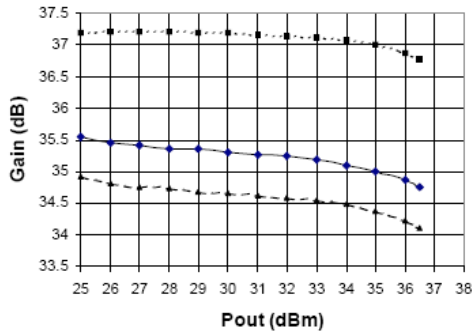
Notes:

1. Please note that for reliable operation, the evaluation board will have to be mounted to a much larger heat sink during operation and in laboratory environments to dissipate the power consumed by the device. The use of a convection fan is also recommended in laboratory environments.
2. The area around the module underneath the PCB should not contain any soldermask in order to maintain good RF grounding.

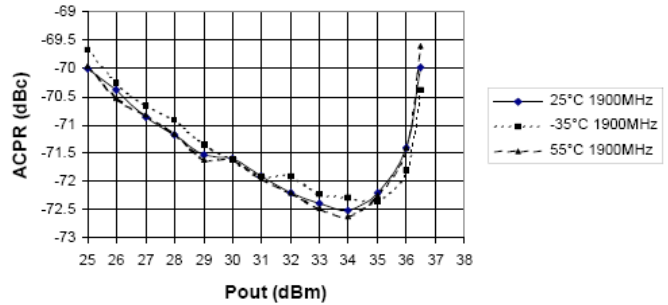


Performance Graphs

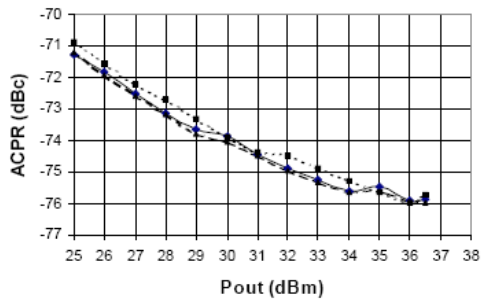
ECM178 Gain vs. Pout vs. Temperature



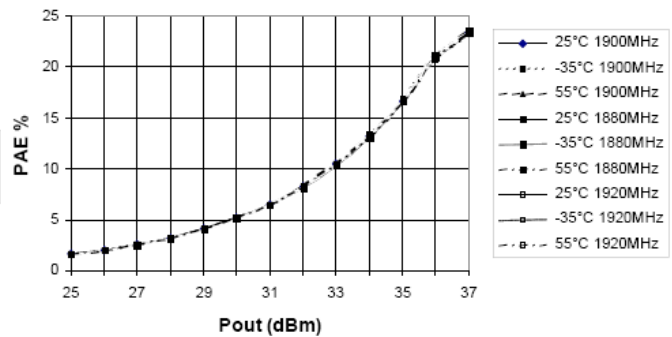
ECM178 ACPR@ 600KHz offset vs. Pout vs. Temperature



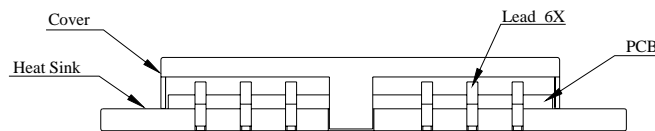
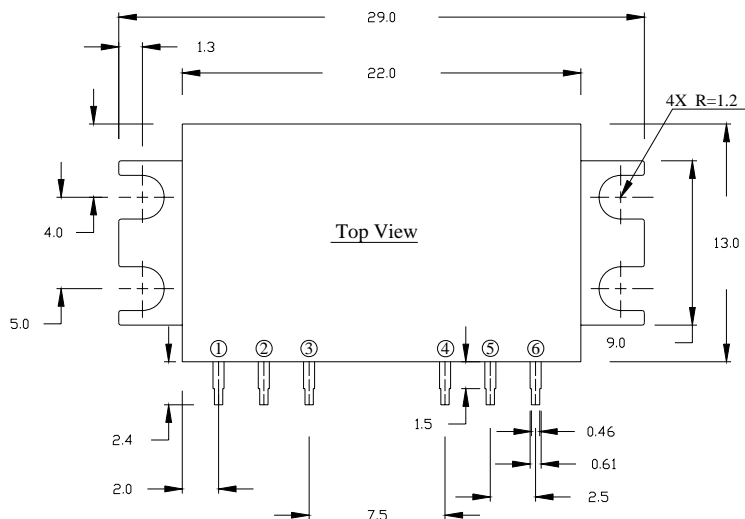
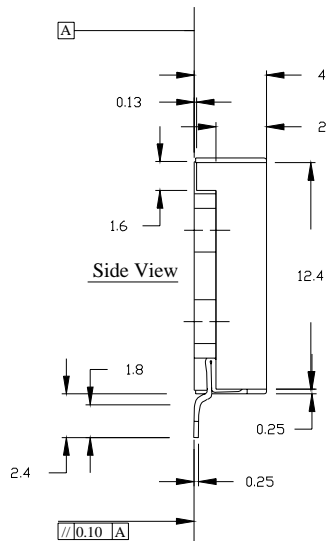
ECM178 ACPR@ 900KHz offset vs. Pout vs. Temperature



ECM178 PAE vs. Pout vs. Temperature



Outline Drawing



NOTE: UNLESS OTHERWISE SPECIFIED TYPICAL DIMENSIONS ARE IN MM.

PIN ASSIGNMENT

- (1) RFout, (2) Vcc2, (3) N/C,
- (4) Vcc1, (5) N/C, (6) RFIn, Case:GND.

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