

Description

The ECM807 is a PCS power amplifier module at 3.5Volts Vcc with high efficiency. This device was developed using EiC's own InGaP Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process. It is optimized for PCS TDMA (digital) in the 1850 MHz to 1910 MHz band. It operates from a positive voltage (3 - 4Volts Vcc) and includes a power-down feature. The input and output are both matched to 50Ω. It is housed in a 6 X 6 mm Land Grid Array package.

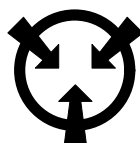
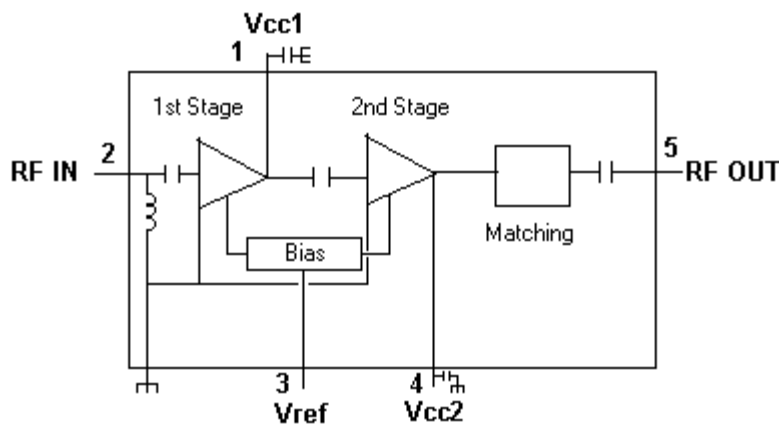
Features

- U.S. PCS TDMA
- Single 3.5V Supply for 3-Cell Ni or Li-Ion Battery
- Power-down activated when Vref pin <1V
- 29.5 dBm TDMA Power
- 37% TDMA Efficiency
- Power-down Capability
- 120mA Typical Quiescent Current
- High Reliability InGaP Design

Applications

- 3.5V U.S. PCS TDMA Handsets

Functional Block Diagram



CAUTION!
SENSITIVE ELECTRONIC DEVICE

ELECTRICAL SPECIFICATIONS

The following tables list the electrical characteristics of the ECM807 Power Amplifier Module. Table 1 lists the electrical performance of the ECM807 for nominal operating conditions for the PCS band. Table 2 lists the absolute maximum ratings for continuous operation.

Table 1 - Electrical Specifications

Test Conditions: $T_a = 25^\circ\text{C}$, $V_{CC} = +3.5\text{V}$, $V_{REF/PD}$ (reference / power-down voltage) = +3.0V, $F = 1850$ to 1910 MHz

SYMBOL	PARAMETER	LIMITS			UNIT	TEST CONDITION
		MIN.	TYP.	MAX.		
F	Frequency	1850		1910	MHz	
G	Gain (TDMA Modulation) @ 29.5 dBm	26	29		dB	
P	Output Power (TDMA)		29.5		dBm	NOTE 1
ACPR	Adjacent Channel Power Rejection @ 29.5 dBm		29		dBc	NOTE 2
ACPR2	Adjacent Channel Power Rejection @ 29.5 dBm		48		dBc	NOTE 3
ACPR3	Adjacent Channel Power Rejection @ 29.5 dBm		55		dBc	NOTE 4
PAE	Power Added Efficiency (TDMA) @ 29.5 dBm	34	37		%	
	Output Stability		6:1		VSWR	NOTE 5
	Ruggedness @ 29.5 dBm		10:1			
	Harmonics @ 30 dBm f2 f3			-30	dBc	NOTE 5
I_{CQ}	Quiescent Current (No RF)		120	140	mA	
I_{Leak}	Leakage Current (No RF)		3	10	uA	NOTE 6
V_{CC}	Supply Voltage	3.2	3.5	4.2	V	
$V_{REF/PD}$	Reference Voltage		3.0		V	
IRL	Input Return Loss		10		dB	
	Noise Power in RX band 1930-1990 MHz		-135		dBm/Hz	NOTE 7
NF	Noise Figure		5		dB	
$T_{ON/OFF}$	Power Down On/Off Time		<100		ns	
T_a	Nominal operating temperature	-40	25	85	$^\circ\text{C}$	
NOTE 1: Using Application Schematic. Tuned for CDMA.						
NOTE 2: @ 30 KHz offset from band center.						
NOTE 3: @ 60 KHz offset from band center.						
NOTE 4: @ 90 KHz offset from band center.						
NOTE 5: No oscillation all phases						
NOTE 6: $V_{CC} = 3.5\text{V}$, $V_{REF/PD} = 0\text{V}$, No RF						
NOTE 7: $V_{CC} = 3.5\text{V}$ Pout 29.5dBm NADC modulation applied						

Table 2 - Absolute Maximum Ratings

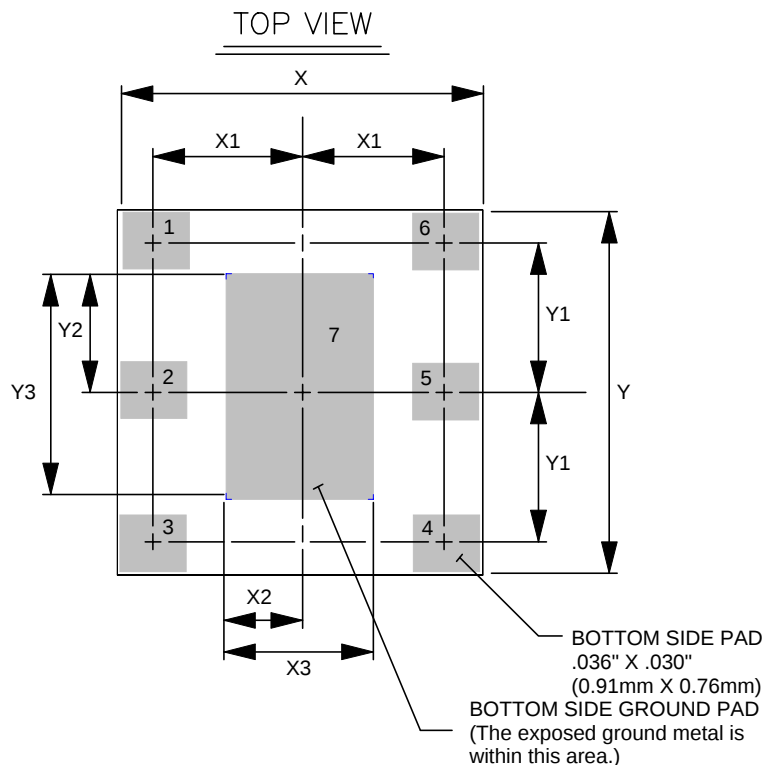
Exceeding any of the absolute maximum ratings may cause permanent damage to the device. No damage assuming only one parameter is set at limit at a time with other parameters set at or below nominal value.

PARAMETER	RATING	UNIT	TEST CONDITION
Supply Voltage	7	Volts	$V_{REF/PD} = 3.0\text{V}$
Reference / Power-down Voltage($V_{CC}=V_{REF/PD}$)	4	Volts	$V_{CC} = 3.5\text{V}$
RF Power Input	+15	dBm	V_{CC} , $V_{REF/PD} = 3.0\text{V}$
Ambient Operating Temperature	-40 to +110	$^\circ\text{C}$	
Storage Temperature	-65 to +140	$^\circ\text{C}$	

PACKAGE DIMENSIONS AND MARKINGS

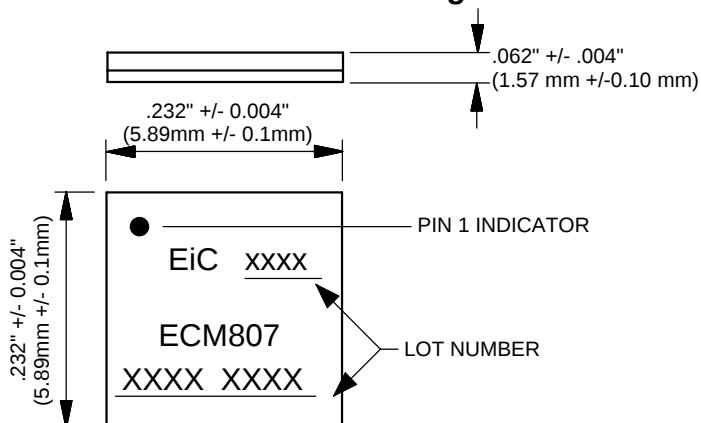
The ECM807 is a multi-layer laminate base, overmold encapsulated modular package designed for surface-mounted solder attachment to a printed circuit board.

Package Dimensions



PINOUT	
PIN 1	Vcc1
PIN 2	RFin
PIN 3	Vpd
PIN 4	Vcc2
PIN 5	RFout
PIN 6	GND
PIN 7	GND

Device Marking



TOP VIEW WITH MARKING DIAGRAM