

## REP036: The MAX2282 Japan Cellular PA Measurements

Rapid engineering prototypes are real circuits that Maxim application engineers have built and measured in our labs. They can provide a starting point for new RF designs. They are not available as evaluation kits.

Additional Information: [Wireless Product Line Page](#)  
[Applications Technical Support](#)



The MAX2282 is a single-supply, low-voltage linear power amplifier designed for cellular band handsets. The MAX2282 is specifically designed for use in the Japanese cellular band and offers excellent performance when tuned for CDMA. The device features a low-power mode, which provides up to +18dBm output power with higher efficiency than competitive PA's, significantly extending average talk time. MAX2282 is available in a unique tiny UCSP package, just 2.5mm x 2.5mm.

### Test Condition

- All test in room temp.
- Type of Modulation: CDMA in Cellular Band

## Performance Matrix

### @ 906MHz for High Power Mode

Spec Item	Measured Result	Qualification
Usable Frequency	887 ÷ 925MHz	Japanese Cellular band
Linear Gain	27.36dB	Pin = 0.14dBm
Linear Output Power	27.5dBm	
Total Linear Efficiency	33.5%	
ACPR1 @ offset = ±885kHz in 30kHz BW	-46.6/-49.5dBc	
ACPR2 @ offset = ±1.98MHz in 30kHz BW	-62.2/-56.0dBc	
Power Supply Voltage	3.5V	
DC Supply Current	480mA	
Idle Current	137mA	

### @ 906MHz for Low Power Mode

Spec Item	Measured Result	Qualification
Usable Frequency	887 ÷ 925MHz	Japanese Cellular band
Linear Gain	23.08dB	Pin = -5.08dBm
Linear Output Power	18.0dBm	
Total Linear Efficiency	15.1%	
ACPR1 @ offset = ±885kHz in 30kHz BW	-47.5/-48.2dBc	
ACPR2 @ offset = ±1.98MHz in 30kHz BW	-63.0/-58.7dBc	
Power Supply Voltage	3.5V	
DC Supply Current	119.2mA	
Idle Current	40mA	

## Measurement Result

### High Power Mode @+3.5V

Frequency (MHz)	Pin (dBm)	Pout (dBm)	Icc (mA)	Efficiency (%)	Gain (dB)	ACPR1 (dBc)	ACPR2 (dBc)
887	-0.16	27.5	488	32.9	27.66	-47.1/-50.0	-62.7/-56.3
906	0.14	27.5	480	33.5	27.36	-46.6/-49.5	-62.2/-56.0
925	0.60	27.5	471	34.1	26.90	-46.2/-49.0	-61.0/-56.3

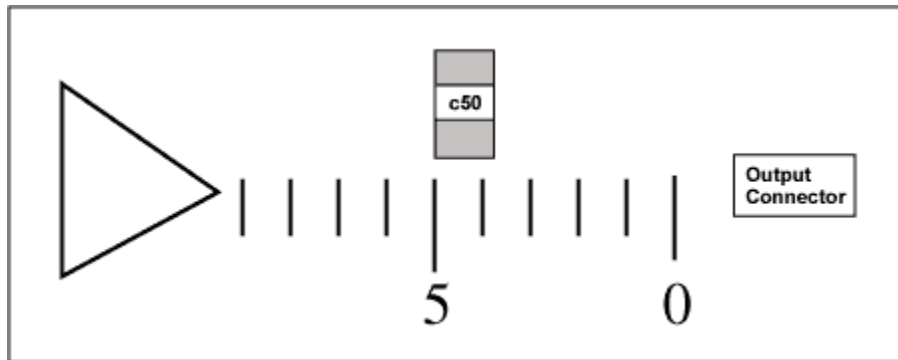
### Low Power Mode @+3.5V

Frequency (MHz)	Pin (dBm)	Pout (dBm)	Icc (mA)	Efficiency (%)	Gain (dB)	ACPR1 (dBc)	ACPR2 (dBc)
887	-3.02	18.0	112	16.1	21.02	-46.1/-47.3	-61.0/-58.5
906	-3.70	18.0	109	16.5	21.70	-46.0/-47.2	-61.5/-58.3
925	-4.18	18.0	108	16.7	22.18	-46.0/-42.4	-61.0/-57.5

## The MAX2282 EV Kit Bill Of Materials and Assembly Instruction

Designation	Quantity	Description
C31, C18, C25	3	Murata, 0.1UF, GRM36X5R104K010A
C33	1	Murata, 0.01UF, GRM36X7R103K016A
C19	1	Murata, 100PF, GRM36COG101J050A
C37	1	Murata, 470PF, GRM36X7R471K050A
C34	1	Taiyo Yuden, 10uF, 6.3V,10%, 1206
C21	1	Murata, 15PF, GRM36C0G150J050A
C28	1	Murata, 12PF, GRM36COG120J050A
C26	1	Murata, 10PF, GRM36COG100J050A
C36	1	Murata, 3.9PF, GRM36COG3R9B050A
C29	1	Murata, 2200PF, GRM39X7R222K050A
C50	1	10PF, ATC HIGH Q CAP, ATC600S100JW, +/-5%, 250V (see inst. 1)
L20	1	5.45nH, COIL CRAFT 0906-5 AIR CORE, With leads trimmed to fit
L18	1	Murata, 2.7nH, LQP10A2N7B00
L21	1	Murata,3.9nH, LQP10A3N9B00
L22	1	Murata, 33nH, LQP10A33NG00
R13	1	Kamaya, 46.4K, 1%, RMC 16S-4642JT
R22	1	Kamaya, 30.1K $\Omega$ , 1%, RMC 16S-30123JT
R20	1	Kamaya, 15K $\Omega$ , 1%, RMC 16S-1502JT
R21	1	Kamaya, 22.1K $\Omega$ , 1%, RMC 16S-2212JT
D1	1	ALPHA, SMP1320-011
U1	1	MAX2282EBA, 5x5, UCSP
VCC, GND	2	2-Pin Headers (0.1" centers)
SMA_IN, SMA_OUT	2	0.031" Edge Mount SMA
JU1, JU2	2	3-Pin Headers (0.1" centers)

C50 should be at left edge of tick mark #5 of output transmission line as shown below:



**MORE INFORMATION**

MAX2282: [QuickView](#) -- [Full \(PDF\) Data Sheet \(0k\)](#)