

Power Amplifiers

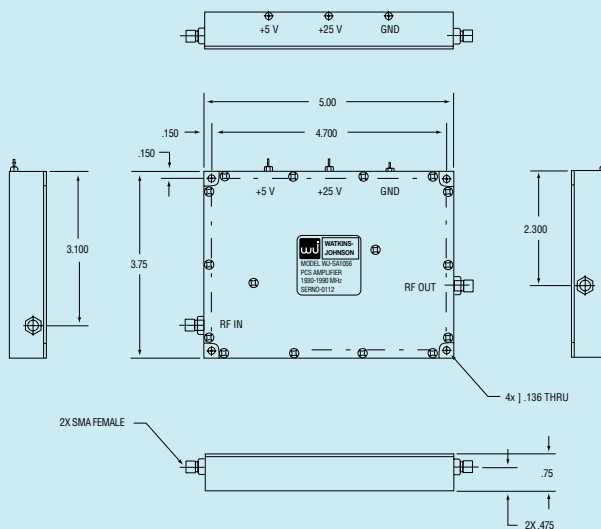


SA1056 CDMA 2-Watt 1.93 GHz to 1.99 GHz Linear Power Amplifier Module

- *40 dB Gain*
- *P1dB: +39 dBm*
- *OIP3: +49 dBm*

Watkins-Johnson's SA1056 Power Amplifier provides exceptional linearity for CDMA digital modulation applications. Utilizing WJ's GaAs amplifiers driving bipolar transistors in the class A output stage, the SA1056 achieves a very high output third-order intercept point combined with superior efficiency.

OUTLINE DRAWING



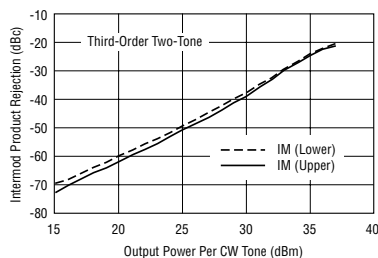
The Wireless Edge™

Power Amplifiers

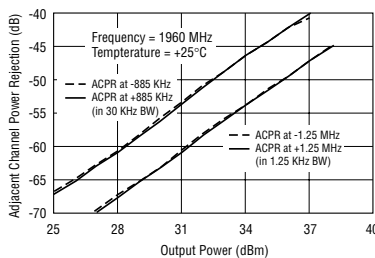
SA1056 CDMA 2-Watt 1.93 GHz to 1.99 GHz Linear Amplifier Power Module

Specifications		
Parameters	Typical Level	Specified Limits
Frequency		1.930 -1.990 GHz
P_{out} at 1 dB Gain Compression (Min.)	+39 dBm	+38 dBm
Small Signal Gain at +25°C		40 ± 0.75 dB
Gain Variation ¹ vs. Frequency over 1.930 to 1.990 GHz at fixed temperature (-30 to +85°C) (Max.)		±0.75 dB
Gain Variation ² over Temperature (-30 to +85°C) (Max.)		±0.75 dB
Adjacent Channel Power Rejection (ACPR) ³ (Min.)		
Measured ±885 kHz away from the center frequency in a 30 kHz bandwidth	-48 dB	-45 dB
Measured ±1.25 MHz away from the center frequency in a 12.5 kHz bandwidth	-56 dB	-52 dB
Spurious power level at $f_0 \pm 2.75$ MHz in a 1.0 MHz bandwidth, $P_{out} = +33$ dBm (Max.)	-35 dBm	-30 dBm
3rd Order Two-Tone Output Intercept Point, measured with +25 dBm per tone (Min.)	+49 dBm	+48 dBm
Harmonic Output with +33 dBm CDMA Output at the fundamental (Min.)		
2nd harmonic	-53 dBc	Not Guaranteed
3rd harmonic	-55 dBc	Not Guaranteed
Noise Figure (Max.)	5.0 dB	6.0 dB
Input and Output Impedance		50 Ohm
Return Loss, 1.930 to 1.990 GHz (Min.)		
Input	22 dB	17 dB
Output	18 dB	16 dB
Load Mismatch Sustainable without Damage ⁴ ($P_{in} \leq -5$ dBm $V_{supply} \leq +25.0$ Vdc)		3.5:1
Stability, no spurious output above -50 dBm		Unconditionally stable for all loads
Supply Voltages		+5 and +25 Vdc
Maximum Supply without Damage		
+25 Volt Supply	+26.5 Vdc	
+5 Volt Supply	+7 Vdc	
Maximum DC Current		
+25 Vdc Supply	1850 mA	2000 mA
+5 Vdc Supply	505 mA	560 mA
DC Power Dissipation (Max.)		
+25 Vdc Supply		50 Watts
+5 Vdc Supply		2.8 Watts
Baseplate Temperature Range ⁵		-30 to +85°C
Size (Refer to interface control drawing WJ-299010SK)		0.75" (H), 3.75" (W), 5.00" (L)
RF Connectors		SMA Female
Weight: 390 grams (13.8 oz.)		

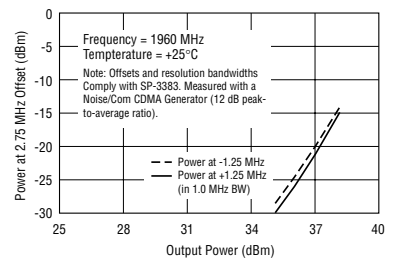
Intermodulation Suppression vs. Output Power Per Tone



ACP Rejection vs. Output Power



CDMA Power vs. Output Power



- Note:
- Gain variation is relative to gain at 1.960 GHz (center frequency).
 - Variation is relative to G (+25°C), at any fixed frequency within 1.930 to 1.990 GHz.
 - ACPR is for a CDMA signal of +33 dBm output level in a 1.23 MHz bandwidth. ACPR is relative to the power in the central 1.23 MHz bandwidth. CDMA spectral regrowth shall be measured with a spread spectrum input from a Noise/Com CDMA test generation with a 12 dB peak-to-average ratio.
 - This is to be a temporary condition - not a normal mode of operation.
 - This unit is to be mounted on a ground plane and thermal heat sink, with a maximum heat sink temperature of +85°C.

The Wireless Edge™

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