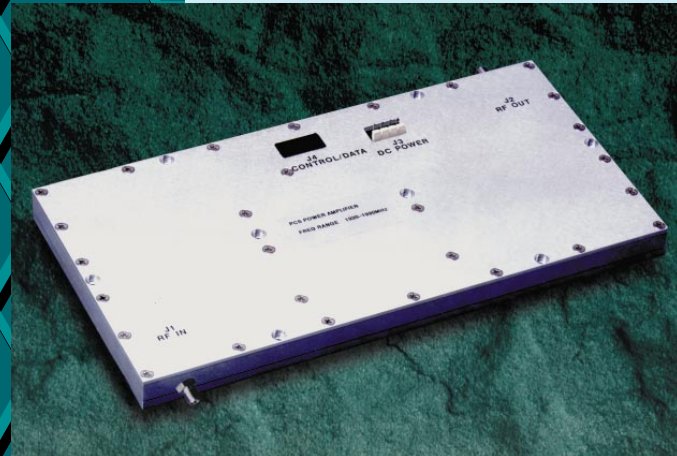


Power Amplifiers

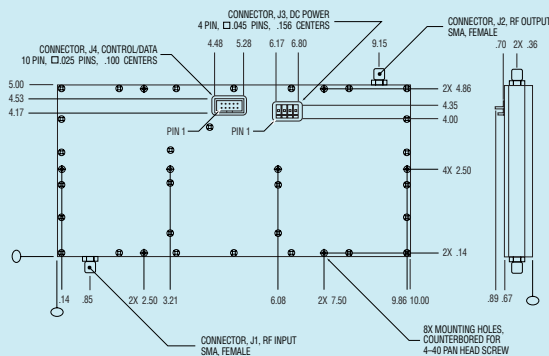


SA1083 CDMA 10-Watt 1.93 GHz to 1.99 GHz Linear Power Amplifier Module

- 10 Watts CDMA IS-95
- +48 dBm P1dB
- 45 dB Gain
- -30°C to +85°C

Watkins-Johnson's SA1083 Power Amplifier provides exceptional linearity for CDMA digital modulation applications. Utilizing WJ's GaAs amplifiers driving bipolar transistors in the class AB output stage, the SA1083 achieves a high third-order intercept point combined with superior efficiency when compared to an equivalent power class A amplifier. Special non-linear design techniques are utilized to minimize unwanted adjacent channel power. To aid top level system diagnostics and reliability, the unit includes alarms to identify if an active part fails or if a poor load is presented to the RF output. In the event that a fault is detected or to simply save DC power, a digitally controlled shutdown is provided. The amplifier is protected from thermal overload by an internal temperature sensor which triggers a digital alarm and shuts down the power stages if the baseplate temperature rises above 95°C. An integral logarithmic power detector measures the output power of the amplifier over a 16 dB dynamic range.

OUTLINE DRAWING



The Wireless Edge™



Power Amplifiers

SA1083

CDMA 10-Watt 1.93 GHz to 1.99 GHz Linear Power Amplifier Module

Specifications

Parameters (Baseplate Temperature: -30°C to +85°C)	Typical Level	Specified Limits
Frequency		1.930-1.990 GHz
P _{out} at 1 dB Gain Compression	+48 dBm	
Gain (Small signal at 25°C)		45 ± 1.0 dB
Gain Variation over Temp (-30°C to +85°C)		±1.5 dB
CDMA ¹ Adjacent Channel Power Rejection (ACPR) First Channel ACP Rejection (885 KHz offset from f ₀ , in a 30 KHz integration BW) P _{out} ≤ 40 dBm (CDMA) ¹	-47 dB	-45 dB
Spurious Suppression Outside Frequency Block a) ACP level at 1.25 to 2.25 MHz offset from f ₀ , in a 12.5 KHz integration BW, P _{out} ≤ 40.0 dBm (CDMA) ¹	-14 dBm	-12 dBm max ²
b) ACP level at 2.25 to 3.25 MHz offset from f ₀ , in a 1.0 MHz integration BW, P _{out} ≤ 40.0 dBm (CDMA) ¹	-13 dBm	-12 dBm max ²
Third-Order 2-Tone Output Intermodulation Product Rejection (P _{out} = +37 dBm per CW tone)	-35 dB	-30 dB max
Maximum Noise Figure	5.0 dB	6.5 dB
Input and Output Impedance		50 ohm
Return Loss (1.930-1.990 GHz) Input and Output	-20 dB	-15 dB
Load Mismatch Sustainable without Damage		3.0:1
Output Power Monitor a) P _{out} = +40 dBm CW b) P _{out} = +32 dBm CW c) P _{out} = +24 dBm CW	4.5 V 2.5 V 0.5 V	5.0 V max, 4.0 V min 3.0 V max, 2.0 V min 1.0 V max, 0.0 V min
Supply Voltages	+24 V	23.5-26.5 V
Maximum Supply without Damage, +24 Volt Supply		+28 VDC
Maximum DC Current, +24 Volt Supply	7.2 amps	7.5 amps
DC Power Dissipation, +24 Volt Supply	175 watts	180 watts
RF Connectors		SMA Female
Stability (No spurious outputs above -50 dBc)		Unconditionally stable for all loads
Size (Heat sink not included)		0.67" (H), 5.0" (W), 10.0" (L)
Weight (Heat sink not included)		40 oz. max

Note: 1. CDMA adjacent power and spurious measurements are made using a Rohde & Schwarz SMIQ03 service in an IS-95 forward Link mode.
2. 1.0 dB minimum loss between power amplifier output and antenna port of top level assembly assumed for IS-95 compliance.

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