

Solid State General Communication Power Amplifier

HD29243

450 – 515 MHz / 25 Watts

- Solid-state linear design
- Small form factor and lightweight
- Suitable for CW, SMR, TETRA applications
- 50 ohm input/output impedance
- High reliability and ruggedness
- Built in Output Isolator
- Built in monitoring circuit



ELECTRICAL SPECIFICATIONS @ +28 VDC, 25°C, 50 Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	450		515	MHz
Output Power CW	P _{CW}		40		Watt
Output Power @ 1 dB Gain Compression Point	P _{1dB}	25			Watt
Small Signal Gain	G _{SS}	46	-	48	dB
Small Signal Gain Flatness	Δ G		± 0.25	± 0.5	dB
Third Order Intercept Point 2-Tones, P _{OUT} = 2 W/Tone, Δ = 25 – 500 KHz	IP3	+55			dBm
Input/Output Return Loss	S ₁₁ / S ₂₂			-14	dB
Noise Figure	NF		7	10	dB
Harmonics @ P1 dB Gain Compression Point	H			-45	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DC}	27	28	29	Volt
Supply Current @ P _{OUT} = 25 W CW	I _{DD}		3.0		Amp
Supply Current @ P _{OUT} = 4 W Composite	I _{DD}		1.6	2.0	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	5.0 x 3.75 x 1.0	Inch	Max
Weight	1.0	lb.	Max
RF Connectors In/Out	SMA Female		
DC Connectors	D-sub, 9 Pins, Male		
Cooling	External Heatsink		

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _c	-10		+50	°C
Storage Temperature	T _{stg}	-40		+85	°C
Relative humidity (non-condensing)	RH			95	%
Altitude (MIL-STD-810F Method 500.4)	ALT	10,000		30,000	Feet
Vibration	VI	MIL-STD-810F Method 514.5 Proc I random sinusoidal Category 4 or 9 or 13			
Shock	SH	MIL-STD-810F Method 516.4 Proc I Operational: Acceleration (A) of 20.0 g ± 1.5 g with Duration of 11.0 ms ± 1.0 ms shock pulse. Non-Operational: Impact shocks of 25 g ± 3.0 g with Duration of 11.0 ms ± 1.0 ms shock pulse.			

PROTECTIONS

Input Overdrive	+6 dBm	Max
Over Power Shutdown	45 dBm	Min
Load VSWR @ 25 W	∞ @ all load phase & amplitude	Nom
Thermal Overload	85°C shutdown	Max

Solid State General Communication Power Amplifier

HD29243

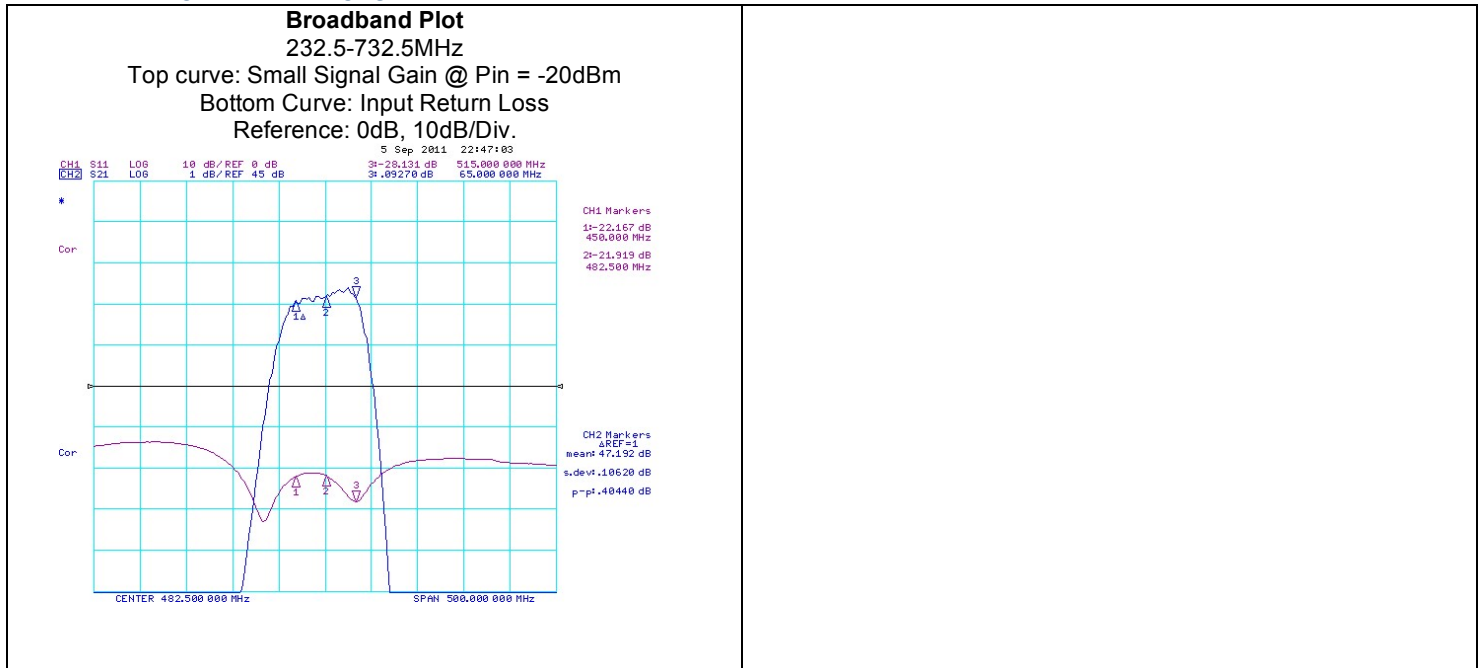
450 – 515 MHz / 25 Watts

INTERFACE CONNECTORS

D-Sub, 9-Pin

Pin #	Description	Specifications
1	Forward Power Monitor	Continuous Analog voltage relative to forward power via RMS detector FWD: 24 – 44 dBm @ 0 – 5 V (100 mV/dB) 34 dBm output = $V_{FWD} = 2.5 V_{DC}$
2	Reverse Power Monitor	Continuous Analog voltage relative to reflected power via RMS detector REVM: 20 – 40 dBm @ 0 – 5V (100 mV/dB) 34 dBm output = $V_{REV} = 2.5 V_{DC}$
3	ALC ON/OFF	ALC ON = TTL "Low" ALC OFF = TTL "High"
4	ALC Level	Continuous adjustable range via analog input levels Setting Point (ASP): 33 – 44 dBm @ 0 – 5 V (100 mV/dB) Error Range (AER): ± 1.5 dB Response Time (ART): 100 mS/dB
5	Mute	Amplifier Enable: TTL "Low" or Open Amplifier Disable: TTL "High"
6	+VDD	$+28 V_{DC} \pm 2 V$
7	+VDD	$+28 V_{DC} \pm 2 V$
8	GND	Ground
9	GND	Ground
LED	LED Indicator	Output Power level indicator referenced to ALC setting (Independent of ALC ON or OFF)

TYPICAL PERFORMANCE PLOTS



Solid State General Communication Power Amplifier

HD29243

450 – 515 MHz / 25 Watts

OUTLINE DRAWING

