Datasheet

Quantum18™ HGBT 1.8GHZ System Amplifiers

OVERVIEW

Introducing the Quantum18 High Gain Balanced Triple (HGBT) 1.8GHz System Amplifier, comprehensive solution for improving signal quality in a CATV network. Designed to amplify and maintain signal, this robust device meets and surpasses industry performance requirements, setting a new standard for all CATV networks.

Superior Performance: Meets and exceeds the SCTE 279 2022 standard for 1.8GHz amplifiers, featuring the latest gain block technology.

- Unparalleled performance and steadfast reliability, synced with the most recent industry benchmarks.

Easy Replacement: Designed to drop into GainMaker SA Housings without requiring modification or replacements with other products.

- Seamless integration with legacy back housings ensures budget-friendly upgrades and swift replacements, minimizing network interruptions.

Modular Design: Equipped with field-upgradable diplex filters.

- Provides flexibility for future spectrum expansions, ensuring long-term utility without frequent hardware changes.

Advanced Electronic Control and Monitoring: Delivers dual-mode access through local wireless and remote management, streamlining configuration and oversight.

- Elevates operational dynamics by simplifying setup, meticulous change logging, vigilant equipment surveillance, and hassle-free troubleshooting.

Supports DOCSIS® 4.0 and 10Gbps Downstream Data Rates: Engineered to support the latest DOCSIS® 4.0 and full 10Gbps downstream data rates.

- Future-proofs your cable network, ensuring compatibility with upcoming technological advancements and increasing network demands.

PRELIMINARY

GENERAL STATION PERFORMANCE	UNITS	FORWARD
Pass band	MHz	105-1794
Amplifier type	-	pHEMT/GaN
Frequency response	dB	±0.75
Return loss	dB	16
Maximum AC through current (continuous)	Amps	15
Maximum AC through current (2 hours)	Amps	20
Hum modulation @ 10A (over specified frequency range)	dB	60
Hum modulation @ 15A (over specified frequency range)	dB	55
Test points (± 0.75 dB)	dB	-20

General Station Performance	Units	Forward
Reference output level at 1794 MHz	dBmV	51
1218 MHz		43
1002 MHz		46
870 MHz		44.1
750 MHz		42.5
550 MHz		39.7
258 MHz		35.6
105 MHz		33.5
Reference output tilt [1] (105-1794 MHz) Virtual Tilt	dB	23.5 (6dB step down at 1.2GHz)

Forward Station Performance	Units	Specification
Operational gain (minimum) [2]	dB	49
Frequency Split, MHz [1]	85 Split	105 - 1794
	204 Split	258 - 1794
	396 Split	492 - 1794
	492 Split	606 - 1794
	684 Split	834 - 1794
Internal tilt (± 0.5 dB), dB	105 - 1794	23.2
	258 - 1794	19.5
	492 - 1794	15.3
	606 - 1794	13.6
	834 - 1794	10.5
Noise figure [2]	dB	<10
CCN	dB	≥48

Reverse Station Performance	Units	Specification
Operational gain (minimum) [4]	dB	27
Internal tilt (± 0.5 dB) [3]	dB	0
Recommended Operating Input Level (6.4MHz CH) [4]	dBmV	9
Noise figure [4]	dB	<9
NPR ≥ 55dB (dynamic range) [4]	dB	10
Frequency Split, MHz [1]	85 Split	10 - 85
	204 Split	10 - 204
	396 Split	10 - 396
	492 Split	10 - 492
	684 Split	10 - 684

Unless indicated differently, our specifications reflect typical performance and are referenced to 68°F (20°C). The measurements employed in determining these specifications adhere to the globally recognized SCTE/ANSI standards, when relevant, utilizing standard frequency assignments.

Note:

1. *We specify the output tilt as "LINEAR" tilt (not "cable" tilt).*
2. *Forward gain and noise figures were measured with an equivalent 0 dB input EQ and 1 dB input pad setting.*
3. *Down tilt, an effect of cable, is denoted by a (-). Up tilt, an effect of equalization, is denoted by a (+).*
4. *Performance specified for 204MHz split.*

Station Powering Data																
Quantum18 System Amplifier	I DC (Amps)			AC Voltage												
	5.5V	8V	24V		90	85	80	75	70	65	60	55	50	45	40	38
HGBT	1.55	0.35	1.59	AC current	0.94	0.98	1.02	1.07	1.13	1.20	1.27	1.37	1.47	1.60	1.77	1.85
				PF	0.72	0.73	0.75	076	0.77	0.79	0.80	0.81	0.83	0.85	0.87	0.87
				Power (W)	61.19	61.18	61.19	61.16	61.16	61.18	61.20	61.16	61.18	61.17	61.18	61.19

The data provided here is derived from stations set up for bidirectional operation. The specified AC currents are measured using a common CATV type ferroresonant AC power supply (quasi-square wave) and the Quantum18 High Output System Amplifier power supply.

Environmental	Value
Operating temperature range	-40 to 140°F (-40 to 60°C)

Mechanical	Value
Housing Dimensions	17.3 in. x 7.2 in. x 7.8 in. (439.4 mm x 182.9 mm x 198.1 mm)
Weight Housing with power supply	19 lb (8.6 kg)

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