



## Upgrade to a sustainable 1-GHz CATV network

Philips high-gain power doublers  
CGD104x for 1-GHz CATV applications

These high-performance GaAs devices for 1-GHz CATV applications make it easy for cable operators to extend their services to include HDTV, VoIP, and digital simulcasting.

### Features

- Excellent linearity, stability, and reliability
- High power gain
- Extremely low noise
- Silicon Nitride passivity
- GaAs HFET dies for high-end applications
- Rugged construction

### Products

- Power doublers: CGD1042, CGD1044
- High-output power doublers: CGD1042H, CGD1044H

### Customer benefits

- Simple upgrade to 1-GHz capable networks
- Optimized heat management
- Excellent temperature resistance
- Low total cost of ownership
- High ESD levels
- High power-stress capability
- Highly automated assembly

### Hybrid Fiber Coax (HFC) applications

- Line extenders
- Trunk amplifiers
- Fiber deep-optical-node (N+0/1/2)

# PHILIPS

Designed for 1-GHz “sustainable networks”, these high-performance GaAs devices enable extended bandwidth and higher data rates. They deliver increased network capacity and make way for high-end services like HDTV, VoIP, and digital simulcasting.

The power doublers CGD1042 and CGD1044 are ideal for use in line extenders and trunk amplifiers. Their high-output counterparts, the CGD1042H and CGD1044H, are designed for use in fiber deep-optical-node applications (N+0/1/2).

The GaAs HFET die process delivers high gain and high performance, along with lower current and better CTB and CSO ratings.

These 1-GHz solutions are designed for durability and offer superior ruggedness, an extended temperature

range, high-power overstress capabilities, and high ESD levels. The result is low cost of ownership.

The GaAs die is inserted in a unique HVQFN package that is then mounted on thermal vias that manage heat transfer to the heat sink. Temperature-control circuitry keeps the module's high performance stable over a wide range of temperature changes.

Assembly is fully automated and requires almost no human intervention and therefore repeatability remains very high.

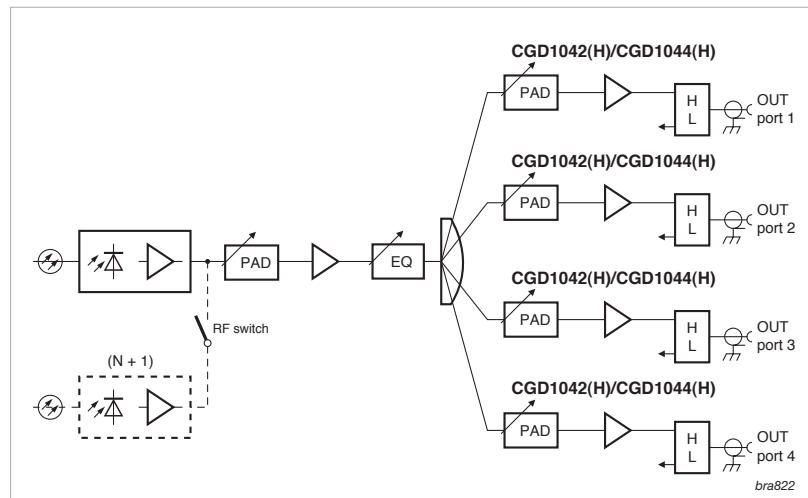
### Upcoming push-pull products

New push-pulls, currently under development, will combine with the power doublers to service almost all modern HFC applications. The push-pull CGY1041 will deliver a gain of 21 dB, the CGY1043 a gain of 23 dB.

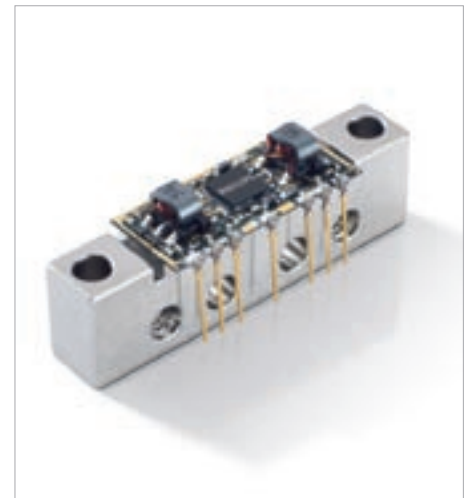
	CGD1042		CGD1044		CGD1042H		CGD1044H	
	min	max	min	max	min	max	min	max
Power gain (dB)	20.5	22.5	23	25	20.5	22.5	23	25
Slope cable equivalent (dB)	1	2	1	2	1	2	1	2
Composite triple beat (dB)		-70 <sup>1</sup>		-70 <sup>1</sup>		-60 <sup>2</sup>		-60 <sup>2</sup>
Composite second-order distortion (dB)		-70 <sup>1</sup>		-70 <sup>1</sup>		-60 <sup>2</sup>		-60 <sup>2</sup>
Noise (@Fmax) (dB)		5		5		5		5
Total current consumption (mA)		465		465		465		465
Frequency range	40 MHz to 1 GHz		40 MHz to 1 GHz		40 MHz to 1 GHz		40 MHz to 1 GHz	

<sup>1</sup> 79 analog channels, 13.9-dB extrapolated tilt up to 1 GHz, Vout = 55.9 dBmV

<sup>2</sup> 79 analog channels, 13.9-dB extrapolated tilt up to 1 GHz, Vout = 58.9 dBmV



An optical node with multiple out-ports using the CGD1042(H) and CGD1044(H)



Power doubler shown without cap

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