

**40 to 1000 MHz Optical Receiver Multi-Chip-Module (MCM)  
AGC with +19 dBmV Maximum RF Output**

## 1. Product profile

### 1.1 General description

The module is in a low profile surface mount multi-chip-module (MCM) package (see Fig.1), operates from either +5 or +12 Volts DC, is equipped with automatic gain control (AGC), a FC/APC or SC/APC Connector, a single mode optical input suitable for 1100 to 1650 nm wavelengths, a terminal to monitor the photo diode current, and an electrical output having a characteristic impedance of 75Ω. The module accepts optical receive power in the range -7~+1dBm and RF output can achieve +79 dBμV/ch (@ +1dBm input) within the 40 to 1000 MHz frequency range.

#### CAUTION



**This device is sensitive to Electro Static Discharge (ESD). Therefore care should be taken during transport and handling.**

### 1.2 Features and benefits

- Excellent linearity
- Excellent distortion performance
- Low input referred noise
- Surface Mount MCM Package
- AGC



## 1.3 Applications

- CATV systems operating with a forward path frequency range of 40 to 870 MHz.

## 1.4 Handling

- Fiberglass optical coupling
- Maximum tensile strength= 5 N
- Minimum bending radius=35mm

## 2. LIMITING VALUES

In accordance With the Absolute Maximum Rating System

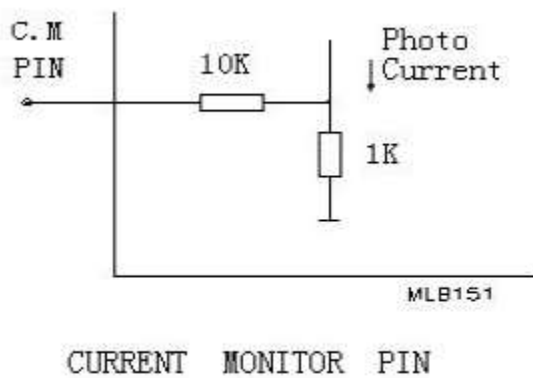
SYMBOL	PARAMETER	CONDITION	MIN	MAX	UNITS
Pin	Input Optical Power			3	mW
Tstg	Storage Temperature		-40	+85	°C
Top	Operating Temperature		-20	+85	°C
ESD	ESD Sensitivity	Human Body Model; R = 1.5kΩ; C = 100pF	500		V

## 3. CHARACTERISTICS

T<sub>mb</sub> = 24°C, V<sub>B</sub>=24VDC, Z<sub>s</sub>=Z<sub>L</sub>=75Ω

SYMBOL	PARAMETER	UNIT	MIN	TYP	MAX	CONDITIONS
F	Frequency Range	MHz	40		1000	
S <sub>λ</sub>	Spectral Sensitivity	A/W	0.85			λ = 1310 ±20 nm
		A/W	0.9			λ = 1550 ±20 nm
λ	Optical Wavelength	nm	1100		1650	
V <sub>c.m</sub>	Voltage of C.M. Pin	mV	850			λ = 1310 ±20 nm; 0 dBm Optical Input Power; V <sub>B</sub> =24Vdc
RF <sub>out</sub>	RF Output Level	dBmV	11		19	m = 3.7%; F = 1000
V <sub>o</sub>	Output Voltage	dBμV	71		79	MHz; Optical power received at -7 to +1 dBm
FL	Flatness of Frequency Response	dB			±0.75	F = 40 to 1000 MHz
CTB	Composite Triple Beat	dBc		-70		60 PAL-D channels flat;
CSO	Composite Second Order	dBc		-64		m = 3.7%; measured at 543.25 MHz; Optical receive power @ 0 dBm
CNR	Carrier-to-Noise Ratio	dB		52		Optical receiving power at 0 dBm
S11	Input Return Loss, Optical Domain	dB			-45	
S22	Output Return Loss, RF Domain	dB			-10	F = 40 to 870 MHz
I <sub>tot</sub>	Total Current Consumption	mA	145		170	V <sub>B12</sub> =12V; V <sub>B5</sub> =5V; DC

## 4. PHOTODIODE CURRENT MONITOR PIN



## 5. ASSEMBLY PCB PIN DESCRIPTION (TOP VIEW)

15	—⊕—	GND	GND	—⊕—	1
14	—⊕—	NC	VB12	—⊕—	2
13	—⊕—	GND	GND	—⊕—	3
12	—⊕—	GND	RFout	—⊕—	4
11	—⊕—	GND	GND	—⊕—	5
10	—⊕—	C.M	VB5	—⊕—	6
9	—⊕—	GND	GND	—⊕—	7
8	—⊕—	GND			

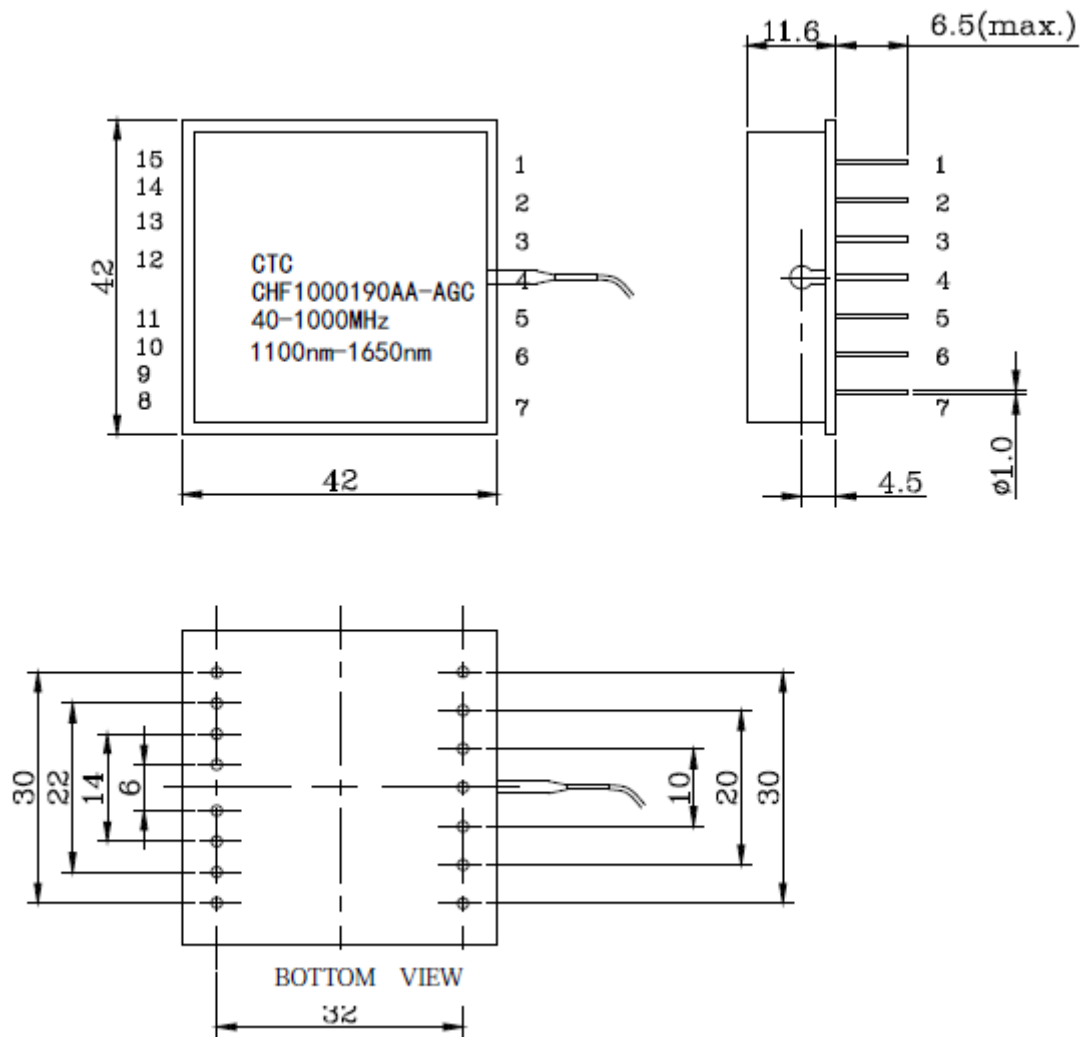
PIN NO.	NAME	DESCRIPTION	PIN NO.	NAME	DESCRIPTION
1	GND	Ground	8	GND	Ground
2	VB12	+ 12V Supply for the module	9	GND	Ground
3	GND	Ground	10	C.M	( Optical Power ) Current Monitor
4	RF out	Output for the module	11	GND	Ground
5	GND	Ground	12	GND	Ground
6	VB5	+ 5V Supply for the module	13	GND	Ground
7	GND	Ground	14	NC	NC
			15	GND	Ground

ATTENTION:

PIN 2: SUPPLY +12V

PIN 6: SUPPLY +5V

## 6. MODULE DIMENSIONS (Units in mm)





# CHF1000190AA-AGC

## 6. Appendix

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### 6.1 FLATNESS OF FREQUENCY RESPONSE

Available upon request.

### 6.2 ORDERING INSTRUCTIONS

To Order, Contact: Chips Technology Circuits, 48 Farrand Street, Bloomfield, NJ 07003  
Phone: +1 973-748-6172  
FAX: +1 973-748-9306 Email: [purchctc@chipstech.com](mailto:purchctc@chipstech.com)