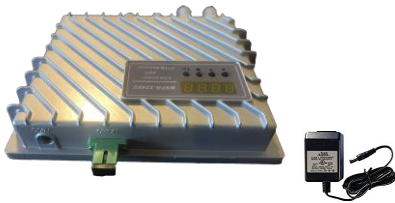




MXFR-2246G

Low power AGC FTTx Optical Receiver



Technical Parameters

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PRODUCT OVERVIEW

The MXFR-2246G is a high performance, and high output optical receiver. The receiver comes equipped with built in RF interstage gain adjustment and equalization/slope control (no pads or EQ's required). Adjustments may be made via LED display screen and control buttons. The receiver provides great flexibility and may be used in any FTTx application. The receiver offers excellent performance and P/P ratio. Accepts wavelengths between 1260~1620nm Used in CATV system with digital or analog TV channels

PRODUCT FEATURES

- RF bandwidth: 47~1050MHz
- AGC feature: Pin:-7.0dBm~+2dBm, $\Delta V_o : \leq \pm 0.5\text{dB}$
- Low noise(3.8% modulation, -8dBm receive, $\text{CNR} \geq 46\text{dB}$)
- High level output – Dual +41 dBmV (average QAM RF level)
- Output level(V_o)and slope(EQ)may be adjusted (By 1dB step)
- RF output port: standard 2 output ports, 1 and 4 port models are optional
- SNMP network management is optional, allowing the operator to achieve remote management and control
- LED screen display's technical parameters
- Adapts MMIC Amplifier, low power consumption <6W



TECHNICAL INDEX

| Performance | | | Index | | | Supplement |
|-------------------|--|--------|----------|------|--------------|------------------------------------|
| | | | Min. | Typ. | Max. | |
| Optical feature | CATV operational wavelength | (nm) | 1260 | | 1620 | Without CWDM |
| | Responsivity | (A/W) | 0.85 | | | 1310nm |
| | | | 0.9 | | | 1550nm |
| | Optical AGC control range | (dBm) | -7 | | +2 | $\Delta V_o \leq \pm 1.0\text{dB}$ |
| | Receiving optical power range | (dBm) | -10 | | +2 | Analog TV(CNR>43.5dB) |
| | | | -16 | | +2 | Digital TV (MER Deterioration 5dB) |
| | Optical return loss | (dB) | 50 | | | |
| Optical connector | | SC/APC | | | Without CWDM | |
| RF feature | PD work bandwidth | (MHz) | 47 | | 1050 | |
| | Flatness | (dB) | -1.0 | | +1.0 | |
| | RF number of output port | (ps) | | 1 | | MXFR-2150G |
| | | | standard | 2 | | MXFR-2246G |
| | | | | 4 | | MXFR-2442G |
| | Each port output level (PAD=0dB) (Max) | (dBmV) | | 44 | | MXFR-2150G (1 port) |
| | | | | 41 | | MXFR-2246G (2 ports) |
| | | | | 38 | | MXFR-2442G (4ports) |
| | ALC feature | (dB) | -1.0 | | +1.0 | Pin: -9.0~+2.0dBm |
| | Output level range (attenuator) | (dB) | -15 | | 0 | 1dB stepping |
| | EQ ADJ | (dB) | 0 | | 15 | 1dB stepping |
| Return loss | (dB) | 16 | | | 47~862MHz | |
| | | 12 | | | 862~1000MHz | |

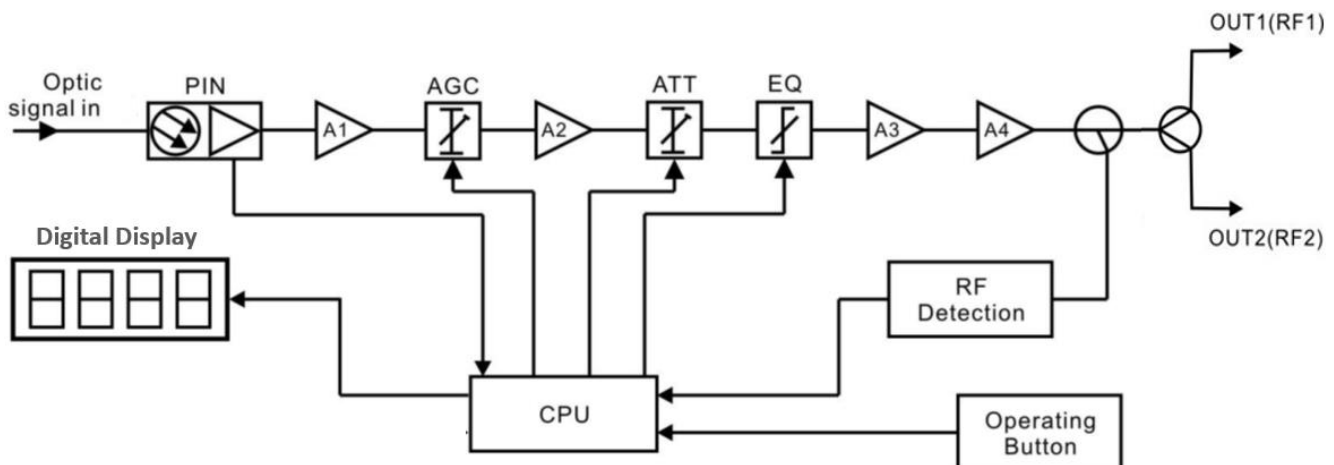


| | | | | | | | |
|-------------------------|-----------------------------|--------------|-------------------|--------|------------------|------------------|--|
| | Output impedance | (Ω) | | 75 | | | |
| | RF port | | F-female | | | | |
| Analog TV Link feature | Test channel | | 79CH(NTSC) | | 47~550MHz Analog | | |
| | | | Digital QAM | | 550~1000MHz | | |
| | OMI | (%) | | 3.8 | | | |
| | CNR1 | (dB) | | 53.5 | | Pin=-2.0dBm | |
| | CNR2 | (dB) | | 47.8 | | Pin=-7.0dBm | |
| | CTB | (dB) | | | -63 | Pin=-2.0dBm | |
| | CSO | (dB) | | | -67 | Pin=-2.0dBm | |
| | HUM | (dB) | | | -60 | | |
| Digital TV link feature | Test channel | | <10CH | | Analog | | |
| | | | Digital QAM | | 47~1000MHz | | |
| | MER | (dB) | 37(Note1) | | | Pin:-10dBm~+2dBm | |
| | | | 33 | | | Pin=-16.0dBm | |
| BER | (dB) | | | 1.0E-9 | Pin:-20dBm~+2dBm | | |
| General feature | SNMP connector (optional) | | RJ45 | | | SNMP | |
| | Operating Voltage | (V) | | 8 | | External power | |
| | Operating current | (A) | | 0.75 | | External power | |
| | Power consumption | (W) | | 5.5 | 6 | | |
| | Operating temp. | (F) | -40 | | | 140 | |
| | Storage temp. | (F) | -40 | | | 149 | |
| | Operating relative humidity | (%) | 5 | | | 59 | |
| | Size | (inch) | 6.42"×4.93"×1.26" | | | (W)×(D)×(H) | |

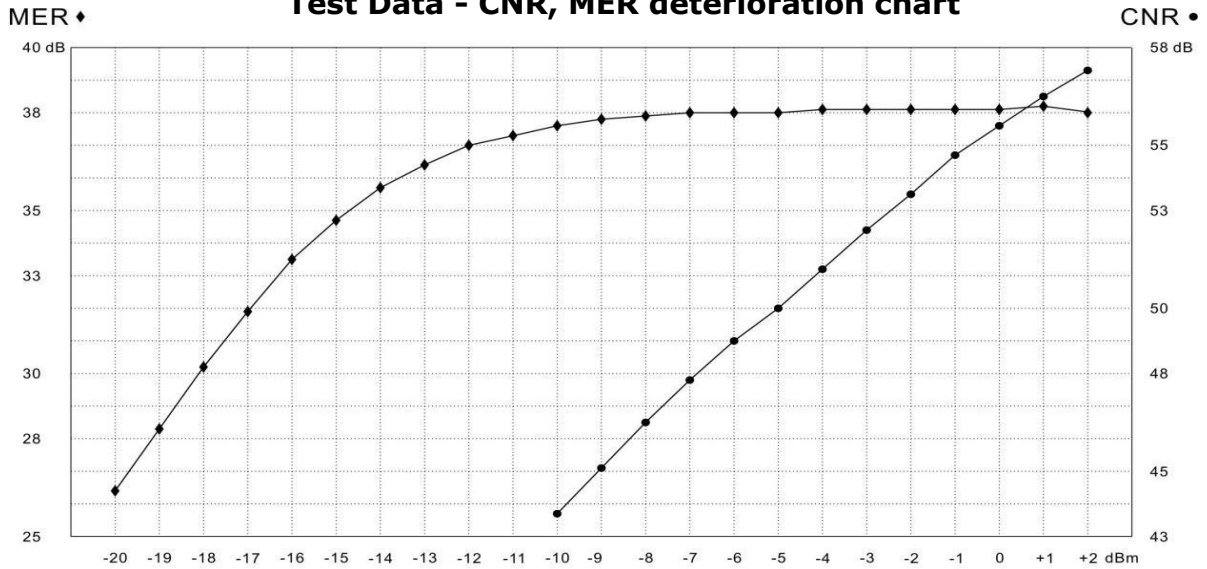
Remark: 1. Digital TV test signal: MER: 38.3dB, BER: <1.0E-9

FUNCTIONAL BLOCK DIAGRAM

MXFR-2246G (Standard configuration)



Test Data - CNR, MER deterioration chart



Remark: 1. CNR Original signal:59CH PAL-D, OMI=3.8%
 2. Digital TV test signal: MER=38.3dB、BER<1.0E-9

ANALOG TV TEST DATA (Pin=+2.0dBm~-10.0dBm)

| Pin(dBm) | +2 | +1 | 0 | -1 | -2 | -3 | -4 | -5 | -6 | -7 | -8 | -9 | -10 |
|----------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|------|------|------|
| Vo(dBmV) | 40.4 | 40.2 | 40.8 | 40.0 | 39.7 | 40.2 | 40.3 | 40.2 | 40.1 | 40.3 | 39.1 | 37.2 | 35 |
| Vo(dBμV) | 100.4 | 100.2 | 100.8 | 100.0 | 99.7 | 100.2 | 100.3 | 100.2 | 100.1 | 100.3 | 99.1 | 97.2 | 95.0 |
| CNR(dB) | 53.7 | 56.5 | 55.6 | 54.7 | 53.5 | 52.4 | 51.2 | 50.0 | 49.0 | 47.8 | 46.5 | 45.1 | 43.7 |
| CTB(dB) | 62.4 | 62.8 | 63.0 | 63.1 | 63.1 | 63.1 | 64.7 | 63.5 | 66.0 | 66.4 | 63.7 | 65.7 | 66.6 |
| CSO(dB) | 62.5 | 63.1 | 63.8 | 67.4 | 67 | 70.7 | 69.9 | 68.5 | 66.3 | 69.5 | 64.7 | 63.1 | 67.5 |

Remark. Test condition: 1,NTSC D79CH, OMI=3.8% 2,Test type: MXFR-2246G,PAD=6dBDIGITAL

TV TEST DATA (Pin=+2.0dBm~-20.0dBm)

| Pin(dBm) | Vo(dBmV) | MER | BER | |
|----------|----------|------|---------|---------|
| | | | POST | PRE |
| +2.0 | 41.8 | 38.0 | <1.0E-9 | <1.0E-9 |
| +1.0 | 41.1 | 38.2 | <1.0E-9 | <1.0E-9 |
| +0.0 | 41.7 | 38.1 | <1.0E-9 | <1.0E-9 |
| -1.0 | 41.8 | 38.1 | <1.0E-9 | <1.0E-9 |
| -2.0 | 41.7 | 38.1 | <1.0E-9 | <1.0E-9 |
| -3.0 | 41.3 | 38.1 | <1.0E-9 | <1.0E-9 |
| -4.0 | 41.1 | 38.1 | <1.0E-9 | <1.0E-9 |
| -5.0 | 41.2 | 38.0 | <1.0E-9 | <1.0E-9 |
| -6.0 | 41.1 | 38.0 | <1.0E-9 | <1.0E-9 |
| -7.0 | 40.8 | 38.0 | <1.0E-9 | <1.0E-9 |
| -8.0 | 40.8 | 37.9 | <1.0E-9 | <1.0E-9 |
| -9.0 | 38.7 | 37.8 | <1.0E-9 | <1.0E-9 |

| Pin(dBm) | Vo(dBmV) | MER | BER | |
|----------|----------|------|---------|---------|
| | | | POST | PRE |
| -10.0 | 36.9 | 37.5 | <1.0E-9 | <1.0E-9 |
| -11.0 | 34.7 | 37.3 | <1.0E-9 | <1.0E-9 |
| -12.0 | 32.8 | 37.0 | <1.0E-9 | <1.0E-9 |
| -13.0 | 31.0 | 36.4 | <1.0E-9 | <1.0E-9 |
| -14.0 | 28.7 | 35.7 | <1.0E-9 | 6.6E-7 |
| -15.0 | 27.0 | 34.7 | <1.0E-9 | 3.7E-5 |
| -16.0 | 25.1 | 33.5 | <1.0E-9 | 2.2E-4 |
| -17.0 | 23.2 | 31.9 | <1.0E-9 | 4.9E-4 |
| -18.0 | 21.1 | 30.2 | <1.0E-9 | 8.0E-4 |
| -19.0 | 19.0 | 28.3 | <1.0E-9 | 1.1E-3 |
| -20.0 | 16.9 | 26.4 | <1.0E-9 | 1.5E-3 |

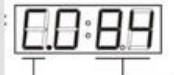
Remark. Test condition: Test signal MER:38.3(dB), BER:<1.0E-9 Channel negative nuclear : <10CH Analog TV, Digital QAM Test type: MXFR-2246G, PAD=6dB

Function and Control

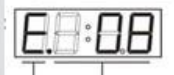
Push ▲ button to scroll through the available modes or operation or display
 After selecting the mode, press and hold the ■ button until display blinks
 Press ▲ or ▼ to increase or decrease the desired value. Push ■ to save, or "ESC" to cancel



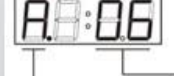
Reference Only-Displays optical input power in dBm
 "LO" = Indicates No or Low optical power
 "I or O" Optical Power Mode



Allows user to input the number of channels for reference only
 ▲ or ▼ to change the number of channels (max 200)
 "C" Channels are entered to help the unit calibrate RF out Levels



E1-Allows user to adjust the RF slope / equalization
 ▲ or ▼ to change the equalizer (EQ) value between 0~15dB



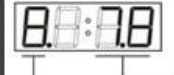
A1-Allows user to adjust the RF output level
 ▲ or ▼ to change the RF Attenuation value between 0~15dB



Reference Only - RF Level (Shown in dBuV) *Note, dBmV is -60dB less than dBuV
 "L" displays the reference calculated RF output power



Reference Only-Displays internal working temperature in Celsius
 "3" Displays the ref temp



Reference Only-Displays actual input voltage
 "20" Displays the standard +8V input voltage



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