IRD-SFP-10G-SM-20AB

Par de Módulos SFP+ 10Gbps BiDi, Monomodo, 20km, 1270/1330nm, Simplex LC

CARACTERÍSTICAS

- Transmissão de até 10,6 Gbps
- Laser DFB 1270nm (TX) / Fotodetector PIN (RX 1330nm) – Lado A trava cor vermelha
- Laser DFB 1330nm (TX) / Fotodetector PIN (RX 1270nm) – Lado B trava cor azul
- Alcance de até 20 km sobre fibra óptica monomodo 9/125µm
- Interface óptica Simplex LC
- Hot pluggable (inserção/remoção a quente)
- Carcaça metálica para desempenho superior de EMI
- Compatível com RoHS6 (livre de chumbo)
- Monitoramento digital (DDM) integrado
- Temperatura de Operação: -5°C a +70°C (comercial)
- Compatível com SFP+ MSA, SFF-8472 e IEEE802.3ae

A imagem apresentada é apenas para fins ilustrativos

SFP+ | 1270/1330nm | 20km | Simplex

CE FC RoHS

INTRODUÇÃO

O IRD-SFP-10G-SM-20AB é um par de módulos transceptores ópticos SFP+ projetado para aplicações de 10 Gigabit Ethernet em redes que exigem longas distâncias de transmissão via fibra monomodo (SMF). Disponível em versões comerciais, estendidas e industriais, o módulo oferece desempenho robusto e confiável em ambientes críticos, sendo ideal para conexões ponto a ponto, uplinks de switches, roteadores e interconexões em data centers.

A tecnologia BiDi (bidirecional) permite a utilização de apenas uma fibra para transmissão e recepção de dados, reduzindo custos de infraestrutura e facilitando a expansão de redes ópticas. O design hot-pluggable simplifica a instalação e manutenção, enquanto o monitoramento digital (DDM) fornece informações em tempo real sobre o status operacional do módulo.

ESPECIFICAÇÕES TÉCNICAS

Funcionalidades

- Alcance de até 20 km sobre fibra monomodo (9/125µm)
- Disponível nas versões TX1270/RX1330nm e TX1330/RX1270nm para uso bidirecional (BiDi)
- Compatível com aplicações 10GBASE-LR/LW, 10G Fibre Channel, 10G SONET e outros links ópticos
- Monitoramento digital conforme SFF-8472: monitora temperatura, potência óptica TX/RX, tensão de alimentação e corrente de bias
- Alta imunidade a interferências eletromagnéticas (EMI)
- Suporte total a hot swap
- Interface óptica Simplex LC
- Ampla faixa de temperatura operacional
- Compatível com a maioria dos switches, roteadores e equipamentos de rede do mercado
- Consumo máximo: 300 mA

Ópticas

- Comprimento de onda:
  - IRD-SFP-10G-SM-20A: TX 1270nm / RX 1330nm
  - IRD-SFP-10G-SM-20B: TX 1330nm / RX 1270nm
- Largura espectral (-20dB): <= 1 nm
- Potência óptica média de saída: -3 a +3 dBm
- Potência do laser desligado: <= -30 dBm
- Sensibilidade do receptor: até -14,4 dBm
- Overload (receptor): até +0,5 dBm
- Relação de extinção: >= 3,5 dB
- RIN: <= -128 dB/Hz
- Tempo de subida/queda óptico: <= 50 ps
- Tolerância a retorno óptico: até 12 dB

Elétricas

- Alimentação: 3,13 a 3,46 V
- Corrente: até 300 mA
- Impedância diferencial de entrada: 90 a 110 ohms
- Swing diferencial (entrada): 180 a 700 mV
- Swing diferencial (saída): 300 a 850 mV

Diagnóstico Digital (DDM)

- Temperatura: precisão +/−3°C
- Potência TX/RX: precisão +/−3 dB
- Tensão de alimentação: precisão +/−3%
- Corrente de bias: precisão +/−10%
- Protocolo de comunicação: I²C (SFF-8472)

Ambiente Operacional

- Temperatura de operação:
  - Comercial: -5°C a +70°C
  - Estendida: -20°C a +80°C (opcional)
  - Industrial: -40°C a +85°C (opcional)
- Umidade relativa: 0 a 85% (sem condensação)
- Temperatura de armazenamento: -40°C a +85°C

Outros

- Interface óptica: Simplex LC
- Interface elétrica: compatível SFP+ MSA
- Inicialização: <= 300 ms
- Desativação/ativação do TX: <= 100 us / <= 2 ms
- Frequência do clock serial (I²C): até 400 kHz
- Pinagem conforme SFP+ padrão MSA
- Tensão máxima: 3,6 V
- Potência máxima no receptor (dano): +1,5 dBm

Compatibilidade e Padrões

- SFP+ MSA
- SFF-8472 (diagnóstico digital)
- IEEE 802.3ae

Aviso Legal: As informações e especificações contidas neste documento estão sujeitas a alteração sem aviso prévio. A IRD.Net não se responsabiliza por eventuais erros de digitação ou omissões, nem por danos decorrentes do uso inadequado ou instalação incorreta do produto.
O uso deste equipamento deve seguir as normas e regulamentações locais aplicáveis. Nenhuma parte deste material pode ser reproduzida, distribuída ou utilizada para fins comerciais sem autorização prévia e por escrito da IRD.Net.

Room 303, Building 1, No.316, Renzhou Road,
Shatian Town, Dongguan City, Guangdong Province
www.junantest.com

CERTIFICATE OF CONFORMITY

No: JAT25040302947RC-1

Applicant	:	IRD Produtos de Informática Ltda
Address	:	RUA MARIA LOPES BORBA, 474, NAVEGANTES-SC, 88370340, BRAZIL
Manufacturer	:	IRD Produtos de Informática Ltda
Address	:	RUA MARIA LOPES BORBA, 474, NAVEGANTES-SC, 88370340, BRAZIL
EUT	:	Commercial and Industrial Grade SFP Modules (Optical Modules)
Trade Mark	:	IRD.Net
M/N	:	See model list

The submitted sample of the above equipment has been tested and found to comply with the following European Directive:

RoHS Directive 2011/65/EU & (EU) 2015/863 & (EU) 2017/2102

The standard(s) used for showing compliance with the essential requirements:

Applicable Standard(s)	Test Report(s) Number
IEC 62321-1:2013, IEC 62321-2:2013 IEC 62321-3-1:2013, IEC 62321-3-2:2020 IEC 62321-4:2013, IEC 62321-5:2013 IEC 62321-6:2015, IEC 62321-7-1: 2015 IEC 62321-7-2:2017, IEC 62321-8:2017	**JAT25040302947RR-1**

This certificate is part of the full test report(s) and should be read in conjunction with it. This certificate is based on an evaluation of one sample of above mentioned product. It does not imply assessment of the production of the product. Without the written approval of Dongguan Jun'an Testing & Certification Co., Ltd., this certificate is not permitted to be reproduced, except in full. It is not permitted to use the test lab's logo.

RoHS

Dongguan Jun'an Testing & Certification Co., Ltd.
APPROVED

(Manager)

March 31, 2025

Model list:

The IRD-SFP-T2.5G, IRD-SFP-T1G, IRD-SFP-T10G, IRD-SFP-X-Y-ZW and IRD-SFP-X-Y-Z-IW model families follow a naming convention where each part of the code corresponds to a specific characteristic of the module. Below is a detailed explanation of each field:

1. **X (Speed)**
   - Possible values: *100M*, *622M*, *1G*, *2.5G*, *10G*, *16G*, *25G*, *40G*, *50G*, or *100G*.
   - Indicates the supported data rate, covering anything from Fast Ethernet (100 Mbps) up to 100 Gbps.
2. **Y (Fiber Type)**
   - Possible values: *SM* (singlemode) or *MUM* (multimode).
   - Specifies the type of fiber optic cable for which the transceiver is designed.
3. **Z (Maximum Distance)**
   - Possible values: *0.1*, *0.3*, *0.5*, *2*, *10*, *20*, *40*, *60*, *80*, *100*, *120*, and *160*.
   - Typically expressed in kilometers (km), it refers to the approximate reach of the module according to its optical specification.
4. **Temperature/Operating Grade**
   - After the value **Z**, the presence of **I** indicates an *industrial-grade* product (extended operating temperature range), whereas the absence of I (NULL) means it is *commercial-grade*.
   - Examples:
     - **IRD-SFP-X-Y-ZW** → "Commercial-grade" version
     - **IRD-SFP-X-Y-Z-IW** → "Industrial-grade" version
5. **W (Additional Type)**
   - Possible values: *NULL*, *A*, *B*, *C*, *D*, *E*, *F*, *G*, or *H*.
   - This suffix provides additional information about the product variant. It may indicate extra features, extended compatibility, special applications, and so on.

Room 303, Building 1, No.316, Renzhou Road,
Shatian Town, Dongguan City, Guangdong Province
www.junantest.com

CERTIFICATE OF CONFORMITY

No: JAT25040302947EC-1

Applicant	:	IRD Produtos de Informática Ltda
Address	:	RUA MARIA LOPES BORBA, 474, NAVEGANTES-SC, 88370340, BRAZIL
Manufacturer	:	IRD Produtos de Informática Ltda
Address	:	RUA MARIA LOPES BORBA, 474, NAVEGANTES-SC, 88370340, BRAZIL
EUT	:	Commercial and Industrial Grade SFP Modules (Optical Modules)
Trade Mark	:	IRD.Net
M/N	:	See model list

The submitted sample of the above equipment has been tested and found to comply with the following European Directive:

Electromagnetic Compatibility Directive 2014/30/EU

The standard(s) used for showing compliance with the essential requirements:

Applicable Standard(s)	Test Report(s) Number
EN 55032:2015+A11:2020 **EN 55035:2017+A11:2020** **EN IEC 61000-3-2:2019+A2:2024** **EN 61000-3-3:2013+A2:2021+AC:2022-01**	**JAT25040302947ER-1**

This certificate is part of the full test report(s) and should be read in conjunction with it. This certificate is based on an evaluation of one sample of above mentioned product. It does not imply assessment of the production of the product. Without the written approval of Dongguan Jun'an Testing & Certification Co., Ltd., this certificate is not permitted to be reproduced, except in full. It is not permitted to use the test lab's logo. The CE marking may only be used if all the relevant and effective European Directive are applicable.

Dongguan Jun'an Testing & Certification Co., Ltd.
APPROVED

.....
(Manager)
March 31, 2025

Model list:

The IRD-SFP-T2.5G, IRD-SFP-T1G, IRD-SFP-T10G, IRD-SFP-X-Y-ZW and IRD-SFP-X-Y-Z-IW model families follow a naming convention where each part of the code corresponds to a specific characteristic of the module. Below is a detailed explanation of each field:

1. **X (Speed)**
   - Possible values: *100M*, *622M*, *1G*, *2.5G*, *10G*, *16G*, *25G*, *40G*, *50G*, or *100G*.
   - Indicates the supported data rate, covering anything from Fast Ethernet (100 Mbps) up to 100 Gbps.
2. **Y (Fiber Type)**
   - Possible values: *SM* (singlemode) or *MUM* (multimode).
   - Specifies the type of fiber optic cable for which the transceiver is designed.
3. **Z (Maximum Distance)**
   - Possible values: *0.1*, *0.3*, *0.5*, *2*, *10*, *20*, *40*, *60*, *80*, *100*, *120*, and *160*.
   - Typically expressed in kilometers (km), it refers to the approximate reach of the module according to its optical specification.
4. **Temperature/Operating Grade**
   - After the value **Z**, the presence of **I** indicates an *industrial-grade* product (extended operating temperature range), whereas the absence of I (NULL) means it is *commercial-grade*.
   - Examples:
     - **IRD-SFP-X-Y-ZW** → "Commercial-grade" version
     - **IRD-SFP-X-Y-Z-IW** → "Industrial-grade" version
5. **W (Additional Type)**
   - Possible values: *NULL*, *A*, *B*, *C*, *D*, *E*, *F*, *G*, or *H*.
   - This suffix provides additional information about the product variant. It may indicate extra features, extended compatibility, special applications, and so on.

Room 303, Building 1, No.316, Renzhou Road,
Shatian Town, Dongguan City, Guangdong Province
www.junantest.com

SDoC's Compliance Information Statement

No: JAT25040302947FC-1

Applicant	:	IRD Produtos de Informática Ltda
Address	:	RUA MARIA LOPES BORBA, 474, NAVEGANTES-SC, 88370340, BRAZIL
Manufacturer	:	IRD Produtos de Informática Ltda
Address	:	RUA MARIA LOPES BORBA, 474, NAVEGANTES-SC, 88370340, BRAZIL
EUT	:	Commercial and Industrial Grade SFP Modules (Optical Modules)
Trade Mark	:	IRD.Net
M/N	:	See model list

The submitted sample of the above equipment has been tested and found to comply with the following requirement of 47 CFR of PART 15.
The assessment of compliance of the product with the requirements relating to FCC rules was based on the following standards and procedure:

Applicable Standard(s)	Test Report(s) Number
FCC Part 15, Subpart B:2017 ANSI C63.4:2014	**JAT25040302947FR-1**

This verification is part of the full test report(s) and should be read in conjunction with it. This verification is based on an evaluation of one sample of above mentioned product. It does not imply assessment of the production of the product. Without the written approval of Dongguan Jun'an Testing & Certification Co., Ltd., this verification is not permitted to be reproduced, except in full. It is not permitted to use the test lab's logo.

Dongguan Jun'an Testing & Certification Co., Ltd.
APPROVED

.....
(Manager)
March 31, 2025

Model list:

The IRD-SFP-T2.5G, IRD-SFP-T1G, IRD-SFP-T10G, IRD-SFP-X-Y-ZW and IRD-SFP-X-Y-Z-IW model families follow a naming convention where each part of the code corresponds to a specific characteristic of the module. Below is a detailed explanation of each field:

1. **X (Speed)**
   - Possible values: *100M*, *622M*, *1G*, *2.5G*, *10G*, *16G*, *25G*, *40G*, *50G*, or *100G*.
   - Indicates the supported data rate, covering anything from Fast Ethernet (100 Mbps) up to 100 Gbps.
2. **Y (Fiber Type)**
   - Possible values: *SM* (singlemode) or *MUM* (multimode).
   - Specifies the type of fiber optic cable for which the transceiver is designed.
3. **Z (Maximum Distance)**
   - Possible values: *0.1*, *0.3*, *0.5*, *2*, *10*, *20*, *40*, *60*, *80*, *100*, *120*, and *160*.
   - Typically expressed in kilometers (km), it refers to the approximate reach of the module according to its optical specification.
4. **Temperature/Operating Grade**
   - After the value **Z**, the presence of **I** indicates an *industrial-grade* product (extended operating temperature range), whereas the absence of I (NULL) means it is *commercial-grade*.
   - Examples:
     - **IRD-SFP-X-Y-ZW** → "Commercial-grade" version
     - **IRD-SFP-X-Y-Z-IW** → "Industrial-grade" version
5. **W (Additional Type)**
   - Possible values: *NULL*, *A*, *B*, *C*, *D*, *E*, *F*, *G*, or *H*.
   - This suffix provides additional information about the product variant. It may indicate extra features, extended compatibility, special applications, and so on.