IRD-SFP-25G-MUM

Transceptor Óptico SFP28 25Gbps Multimodo, 850 nm, LC Duplex, até 100 m (25GBASE-SR)

CARACTERÍSTICAS

- Transceptor óptico SFP28 para Ethernet de 25 Gbps (25GBASE-SR)
- Compatível com taxas de 8,5 a 28,1 Gbps, inclusive 10 Gbps (10GBASE-SR)
- Utiliza fibra multimodo (MMF) com conectores LC duplex
- Comprimento de onda: 850 nm (laser VCSEL)
- Alcance máximo: 100 m (indicado para MMF, especialmente OM4)
- Suporte a Digital Diagnostics (DDM/DOM) para monitoramento em tempo real
- Hot-pluggable (inserção/remoção sem desligamento)
- Faixa de temperatura operacional padrão: 0 °C a 70 °C (comercial)
- Consumo de energia reduzido ($\approx$ $\leqslant$0,3 W)
- Projeto compacto com carcaça metálica resistente a interferência (EMI)
- Compatível com padrões SFP28 MSA, SFF-8431, SFF-8472, IEEE 802.3by
- Certificações: RoHS, CE, Class I laser safety

A imagem apresentada é apenas para fins ilustrativos

SFP28 **850nm** **Multimodo** **100m**

CE FC RoHS Compliant

INTRODUÇÃO

O IRD-SFP-25G-MUM é um módulo óptico SFP28 de alta performance, projetado para enlaces de 25 Gigabit Ethernet em fibra multimodo. Sua construção compacta e compatibilidade com o padrão MSA asseguram operação confiável em diferentes fabricantes de switches e roteadores, oferecendo flexibilidade e baixo consumo de energia.

Além de sua performance comprovada, o transceiver permite migração simplificada de 10G para 25G, aproveitando a mesma infraestrutura de fibra multimodo já existente em data centers e redes corporativas. Com alcance de até 100 m em OM4, diagnóstico digital integrado e carcaça metálica para proteção contra EMI, o IRD-SFP-25G-MUM garante alto desempenho, monitoramento contínuo e excelente custo-benefício em ambientes de missão crítica.

ESPECIFICAÇÕES TÉCNICAS

Funcionalidades
- Suporte nativo a 25GBASE-SR Ethernet, com retrocompatibilidade para 10GBASE-SR
- Alcance:
  - até 100 m em OM4 (geralmente ~70 m em OM3 com orçamento óptico marginal)
- Suporta taxas entre 8,5–28,1 Gbps, ideal para diversos cenários de rede
- Monitoramento digital (DDM) para parâmetros como: temperatura, TX/RX power, tensão, corrente
- Interface óptica LC duplex e interface elétrica SFP28 MSA
- Hot-pluggable e pronta para operação imediata
- Carcaça em zinco/metálica para redução de EMI
- Compatível com os principais switches e roteadores do mercado
- Design robusto, blindagem metálica contra EMI

Ópticas
- **Transmissor:**
  - Comprimento de onda: 840 – 860 nm (850 nm típico)
  - Largura espectral RMS: <= 0,6 nm
  - Potência óptica média: -6,7 a +2,4 dBm
  - Laser off power: <= -30 dBm
  - Relação de extinção: >= 2 dB
  - RIN: <= -130 dB/Hz
  - ORL tolerado: 12 dB
- **Receptor:**
  - Comprimento de onda: 840 – 860 nm
  - Potência de entrada: -10 a +2 dBm
  - Sensibilidade (OMA): <= -10 dBm
  - LOS Assert: <= -26 dBm
  - LOS De-Assert: >= -13 dBm
  - Histerese LOS: 0,5 – 5 dB
  - Potência de sobrecarga: +2 dBm

Elétricas e Consumo
- Alimentação: +3,3 V (0 a 3,6V)
- Consumo: $\leqslant$ 0,3 W

Ambiental
- Temperatura operacional: 0 °C a 70 °C (comercial)
- Temperatura de armazenamento: até -40 °C a +85 °C
- Umidade relativa: 5%–85% sem condensação

Diagnóstico Digital (DDM / SFF-8472)
- Parâmetros monitorados: temperatura, potência TX/RX, tensão, corrente de bias
- Interface: via I²C conforme SFF-8472
- Temperatura: erro máx. ±3 °C
- Potência TX: erro máx. ±3 dB
- Potência RX: erro máx. ±3 dB
- Tensão: erro máx. ±3%
- Corrente de bias: erro máx. ±10%

Elétricas
- Transmissor
  - Impedância diferencial de entrada: 90 – 110 ohms
  - Swing de entrada diferencial: 200 – 900 mV
  - Disable TX: Vcc – 1,3 a Vcc
  - Enable TX: Vee a Vee + 0,8 V
- Receptor
  - Swing de saída diferencial: 400 – 900 mV
  - LOS Fault: Vcc – 0,5 a Vcc_host
  - LOS Normal: Vee a Vee + 0,5 V

Mecânicas e Compatibilidade
- Formato: padrão SFP28
- Conector óptico: LC duplex (fêmea)
- Interfaces compatíveis com Cisco, Huawei, Juniper, HPE, Dell, Mellanox e outros fabricantes via MSA
- Certificações: RoHS, CE, Class I Laser Safety, IEEE 802.3by, SFP28 MSA, SFF-8431, SFF-8472

Temporização
- Assert TX Disable: até 100 µs
- Negação TX Disable: até 2 ms
- Inicialização do módulo: até 300 ms
- Assert TX Fault: até 1 ms
- Reset TX Fault: >= 10 µs
- Delay Assert Rx LOS: até 100 µs
- Delay Negate Rx LOS: até 100 µs

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.

(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)**

   o Possible values: *100M*, *622M*, *1G*, *2.5G*, *10G*, *16G*, *25G*, *40G*, *50G*, or *100G*.

   o Indicates the supported data rate, covering anything from Fast Ethernet (100 Mbps) up to 100 Gbps.

2. **Y (Fiber Type)**

   o Possible values: *SM* (singlemode) or *MUM* (multimode).

   o Specifies the type of fiber optic cable for which the transceiver is designed.

3. **Z (Maximum Distance)**

   o Possible values: *0.1*, *0.3*, *0.5*, *2*, *10*, *20*, *40*, *60*, *80*, *100*, *120*, and *160*.

   o Typically expressed in kilometers (km), it refers to the approximate reach of the module according to its optical specification.

4. **Temperature/Operating Grade**

   o 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*.

   o Examples:

      ▪ **IRD-SFP-X-Y-ZW** → "Commercial-grade" version

      ▪ **IRD-SFP-X-Y-Z-IW** → "Industrial-grade" version

5. **W (Additional Type)**

   o Possible values: *NULL, A, B, C, D, E, F, G,* or *H*.

   o This suffix provides additional information about the product variant. It may indicate extra features, extended compatibility, special applications, and so on.

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.

(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)**

   o Possible values: *100M*, *622M*, *1G*, *2.5G*, *10G*, *16G*, *25G*, *40G*, *50G*, or *100G*.

   o Indicates the supported data rate, covering anything from Fast Ethernet (100 Mbps) up to 100 Gbps.

2. **Y (Fiber Type)**

   o Possible values: *SM* (singlemode) or *MUM* (multimode).

   o Specifies the type of fiber optic cable for which the transceiver is designed.

3. **Z (Maximum Distance)**

   o Possible values: *0.1*, *0.3*, *0.5*, *2*, *10*, *20*, *40*, *60*, *80*, *100*, *120*, and *160*.

   o Typically expressed in kilometers (km), it refers to the approximate reach of the module according to its optical specification.

4. **Temperature/Operating Grade**

   o 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*.

   o Examples:

      ▪ **IRD-SFP-X-Y-ZW** → "Commercial-grade" version

      ▪ **IRD-SFP-X-Y-Z-IW** → "Industrial-grade" version

5. **W (Additional Type)**

   o Possible values: *NULL, A, B, C, D, E, F, G,* or *H*.

   o This suffix provides additional information about the product variant. It may indicate extra features, extended compatibility, special applications, and so on.

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

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)**

   o Possible values: *100M*, *622M*, *1G*, *2.5G*, *10G*, *16G*, *25G*, *40G*, *50G*, or
     100G.

   o Indicates the supported data rate, covering anything from Fast Ethernet
     (100 Mbps) up to 100 Gbps.

2. **Y (Fiber Type)**

   o Possible values: *SM* (singlemode) or *MUM* (multimode).

   o Specifies the type of fiber optic cable for which the transceiver is
     designed.

3. **Z (Maximum Distance)**

   o Possible values: *0.1*, *0.3*, *0.5*, *2*, *10*, *20*, *40*, *60*, *80*, *100*, *120*, and *160*.

   o Typically expressed in kilometers (km), it refers to the approximate
     reach of the module according to its optical specification.

4. **Temperature/Operating Grade**

   o 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*.

   o Examples:

      ▪ **IRD-SFP-X-Y-ZW** → "Commercial-grade" version

      ▪ **IRD-SFP-X-Y-Z-IW** → "Industrial-grade" version

5. **W (Additional Type)**

   o Possible values: *NULL, A, B, C, D, E, F, G,* or *H*.

   o This suffix provides additional information about the product variant. It
     may indicate extra features, extended compatibility, special
     applications, and so on.