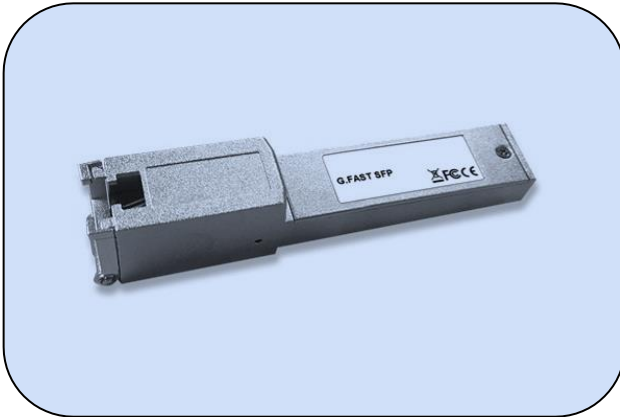




XSUGG1-M3RY

G.fast SFP Transceiver

XSUGG1-M3RY G.fast SFP Transceiver



Features

- Compliant with ITU G.fast standards G.9700 and G.9701
- Simplified Max 1 Gbps speed over existing copper wire
- Low power dissipation design
- Wide operating temperature
- Hot-pluggable (MSA compliant)

Product Overview

XenOpt XSUGG1-M3RY SFP product is a simplest smart G.fast SFP (Small Form-factor Pluggable) transceiver with electrical interface specified by a MSA (Multi-Source Agreement) that can be integrated with any switch/router platform and end devices.

XSUGG1-M3RY SFP is one of the XenOpt PHY SFP product series complying with the ITU-T G.9701/ G.9700 G.Fast standard which can provide up to 1Gbps data rate. This G.fast SFP can be easily plugged into any CPE Gateway which has an SFP cage on board. In order to Identify G.Fast SFP after insert to SFP slot, XSUGG1-M3RY G.Fast SFP will follow SFF-8472 first 128 byte format let Host to read these 128 bytes information prior to loading the program into SFP device through 2-wire I2C interface.

XSUGG1-M3RY SFP has an ultra-low power dissipation design in a small form factor SFP package and it can co-exist with legacy xDSL deployments using programmable bandwidth and PSD which allows Service Providers to provide different access technology within One Box. Realizing the modulation of broadband access technology will help ISPs prevent any possible increase on the management cost. On the other hand, using the same user interface will make the upgrade easier and more attractive to end users.

XenOpt XSUGG1-M3RY SFP completes the One Box solution for broadband access which enables users to upgrade their existing Home Gateways to Gigabit speed without paying for the expensive hardware upgrades. Leveraging XenOpt xDSL SFP modules will be the most cost-efficient solution for ISPs to upgrade their network service.

Product Brief

XenOpt XSUGG1-M3RY is a G.fast chipset which incorporates both XenOpt DMT (Discrete Multi-Tone) and AFE (Analog Front End) into a single chip to minimize the board size in order to fit in various applications, even for G.fast Small Form-factor Pluggable (SFP) module use. XSUGG1-M3RY allows customer to design either a flexible FTU-O or an FTU-R system in compliance with ITU-T G.9700 and G.9701 standards.

The G.fast standard was defined to solve the problems uncovered at first for FTTH deployment such as delays in obtaining permit for road digging, refusal from homeowner to fiber wiring, etc.. Considering of the cost of the fiber deployment, G.fast is undoubtedly the most efficient way for Service Providers to provide up to 1Gbps broadband access service over existing UTP cable. Not only does it solve these installation problems, but it ensures a faster return on investment for Operators.

The G.fast standard is running on the high frequency band plan of 106MHz where line interferences are severe if no adequate correction is provided. The XSUGG1-M3RY provides linear vectoring technology that can greatly eliminate the cross talk to ensure the high speed transmission is still possible in this high frequency band plan. Besides, the G.fast standard is based on TDD (Time-division duplexing) technology that transmits data on allocated time-slot.

Users can dynamically change the downstream/upstream ratio based on the type of applications they are running which put some constraints on the speed they need. The TDD based duplexing also reduces the power consumption versus traditional FDD used by VDSL2 line, facilitating the design of the reverse power feeding on FTTH deployment. In addition, The XSUGG1-M3RY also supports NTR and ToD function that transport network frequency and time synchronization between network and CPE.

For short range ultra-high broadband access, XenOpt XSUGG1-M3RY is definitely the most efficient and cost saving choice.

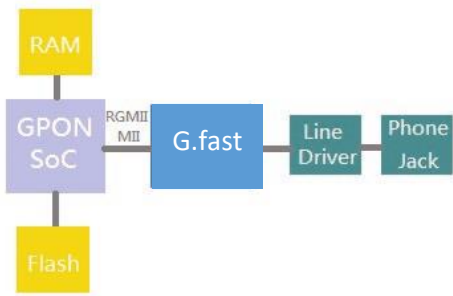
Key Features

G.fast Features		OAM Features	
Frequency band 2.2 MHz to 106 MHz		SOC, EOC, RMC Compliant	
Modulation	Discrete Multi Tone (DMT)	SRA	Seamless Rate Adaption
Duplexing	TDD (Time Division Duplexing)	Bit Swapping	Compliant
Sub carriers	2048 carriers with 12 bits/carrier	RPA	RMC Parameter Adjustment
Sub carrier spacing 51.75kHz		FRA	Fast Rate Adaptation
ANDR	1Gbps (Aggregate Net Data Rate)	TIGA	Transmitted Initiated Gain Adjustment
FEC	Trellis coding	Other Features	
	Reed-Solomon coding	QoS	Flexible packet classify based on EtherType, VL N ID or VL N priority (supports QinQ)
Maximum TX power 4 dBm		EBM	Ethernet Boot & Management
Handshake	ITU-T G.994.1	Physical parameters	
Advance ITU Features		Package	BGA-228
G.inp	Retransmission	Size	9 mm x 16 mm x 1,2 mm
Vectoring	Linear vectoring (CPE)	Supply Voltage	1,0 V, 1,2 V, 3,3 V
NTR	NTR transport on G.fast	ESD Class	2kV
ToD	Frequency synchronize and Time synchronize	Standard Compliance	
Interfaces		G.fast	ITU-T G.9700 G.9701 G.994.1 G.997.2
MAC	MII/RGMII	Interfaces	IEEE 802.3 for MII/RGMII
Host/master	SPI, I2C		

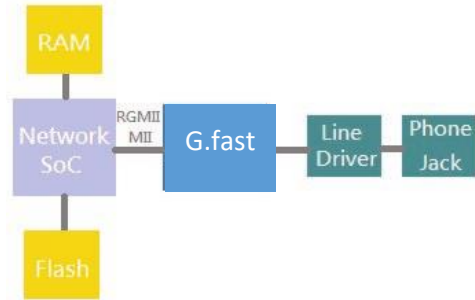
Specifications

Hardware	Compact & Robust RJ-45 connector	
	SGMII/ SERDES connect to host	
	Access to transceiver function via I2C (SFF-8472) or Ethernet bus for management & configuration	
	LED1 : XSUGG1-M3RY G.fast SFP link status LED (YELLOW)	
	LED2 : SGMII activity LED (GREEN)	
Software	Support Ethernet Boot mode and Management (EBM)	
	Linux SDP driver for managed device	
Power Dissipation		2 W
Power Supply		3,3 V
Environment	Operating Temperature	0 °C to +75 °C (SFP cage)
	Storage Temperature	-20 °C to +85 °C
	Operating Humidity	10 % to 90 %
		(non-condensed)
	Storage Humidity	5 % to 95 %
		(non-condensed)
Surge Protection	Compliant with ITU-T K.21 (Differential Mode: 4 KV, Common Mode: 4 KV)	
Certification		RoHS/ CE/ FCC
Warranty		2 years

FTU-O Block Diagram



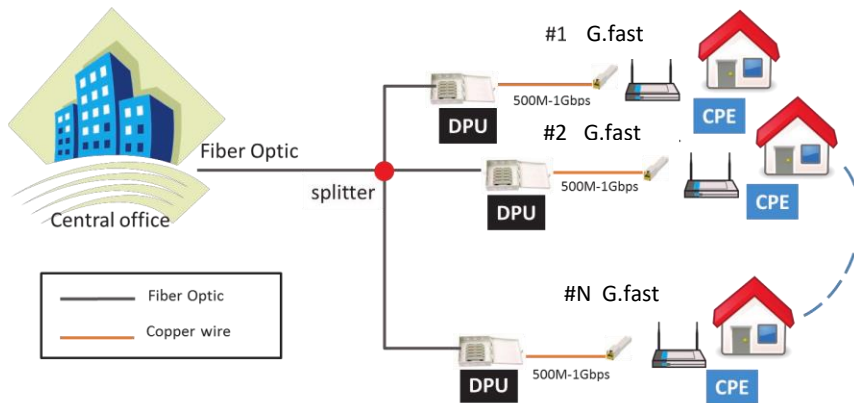
FTU-R Block Diagram



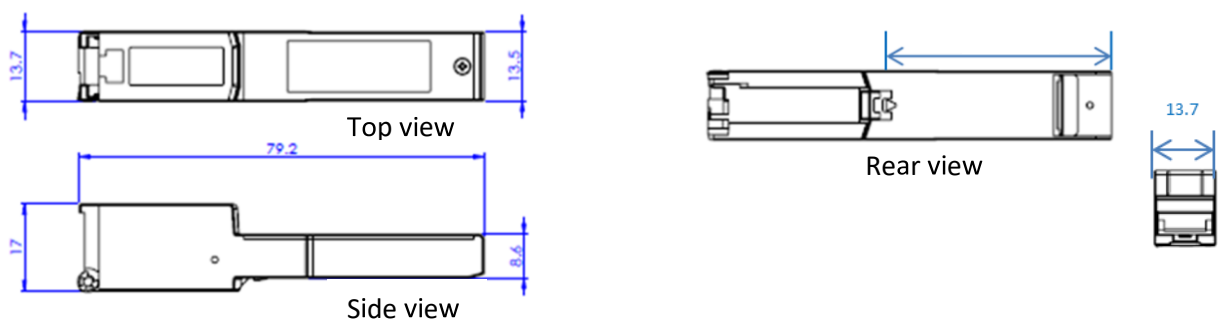
SFP Reference Design Block Diagram



FTPdp Deployment Scenario



Mechanical Dimensions



Ordering information¹

PN	Description
XSUGG1-M3RY	G.fast FTU_R SFP Transceiver, RJ-45 Connector

Notes:

¹ For accurate order specification please contact Xenopt reseller before placing an order. The content of this document is subject to change without notice. Xenopt does not guarantee errorless or outdated information. Please specify any compatibility requirements at time of ordering. Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by XenOpt before they become applicable to any particular order or contract. In accordance with the XenOpt policy of continuous improvement specifications may change without notice.

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