

1GE+1FE+
1FXS

300M Wi-Fi


ITU-T G.984.x
GPON standard
IEEE 802.3ah
GEPON standard

1.25G upstream
1.25G/2.5G
downstream

RTL9603C
950MHz CPU

Multi-WAN
Route/Bridge

IPv4/IPv6
VLAN, QoS
Firewall, ACL

Datasheet V1.1.7

SDN7254FVWG1-V2 XPON HYBRID ONU:

The SDN7254FVWG1-V2 is an ITU-T G.984.x based and IEEE 802.3ah based XPON HYBRID ONU that supports 2.5G downstream and 1.25G upstream bandwidth for GPON and supports 1.25G downstream and 1.25G upstream bandwidth for GEPON. It supports Dual Mode (GEPON and GPON), can access GEPON/GPON OLTs. It offers 1* SC/APC or SC/UPC GEPON/GPON port and 1*Gigabit, 1*100Mbps and 1*FXS port as well as a 300Mbps Wi-Fi Router for wired and wireless Internet connections. The SDN7254FVWG1-V2 supports full Home Gateway features, such as Multiple WAN connections, VLAN, QoS, etc. It is a cost effective Wi-Fi GPON ONT/GEPON ONU for Fiber To The Home deployments.

Main Characters

- ITU-T G.984.x GPON standard
- Compatible with Huawei, ZTE, Fiberhome, Nokia, CHIMA GPON OLTs
- IEEE 802.3ah GEPON standard
- Compatible with Huawei, ZTE, Fiberhome, Nokia, CHIMA GEPON OLTs
- Offers 1*SC/APC or SC/UPC GPON WAN port
- Support 1.25G upstream and 2.5G downstream
- Offers 1*SC/APC or SC/UPC GEPON WAN port,
- Support 1.25G upstream and 1.25G downstream
- Offers 1GE + 1FE LAN ports can be configured in both Route or Bridge modes
- Offers 1*FXS port for high quality Voice over IP deploy
- Offers 300Mbps Wi-Fi Router features
- Max 1:128 Fiber ratio for GPON, max transmission distance can reach 20km
- Max 1:64 Fiber ratio for GEPON, max transmission distance can reach 20km
- Multiple WAN connections, offers different services on different LAN ports
- Support AES 128-bit encrypted and key switching, enhancing transmission security
- Support 8 Tconts and 32 GEM port IDs, enabling multiple services on a single subscriber CPE
- Support FEC (Forward Error Correction), ensures high reliable and precise data transmission
- Support Rich layer 2 Management features, applicable to the biggest ISP networks
- Support FBA (Flexible Bandwidth Assignment), dynamic assign bandwidth automatically
- Support Dynamic Bandwidth Allocation (DBA), Smarter bandwidth assignment and usage
- High security, data encrypted at upstream and downstream directions
- Support L2 Switching features, such as IEEE802.1Q VLAN, 802.1P QoS, etc.
- Support OMCI and TR069 Management, manage subscribers remotely
- Supports IPv4 and IPv6, highly applicable in both IP type based networks
- Support 253 on LAN cable (DHCP Limit) but only 64 in wifi.

Technical Parameters

GPON Parameters

ITU-T G.984.x GPON, built-in with a -30dBm BOSA
SC/UPC or SC/APC connector
1310nm upstream & 1490nm downstream
Support G.984.1 General Characteristics
Support G.984.2 Physical Media Dependent (PMD) layer Specification
Support G.984.3 Transmission convergence layer Specification
Support G.988 OMCI protocol
GPON transceiver transmitting power: 0.5-5dBm
Optical receiving sensitivity: -30dBm
Transmission wavelength: Upstream: 1310nm / Downstream: 1490nm
Support 1:128 Fiber Ratio at 20km transmission distance.
Fiber Transmission cable: G.652 Single mode optical fiber cable
Configurable AES decryption on downstream payload.
Configurable FEC on both upstream and downstream payloads.
Multi-Application Processor queues for dedicated connections for in-band.
Enhanced GPON debug and diagnostic functions.
Support up to 8 Transmission Container (T-Cons), 32 GEM port IDs
Support NSR/SR Dynamic Bandwidth Allocation (DBA)
Support Forward Error Correction (FEC)
Maximum 2.5 Gbps Downlink/1.25 Gbps Uplink
Support Dying Gasp

Home Gateway/CPE Features

Multi-WAN, support up to 8 WAN connections
Support Route and/or Bridged WAN
Port Binding, Data/VoIP/IPTV services can be bound to different LAN ports
Configurable VLAN ID for each WAN
Configurable QoS queues for each WAN
Multi-services bound to the same WAN

Networking Features

MAC Learning, 1K MAC address table
Bridged or Route network mode
Support RIP v1, v2 for routing
Static Route, Dynamic Route, DNS Proxy, IPv4 & IPv6 TCP, UDP, RTP, SNTP, NAT, DHCP, DNS
IEEE802.1Q VLAN, port VLAN
IEEE802.1x, MAC, IP, or TCP/UDP based ACLs
port Bandwidth Control, IEEE802.3x flow control
Storm Control: Broadcast/Multicast/unknown unicast, ARP
Port Isolation, port Mirror, Auto MDI/MDIX
IEEE802.1d STP, Port Loop detection
IGMP v2, v3 & IGMP Snooping for IPv4
MLD v2, v3 & MLD Snooping for IPv6

GEPON Parameters

IEEE 802.3ah GEPON standard, support standard OAM
CTC 2.1, 3.0 China Telecom GEPON standard
Built-in with a BOSA, SC/UPC or SC/APC connector
1310nm wavelength at upstream & 1490nm wavelength at downstream
GEPON transceiver transmitting power: 0.5-5dBm,
Optical receiving sensitivity:-28dBm
1:64 Fiber Ratio at 20km transmission distance.
Fiber Transmission cable: G.652 Single mode optical fiber cable
Support 1 LLID (Logical Link Identifier)
Support 1 LOID (Logical ONU Identifier)
Support Triple Churning Encryption algorithm
Support NSR/SR Dynamic Bandwidth Allocation (DBA)
Support Forward Error Correction (FEC)
4 QoS queues & SP Dispatching Algorithm over PON
Maximum 1.25Gbps Downlink / 1.25Gbps Uplink
Support Dying Gasp

300Mbps Wi-Fi Router Features

Offers an IEEE802.11n Wi-Fi Router
2.4GHz frequency 2 LAN ports, 1GE and 1FE port
MIMO, support 2-IN-2-OUT, Max 300Mbps Wi-Fi throughput
Wi-Fi Transmission Distance: 150m for indoors, 300m for outdoors
WPS one-key protection over your Wi-Fi network
Support DHCP, Static IP and PPPoE
DHCP Server, DHCP Relay, DHCP Client, Static IP assignation
Static Routing from source IP to destination IP
Firewall, NAT, NAPT, UPnP
DDNS, DMZ Host, port Forwarding
64/128 bit WEP, IEEE802.1x, WPA and WPA2 authentications
Max 4 SSID broadcasting, Hidden SSID
Automatically choose the best signal channel
STA mutual isolation and ACL table based on MAC Accesses
Wi-Fi Multimedia (WMM), enhanced QoS for multimedia packets

Management Features

Serial interface maintenance using UART
Web UI Management
OMCI & NMS Management
CLI command line management
FTP/TFTP/HTTP Auto Provision Management
TR069 ACS management

QoS

IEEE802.1P QoS, DSCP, TOS:
SP, WRR, SP+WRR dispatching Algorithm
Source & DST-MAC based QoS
VLAN ID, VLAN Priority based
QoS Source DST-IP based QoS

Hardware parameters

Built on a powerful GPON/GEPON SoC, 950MHz
CPU covered with cooling unit.
Support Hardware NAT.
come with a 512Mb 16-bit DDR3 SDRAM,
come with a 1Gb Nand Flash
1*GPON/GEPON SC /APC or SC/UPC port,
2.5G/1.25G downstream, 1.25G Upstream
1GE + 1FE ports
300Mbps Wi-Fi router,
2*5dBi external antennas
1 *FXS port, support analog phones.
IEEE802.3x flow control Full duplex and half duplex,
LED Lights: Power, PON, LOS, INTERNET, VoIP, GE,
FE, Wi-Fi, WPS
External power supply, DC 12V, 0.5A-1A
4KV Surge protection
Desktop and wall mount design, plastic housing

VoIP Parameters

Offers 1* FXS port for Phone connections
SIP V1, V2 (RFC3261, RFC3262, RFC3264, RFC3265)
SIP & H.248, support registering 2 SIP accounts
G.711, G.723.1, G.729A-8kbps, G.726, G.722, ILBC
voice codes
DTMF Tone Detection, DTMF Tone Relay,
Multiple Calling Tone, FSK Caller ID
Calling line Identification Presentation
Calling line Identification Restriction
Call forwarding, call transfer, call hold, three-way
conference, etc.
QoS and TOS to ensure voice packets pass through in
priority
Support RFC62 Echo protocol,
Support Digital Map configuration

Interoperable GPON OLT Models

CHIMA SGT8000A, SGT8016A, SGT8000B,
SGT8016B, SGT9000B series GPON OLTs
HUAWEI MA5680T, MA5606T, MA5683T GPON OLTs
[\[Huawei R11/R13/R15/R17/R18 versions interoperable\]](#)
ZTE C220, C300, C320 GPON OLTs
[\[All ZTE OLT firmware versions interoperable\]](#)
Fiberhome AN5516-01, AN5516-02 GPON OLTs
[\[Fiberhome RP700, RP1000 versions interoperable\]](#)
Alcatel Lucent 7342, 7360 ISAM GPON OLTs
Nokia 7360 ISAM GPON OLT
LSCABLE LST20016 GPON OLT
ERICSSON BM1500 GPON OLT
AURORA Trident7, T7-PIM-8802/COLT GPON OLT
ZHONG HONG MX-180/280, MXK 319, 819, 823, MXK-F1419, MXK-F1421
ZYXEL GPON OLT V4.02(AAVA.7)C0_210108 | 2021-01-08

Interoperable GEPON OLT Models

CHIMA SNA8800, SNA9000T series
Huawei MA5680T, MA5683T OLTs
[\[Huawei R11/R13/R15/R17/R18 versions interoperable\]](#)
ZTE C200, C220, C300 series OLTs
[\[All ZTE OLT firmware versions interoperable\]](#)
Fiberhome AN5506, AN5516 OLTs
[\[Fiberhome RP700, RP1000 versions interoperable\]](#)
Furukawa, Corecess GEPON OLTs

Hardware Interface

1*GPON SC/APC or SC/UPC port	2*5dBi directional external antennas
1*10/100/1000Base-Tx GE port	1*Reset button
1*10/100Base-Tx Fast Ethernet port	1*PWR On/Off Switch button
1*FXS VoIP port	1*Wi-Fi on/off button
1*Power Supply Jack	1*WPS button
9 LEDs Indicators	Power, PON, LOS, Internet, VoIP, GE, FE, Wi-Fi, WPS

Specification Table

Standards	IEEE 802.3, IEEE 802.3u, IEEE802.3ab, IEEE802.3ah, IEEE 802.3x, IEEE802.1Q, IEEE802.1P, IEEE802.1D, IEEE802.11b/g/n, ITU-T G.984.1, ITU-T G.984.2, ITU-T G.984.3, ITU-T G984.4		
Topology	Star Topology		
Uplink port	1 GPON/GEAPON Uplink port, SC/UPC or SC/APC Connector		
G/EPON Transmission Distance	Up to 20km		
Downlink port	1*10/100/1000Base-Tx Gigabit LAN 1* 10/100Base-Tx Fast Ethernet port		
VoIP port	1 *FXS port		
Wi-Fi	IEEE802.11b/g/n 300Mbps Wi-Fi Router		
LED Indicators	Power, PON, LOS, INTERNET, VoIP, GE, FE, Wi-Fi, WPS		
Ethernet Cable	10Base-Tx: UTP category 3, 4,5, up to 100m 100Base-Tx: UTP category 5, up to 100m 1000Base-Tx: UTP category 5, 5E, 6, up to 100m		
Fiber Cable	8.3μm, 8.7μm, 9μm and 10μm single mode fiber cable		
Power Supply	AC 100-240V, DC 12V, 0.5A- 1A, External Power Supply, 4KV Surge Protection		
Temperature Humidity		Temperature	Humidity
	Working	0°C - 45°C	10% - 90%
	Standby	-40°C - 70°C	5% - 90% RH

Order Information

Product Family	Model No.	Product Description
	SON7254FVWG1-V2	1GE+1FE+1FXS+300M Wi-Fi GEPON ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge Protection Power Consumption: 5.8w SC/APC or SC/UPC connector optional
	SGN7254FVWG1-V2	1GE+1FE+1FXS+300M Wi-Fi GPON ONT Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge Protection Power Consumption: 5.6w SC/APC or SC/UPC connector optional
	SDN7254FVWG1-V2	1GE+1FE+1FXS+300M Wi-Fi XPON HYBRID ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge Protection Power Consumption: 5.8w for GEPON ONU Power Consumption: 5.6w for GPON ONU SC/APC or SC/UPC connector optional
	SON7253FWG1-V2	1GE+1FE+300M Wi-Fi GEPON ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge protection Power Consumption: 4.9w SC/APC or SC/UPC connector optional
	SGN7253FWG1-V2	1GE+1FE+300M Wi-Fi GPON ONT Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge protection Power Consumption: 4.7w SC/APC or SC/UPC connector optional
	SDN7253FWG1-V2	1GE+1FE+300M Wi-Fi XPON HYBRID ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge protection Power Consumption: 4.9w For GEPON ONU Power Consumption: 4.7w For GPON ONT SC/APC or SC/UPC connector optional
	SON7253VWG1-V2	1GE+1FXS+300M Wi-Fi GEPON ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge protection Power Consumption: 5.9w SC/APC or SC/UPC connector optional



	SDN7253VWG1-V2	1GE+1FXS+300M Wi-Fi GPON ONT Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge protection Power Consumption: 5.4w SC/APC or SC/UPC connector optional	
	SDN7253VWG1-V2	1GE+ 1FXS+300M Wi-Fi XPON HYBRID ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge protection Power Consumption: 5.9w For EPON ONU Power Consumption: 5.4w For GPON ONT SC/APC or SC/UPC connector optional	
	SON7252WG1-V2	1GE+300M Wi-Fi GEPON ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A,4KV Surge protection Power Consumption: 4.6w SC/APC or SC/UPC connector optional	
	SGN7252WG1-V2	1GE+300M Wi-Fi GPON ONT Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A,4KV Surge protection Power Consumption: 4.7w SC/APC or SC/UPC connector optional	
	SDN7252WG1-V2	1GE+300M Wi-Fi XPON HYBRID ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge protection Power Consumption: 4.6w For GEPON ONU Power Consumption: 4.7w For GPON ONT SC/APC or SC/UPC connector optional	
	SON7253FVG1-V2	1GE+1FE+1FXS GEPON ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge Protection Power Consumption: 3.8w SC/APC or SC/UPC connector optional	
	SGN7253FVG1-V2	1GE+1FE+1FXS GPON ONT Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge Protection Power Consumption: 3.8w SC/APC or SC/UPC connector optional	
	SDN7253FVG1-V2	1GE+1FE+1FXS XPON HYBRID ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge Protection	

		Power Consumption: 3.8w for GEPON ONU Power Consumption: 3.8w for GPON ONU SC/APC or SC/UPC connector optional	
	SON7252VG1-V2	1GE+1FXS GEPON ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 1A, 4KV Surge protection Power Consumption: 3.6w SC/APC or SC/UPC connector optional	
	SGN7252VG1-V2	1GE+1FXS GPON ONT Realtek RTL9603C 950MHz CPU Power Supply: DC12V,1A, 4KV Surge protection Power Consumption: 3.6w SC/APC or SC/UPC connector optional	
	SDN7252VG1-V2	1GE+1FXS XPON HYBRID ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V,1A, 4KV Surge protection Power Consumption: 3.6w For EPON ONU Power Consumption: 3.6w For GPON ONT SC/APC or SC/UPC connector optional	
	SON7252FG1-V2	1GE+1FE GEPON ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V,1A, 4KV Surge protection Power Consumption: 2.8w SC/APC or SC/UPC connector optional	
	SGN7252FG1-V2	1GE+1FE GPON ONT Realtek RTL9603C 950MHz CPU Power Supply: DC12V,1A, 4KV Surge protection Power Consumption: 2.8w SC/APC or SC/UPC connector optional	
	SDN7252FG1-V2	1GE+ 1FE XPON HYBRID ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V,1A, 4KV Surge protection Power Consumption: 2.8w For EPON ONU Power Consumption: 2.8w For GPON ONT SC/APC or SC/UPC connector optional	
	SON7251G1-V2	1GE GEPON ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V,0.5A, 4KV Surge protection Power Consumption: 2.4w SC/APC or SC/UPC connector optional	

	SGN7251G1-V2	1GE GPON ONT Realtek RTL9603C 950MHz CPU Power Supply: DC12V,0.5A, 4KV Surge protection Power Consumption: 2.5w SC/APC or SC/UPC connector optional	
	SDN7251G1-V2	1GE XPON HYBRID ONU Realtek RTL9603C 950MHz CPU Power Supply: DC12V, 0.5A, 4KV Surge protection Power Consumption: 2.4w For GPON ONU Power Consumption: 2.5w For GPON ONT SC/APC or SC/UPC connector optional	