**GPON ONT STICK SFP**



**Overview**

The HT201-ONU-STICK-20/HT201-ONU-STICK-20I is a GPON ONT stick. It is in the SFP form and can be inserted into the SFP uplink interface on switches, IP cameras, Small Cells, routers, DSLAMs, or other devices to implement video backhaul or wireless backhaul. In this way, the networking is changed to use GPON with less complexity in communication and connectivity lower power consumption and cost, and improved network reliability.

**Features**

Single fiber bi-directional data links asymmetric TX 1244Mbps / RX 2488Mbps GPON ONU application with GPON MAC function.

SC/UPC receptacle SFP with GPON ONU MAC inside, “Plug-and-play” via auto-discovery and configuration

1310nm DFB burst mode transmitter, 1490nm APD-TIA continuous mode receiver

0 to 70°C operating case temperature for GONU-STICK-20 , C-Temp

-40 to 85°C operating case temperature for GONU-STICK-20I , I -Temp

Single 3.3V power supply

Digital diagnostic monitor interface compatible with SFF-8472

SFP MSA compliance

Low EMI and excellent ESD protection

Class I laser safety standard IEC-60825 compliant

RoHS-6 compliance

**Applications**

Gigabit-capable Passive Optical Networks (GPON)

HT201-ONU-STICK-20/HT201-ONU-STICK-20I is an MSA-compliant SFP that incorporates not just the optics for an ONU, but all of the electronics need as well. It is a “PON on a Stick” that an entire FTTH ONU in a slightly oversized SFP. It can be plugged into networking equipment. Allowing the data interfaces on a switch, router, PBX, etc. to be customized for different fiber environments and distance requirements

The HT201-ONU-STICK-20/HT201-ONU-STICK-20I is designed as dual-mode ONU stick, it also supports the EPON ONU OAM. It can be applied both on EPON system and on the GPON system .It will automatically establish an EPON link with the EPON OLT or GPON link with the GPON OLT.

**Standards**

Complies with SFP Multi-Source Agreement (MSA) SFF-8074i

Complies with ITUT-T G.984.2, G.984.2 Amendment 1

Complies with ITUT G.988 ONU management and control interface (OMCI) specification

Complies with SFF 8472 V9.5

Complies with FCC 47 CFR Part 15, Class B

Complies with FDA 21 CFR 1040.10 and 1040.11

**Technical specifications**

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| **ABSOLUTE MAXIMUM RATING** | | | | | |
| **Parameter** | **Symbol** | **Min.** | **Max.** | **Unit** | **Notes** |
| Storage Ambient Temperature | TSTG | -40 | 85 | °C |  |
| Operating Case Temperature | Tc | 0 | 70 | °C | HT201-ONU-STICK-20 |
|  | Tc | -40 | 85 | °C | HT201-ONU-STICK-20I |
| Operating Humidity | OH | 5 | 95 | % |  |
| Power Supply Voltage | VCC | -0.5 | 3.6 | V |  |

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| **RECOMMENDED OPERATING CONDITION** | | | | | | | | | | | | | |
| **Parameter** | | **Symbol** | | **Min.** | | **Typ.** | | | | **Max.** | | **Unit** | **Notes** |
| Power Supply Voltage | | VCC | | 3.13 | | 3.3 | | | | 3.47 | | V |  |
| Power Dissipation | | PD | | 1.85 | | 2.10 | | | | 2.42 | | W | Max value under High temp environment |
| Operating Case Temperature | | Tc | | 0 | |  | | | | +70 | | °C | GONU-STICK-20 |
|  | | Tc | | -40 | |  | | | | +85 | | °C | GONU-STICK-20I |
| Operating Humidity Range | | OH | | 5 | |  | | | | 95 | | % |  |
| Data Rate | |  | |  | | TX:1.244 / RX:2.488 | | | |  | | Gbit/s |  |
| Data Rate Drift | |  | | -100 | |  | | | | +100 | | PPM |  |
| **TRANSMITTER OPTICAL CHARACTERISTICS** | | | | | | | | | | | | | |
| **TRANSMITTER OPTICAL CHARACTERISTICS** | | | | | | | | | | | | | |
| **Parameter** | **Symbol** | | **Min.** | | **Typ.** | | **Max.** | | **Unit** | | **Note** | | |
| Optical Center Wavelength | λC | | 1290 | | 1310 | | 1330 | nm | | |  | | |
| Spectral Width (-20dB) | ∆λ | |  | |  | | 1 | nm | | |  | | |
| Side Mode Suppression Ratio | SMSR | | 30 | |  | |  | dB | | |  | | |
| Average Launch Optical Power | AOP | | 0.5 | |  | | 5 | dBm | | | Launched into SMF Fiber | | |
| Burst off Average Output Power |  | |  | |  | | -45 | dBm | | |  | | |
| Extinction Ratio | ER | | 10 | |  | |  | dB | | |  | | |
| Rise/Fall Time (20%-80%) | TR/TF | |  | |  | | 0.26 | ns | | | Unfiltered PRBS 223 - 1@1244.16 Mbps | | |
| RIN15OMA |  | |  | |  | | -115 | dB/Hz | | |  | | |
| Optical Return Loss Tolerance |  | | -15 | |  | |  | dB | | |  | | |
| Transmitter Reflectance |  | |  | |  | | -10 | dB | | |  | | |
| Transmitter and Dispersion Penalty | TDP | |  | |  | | 1 | dB | | | Transmit on 20km SMF. | | |
| Optical Waveform Diagram | Compliant With ITU-T G984.2 | | | | | | | | | | PRBS 223 –1 @1244.16Mbps | | |
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| **TRANSMITTER ELECTRICAL CHARACTERISTICS** | | | | | | |
| **Parameter** | **Symbol** | **Min.** | **Typ.** | **Max.** | **Unit** | **Notes** |
| Data Input Differential Swing |  | 300 |  | 1800 | mV | CML input, AC coupled |
| Input Differential Impedance |  | 90 | 100 | 110 | Ω |  |
| Transmitter TxDisable Control Voltage - Low |  | 0 |  | 0.8 | V |  |
| Transmitter TxDisable Voltage - High |  | 2.0 |  | VCC | V |  |
| Transmitter Fault Alarm Voltage - Low |  | 0 |  | 0.4 | V |  |
| Transmitter Fault Alarm Voltage – High |  | 2.4 |  | Vcc | V |  |
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| **RECEIVER OPTICAL CHARACTERISTICS** | | | | | | |
| **Parameter** | **Symbol** | **Min.** | **Typ.** | **Max.** | **Unit** | **Notes** |
| Operating Wavelength | λc | 1480 | 1490 | 1500 | nm |  |
| Sensitivity | SEN |  |  | -28 | dBm | PRBS 223 - 1 @2488Mbps |
| Saturation Optical Power | SAT | -8 |  |  | dBm |  |
| Loss of Signal De-Assert | LOSD |  |  | -29 | dBm |  |
| Loss of Signal Assert | LOSA | -40 |  |  | dBm |  |
| Signal-Detected Hysteresis |  | 0.5 |  | 6 | dBm |  |
| Receiver Reflectance |  |  |  | -12 | dB | λ=1490nm |
| WDM Filter Isolation |  | 38 |  |  | dB | λ=1550nm |
|  | 35 |  |  | dB | λ=1650nm |

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| **RECEIVER ELECTRIAL CHARACTERISTICS** | | | | | | |
| **RECEIVER ELECTRIAL CHARACTERISTICS** | | | | | | |
| **Parameter** | **Symbol** | **Min.** | **Typ.** | **Max.** | **Unit** | **Notes** |
| Data Output Differential Swing |  | 300 |  | 1200 | mV | CML output, AC coupled |
| Loss of Signal - Low |  | 0 |  | 0.4 | V |  |
| Loss of Signal - High |  | 2.4 |  | VCC | V |  |

**Ordering information**

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| Model | Form | ODN Class | Data rate | Wavelength | Reach | Receptacle | Temp |
| HT201-ONU-STICK-20 | SFP | GPON STICK | Tx1.25G/Rx2.5G | Tx1310nm/Rx1490nm | 20km | SC | 0~70℃ |
| HT201-ONU-STICK-20I | SFP | GPON STICK | Tx1.25G/Rx2.5G | Tx1310nm/Rx1490nm | 20km | SC | -40~85℃ |