

# 100BASE-T SFP Copper RJ-45 100m SGMII Transceiver

GP-SFP2-1T-C-LL



## Application

- 125 Mb/s Fast Ethernet

## Features

- Up to 125Mb/s Bi-directional Data Links
- Support 100BASE-T Full Duplex Default Operating Mode
- Single Power Supply 3.3V
- Compliant with SFP MSA
- Support 100BASE-T Operation in Host Systems
- RoHS Compliant
- Hot-pluggable SFP Footprint
- Auto-sense MDI/MDIX

## Description

The GP-SFP2-1T-C-LLCopper Small Form Pluggable (SFP) transceivers are based on the SFP Multi Source Agreement (MSA) and are compatible with the Fast Ethernet IEEE 802.3 standard and 100BASE-T standard and provide a quick and reliable interface for the FE application.

## Product Specifications

### I. General Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remarks
<b>Data Rate</b>	DR		100		Mb/sec	
<b>Cable Length</b>	CL			100	m	1
<b>Bit Error Rate</b>	BER			10 <sup>-12</sup>		
<b>Operating Temperature</b>	T <sub>C</sub>	0		70	°C	2
<b>Storage Temperature</b>	T <sub>STO</sub>	-40		85	°C	3
<b>Supply Current</b>	I <sub>CC</sub>		190	300	mA	4
<b>Input Voltage</b>	V <sub>CC</sub>	3.14	3.30	3.46	V	5
<b>Maximum Voltage</b>	V <sub>MAX</sub>			4	V	4
<b>Surge Current</b>	V <sub>surge</sub>			30	V	6

#### Notes:

1. Category 5 UTP
2. Case temperature, commercial temperature
3. Ambient temperature
4. For electrical power interface
5. Referenced to GND. For electrical power interface
6. Hot Plug above steady state current. For electrical power interface

## II. I<sup>2</sup>C Memory Map

Address A0					
IICAddr	Size	Name	Description	Values (HEX)	Remarks
<b>0</b>	1	Identifier	SFP or SFP+	03	
<b>1</b>	1	Ext. Identifier	GBIC/SFP function is defined by two-wire interface ID only	04	
<b>2</b>	1	Connector	RJ45 (Registered Jack)	22	
<b>3-10</b>	8	Transceiver	Code for electronic or optical compatibility	00 00 00 20 00 00 00 00	
<b>11</b>	1	Encoding	4B/5B	02	
<b>12</b>	1	BR, Nominal	Nominal bit rate 100Mb/s	01	
<b>13</b>	1	Rate Identifier	Type of rate select functionality	00	
<b>14</b>	1	Length (SMF,km)	Link length supported for single mode fiber, units of km	00	
<b>15</b>	1	Length (SMF)	Link length supported for single mode fiber,units of 100m	00	
<b>16</b>	1	Length (50um)	Link length supported for 50um OM2 fiber,units of 10m	00	
<b>17</b>	1	Length (62.5um)	Link length supported for 62.5um OM1 fiber, units of 10m	00	
<b>18</b>	1	Length (OM4 or copper cable)	100m	64	
<b>19</b>	1	Length (OM3)	Link length supported for 50um OM3 fiber,units of 10m	00	
<b>20-35</b>	16	Vendor name	MODULETEK	4D 4F 44 55 4C 45 54 45 4B 20 20 20 20 20 20 20	

Address A0					
IICAddr	Size	Name	Description	Values (HEX)	Remarks
<b>36</b>	1	Transceiver	Code for electronic or optical compatibility	00	
<b>37-39</b>	3	Vendor OUI	SFP vendor IEEE company ID	000000	
<b>40-55</b>	16	Vendor PN	Part number in Order information	-	
<b>56-59</b>	4	Vendor rev	Revision level for part number provided by vendor (ASCII)	-	
<b>60-61</b>	2	Wavelength	Laser wavelength (Passive/Active Cable Specification Compliance)	0000	
<b>62</b>	1	Unallocated		00	
<b>63</b>	1	CCBASE	Check code for Base ID Fields (addresses0to62)	-	
<b>64-65</b>	2	Options	Indicates which optional transceiver signals are implemented	0000	
<b>66</b>	1	BR, max	Upper bit rate margin	00	
<b>67</b>	1	BR, min	Lower bit rate margin	00	
<b>68-83</b>	16	Vendor SN	Serial number provided by vendor	Programmed by Factory	
<b>84-91</b>	8	Date code	Year, Month, Day	Programmed by Factory	
<b>92</b>	1	Diagnostic Monitoring Type	Indicates which type of diagnostic monitoring is implemented(if any)in the transceiver	00	
<b>93</b>	1	Enhanced Options	Indicates which optional enhanced features are implemented(if any)in the transceiver	00	

Address A0					
IICAddr	Size	Name	Description	Values (HEX)	Remarks
<b>94</b>	1	SFF-8472 Compliance	Indicates which revision of SFF-8472 the transceiver complies with.	00	
<b>95</b>	1	CCEXT	Check code for the Extended ID Fields (addresses 64 to94)	-	
<b>96-127</b>	32	Vendor Specific	Vendor Specific EEPROM	-	
<b>128-255</b>	128	Vendor Specific	Vendor Specific EEPROM	-	
Address A2 Low					
IICAddr	Size	Name	Description	Values (HEX)	Remarks
<b>0-1</b>	2	Temp High Alarm	75°C	4B 00	
<b>2-3</b>	2	Temp Low Alarm	-5°C	FB 00	
<b>4-5</b>	2	Temp High Warning	70°C	46 00	
<b>6-7</b>	2	Temp Low Warning	0°C	00 00	
<b>8-9</b>	2	Vcc High Alarm	3.63V	8D CC	
<b>10-11</b>	2	Vcc Low Alarm	2.97V	74 04	
<b>12-13</b>	2	Vcc High Warning	3.46V	87 28	
<b>14-15</b>	2	Vcc Low Warning	3.13V	7A 44	
<b>16-17</b>	2	Bias High Alarm	Bias High Alarm	00 00	

## Address A2 Low

IICAddr	Size	Name	Description	Values (HEX)	Remarks
<b>18-19</b>	2	Bias Low Alarm	Bias Low Alarm	0000	
<b>20-21</b>	2	Bias High Warning	Bias High Warning	0000	
<b>22-23</b>	2	Bias Low Warning	Bias Low Warning	0000	
<b>24-25</b>	2	Tx Power High Alarm	Tx Power High Alarm	0000	
<b>26-27</b>	2	Tx Power Low Alarm	Tx Power Low Alarm	0000	
<b>28-29</b>	2	Tx Power High Warning	Tx Power High Warning	0000	28-29
<b>30-31</b>	2	Tx Power Low Warning	Tx Power Low Warning	0000	30-31
<b>32-33</b>	2	Rx Power High Alarm	Rx Power High Alarm	0000	32-33
<b>34-35</b>	2	Rx Power Low Alarm	Rx Power Low Alarm	0000	34-35
<b>36-37</b>	2	Rx Power High Warning	Rx Power High Warning	0000	36-37
<b>38-39</b>	2	Rx Power Low Warning	Rx Power Low Warning	0000	38-39
<b>40-55</b>	16	Reserved	Reserved	00	
<b>56-59</b>	4	Ext RxPwr 4	Ext RxPwr 4	00000000	
<b>60-63</b>	4	Ext RxPwr 3	Ext RxPwr 3	00000000	

## Address A2 Low

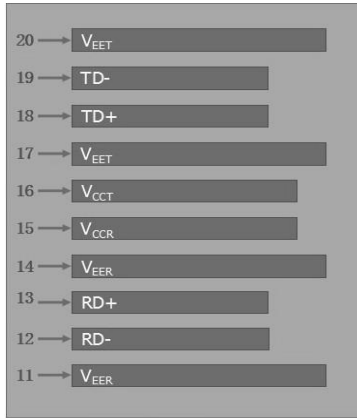
IICAddr	Size	Name	Description	Values (HEX)	Remarks
<b>64-67</b>	4	Ext RxPwr 2	Ext RxPwr 2	00 00 00 00	
<b>68-71</b>	4	Ext RxPwr 1	Ext RxPwr 1	00 00 00 00	
<b>72-75</b>	4	Ext RxPwr 0	Ext RxPwr 0	00 00 00 00	
<b>76-77</b>	2	Ext Bias Slope	Ext Bias Slope	00 00	
<b>78-79</b>	2	Ext Bias Offset	Ext Bias Offset	00 00	
<b>80-81</b>	2	Ext Tx Power Slope	Ext Tx Power Slope	00 00	
<b>82-83</b>	2	Ext Tx Power Offset	Ext Tx Power Offset	00 00	
<b>84-85</b>	2	Ext Temp Slope	Ext Temp Slope	01 00	
<b>86-87</b>	2	Ext Temp Offset	Ext Temp Offset	00 00	
<b>88-89</b>	2	Ext V <sub>cc</sub> Slope	Ext V <sub>cc</sub> Slope	01 00	
<b>90-91</b>	2	Ext V <sub>cc</sub> Offset	Ext V <sub>cc</sub> Offset	00 00	
<b>92-94</b>	3	Reserved	Reserved	00	
<b>95</b>	1	Checksum	0-94 Byte Checksum	30	
<b>96-97</b>	2	Temperature	Temperature	-	

## Address A2 Low

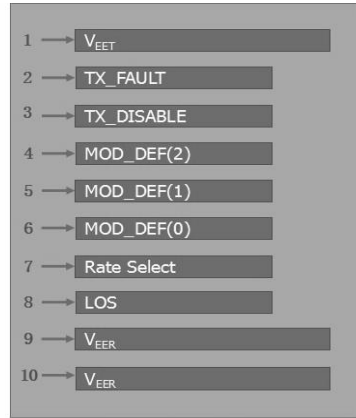
IICAddr	Size	Name	Description	Values (HEX)	Remarks
<b>98-99</b>	2	V <sub>cc</sub>	V <sub>cc</sub>		
<b>100-101</b>	2	Bias Current	Bias Current	00 00	
<b>102-103</b>	2	Tx Power	Tx Power	00 00	
<b>104-105</b>	2	Rx Power	Rx Power	00 00	
<b>106-109</b>	4	Reserved	Reserved	00 00 00 00	
<b>110</b>	1	Optional Status/ Control Bits	02		
<b>111</b>	1	Reserved	Reserved	00	
<b>112-113</b>	2	Alarm Flags	Alarm Flags	00 00	
<b>114-115</b>	2	Reserved	Reserved	00 00	
<b>116-117</b>	2	Warning Flags	Warning Flags	00 00	
<b>118-121</b>	4	Reserved	Reserved	00 00 00 00	
<b>122</b>	1	Security Level	Security Level: 00=NormalMode; 01=UserMode (Level1) ; 02=FactoryMode (Level2) ;	00	
<b>123-126</b>	4	Password Entry	Password Entry Area	00 00 00 00	
<b>127</b>	1	Table Selection	Page Select Byte	00	



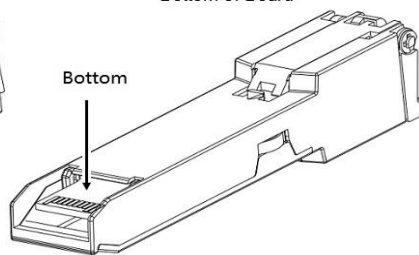
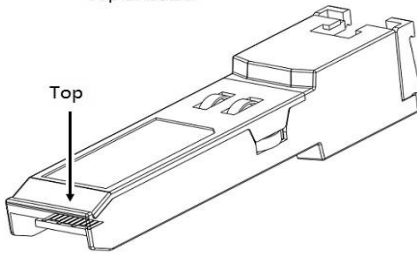
### III. Pin Description



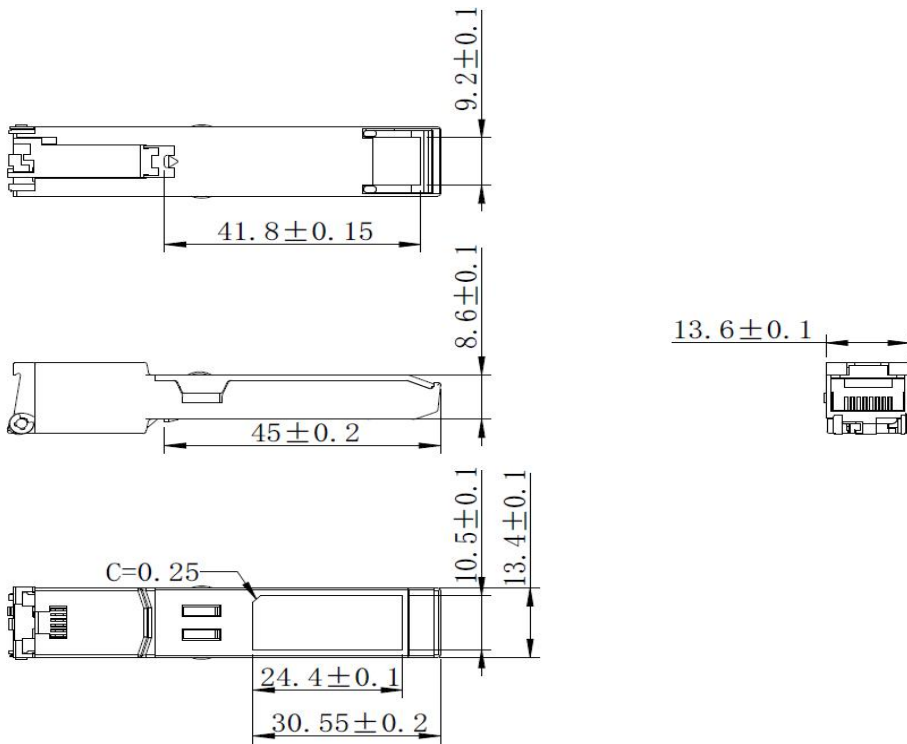
Top of Board



Bottom of Board



### IV. Mechanical Outline



ALL DIMENSIONS ARE  $\pm 0.2$ mm UNLESS OTHERWISE SPECIFIED  
UNIT: mm