Type: SAE-GSS1415-80/120/160

Technical Specification of: SAE-GSS1415-80/120/160

1.25G BIDI SFP BIDI Transceivers 80km(Optional: 120-160km)

- Simplex LC connector in SFP standard package, hot-pluggable
- Data rate 1.25Gbps
- 1550nm PIN Photo-detector (A Type), 1490nm FP Laser
- 1490nm PIN Photo-detector (B Type), 1550nm FP Laser
- Maximum 20Km transmission distance on SMF
- **Transmission distance Optionally**: **80-120-160km**
- power supply: +3.3V
- Compatible data input/output interfaces with LVPECL
- High ESD protection and Low EMI
- Compliant with class 1 IEC-60825 Laser safety standard
- Compatible with RoHS
- Supports ITU–T G.957 and IEEE802.3 10/100Base-TX/1000Base-TX and1000Base-FX
- Supports MSA
- Supports SFF-8472 Digital Diagnostic Monitor

SAE-GSS1415-80/120/160 is a very reliable and high performance in order to transmit 1.25G network data on optical cores. The **SAE-GSS1415-80/120/160** designed in a way that work in zero warm up time and is very real-time, loss-free and high-quality data network transmission over a pair optical line. It

planned with embedded ESD to avoid damage from electrostatic. **SAE-GSS1415-80** made by high quality of components were rigorous screened, have superior performance in stability, environmental adaptability. The product planned in a way of better resistance and ability to corrosion and electromagnetic interference.

: Applications

- Switching/hub and Router
- Fast Ethernet 1000Base Lx NIC
- Telecom IEEE 802.3z
- Other Fiber Channels

Technical Specification

Product name	**SAE-GSS1415-80**
Optional Transmission Distance	**80-120-160km**

Table 1 - Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	Ts	-40	+85	°C
Supply Voltage	V cc	0	+3.45	V
Operating Humidity	RH	5	95	%

Table 2 - Recommended Operating Conditions

Parameter		Symbol	Min	Typical	Max	Unit
Supply Voltage		Vcc	3.15	3.3	3.45	V
Supply Current		Icc	100	200	300	mA
Operating Temperature	**Commercial**		Tc	0	+70	°C
	Industrial			-40	+85	
Power Dissipation					1	W

Table 3 - Optical and Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Note
Transmitter section						
Centre Wavelength	λc	1490		1550	nm	
Spectral Width (RMS)	σ			4	nm	
Average Output Power	Pout	-9		-3	dBm	1
Extinction Ratio	ER	9			dBm	
Optical Rise/Fall Time (20%~80%)	Tr/Tf			0.26	ns	
Data Input Swing Differential	Vin	400		1800	mV	2
Input Differential Impedance	Zin	90	100	110	Ω	
Optical Eye Diagram	IEEE 802.3z and ANSI fiber Channel Compatible					
Receiver section						
Centre Wavelength	λc	1490		1550	nm	
Receiver Sensitivity				-19	dBm	3
Receiver Overload		-3			dBm	3
LOS De-Assert	LOS-D			-24	dBm	
LOS Assert	LOS-A	-35			dBm	

LOS Hysteresis		1		4	dBm	
Data Output Swing Differential	Vout	400		1800	mV	4

Notes:

1. The optical power is launched into SMF.
2. PECL input, internally AC-coupled and terminated.
3. Measured with a PRBS 2^7-1 test pattern @1250Mbps, BER $\leqslant 1\times 10^{-12}$
4. Internally AC-coupled.

EEPROM Serial ID Memory Contents (A0h)

Adder	Field size(byte)	Name of field	HEX	Description
0	1	Identifier	03	SFP
1	1	Ext. Identifier	04	MOD4
2	1	Connector	07	LC
3-10	8	Transceiver	00 00 00 02 12 00 0D 01	Transmitter Code
11	1	Encoding	02	4B5B
12	1	BR, nominal	0D	1250M bps
13	1	Reserved	00	
14	1	Length (9um)-km	14	80km
15	1	Length (9um)	64	
16	1	Length (50um)	00	
17	1	Length (62.5um)	00	
18	1	Length (copper)	00	
19	1	Reserved	00	
20-35	16	Vendor name	57 49 4E 54 4F 50 20 20 20 20 20 20 20 20 20 20	CRED
36	1	Reserved	00	
37-39	3	Vendor OUI	00 00 00	
40-55	16	Vendor PN	XX XX XX XX XX	ASC II

			XX XX XX XX XX XX XX XX XX XX	
56-59	4	Vendor rev	31 2E 30 20	V1.0
60-61	2	Wavelength	05 1E/06 0E	1490nm/1550nm
62	1	Reserved	00	
63	1	CC BASE	XX	Check sum of byte 0~62
64-65	2	Options	00 1A	LOS, TX_DISABLE, TX_FAULT
66	1	BR, max	32	50%
67	1	BR, min	32	50%
68-83	16	Vendor SN	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Unspecified
84-91	8	Vendor date code	XX XX XX 20	Year, Month, Day
92-94	3	Reserved	00	
95	1	CC_EXT	XX	Check sum of byte 64~94
96-255	160	Vendor specific		

Diagnostics Specification

Parameter		Range	Accuracy%	Unit	Calibration
Temperature	**commercial**	-5 ~ 70	±3	ºC	Internal
	industrial	-40 ~ 80	±3		
Voltage		0 ~ VCC	±3	V	Internal
Bias Current		0 ~ 120	±2	mA	Internal
Tx Power		-8 ~ -3	±3	dBm	Internal
Rx Power		-24 ~ -3	±3	dBm	Internal

Pin Descriptions

pin	Name	Description	Note
1	VeeT	Transmitter Ground	
2	Tx Fault	Transmitter Fault Indication	1
3	Tx Disable	Transmitter Disable	2
4	MOD DEF2	Module Definition 2	3
5	MOD DEF1	Module Definition 1	3
6	MOD DEF0	Module Definition 0	3
7	Rate Select	Not Connected	
8	LOS	Loss of Signal	4
9	VeeR	Receiver Ground	
10	VeeR	Receiver Ground	
11	VeeR	Receiver Ground	
12	RD-	Inv. Received Data Output	5
13	RD+	Received Data Output	5
14	VeeR	Receiver Ground	
15	VccR	Receiver Power	
16	VccT	Transmitter Power	
17	VeeT	Transmitter Ground	
18	TD+	Transmit Data Input	6
19	TD-	Inv. Transmit Data Input	6
20	VeeT	Transmitter Ground	

Notes:

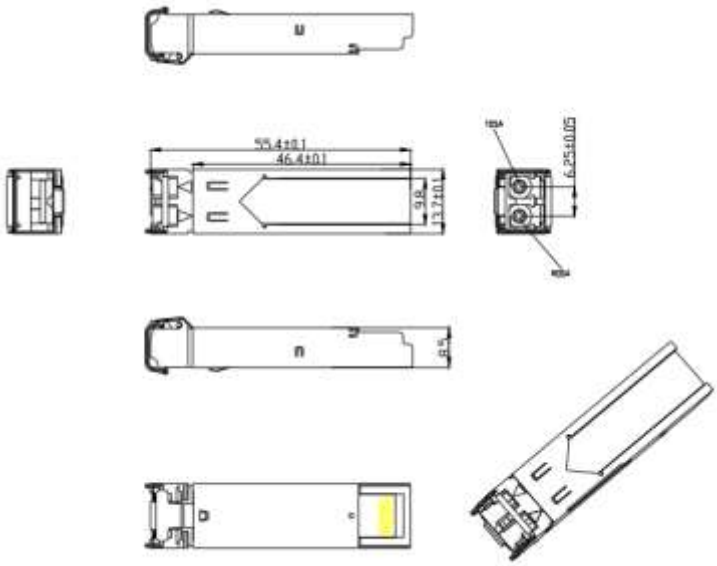
1) TX Fault is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; Logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.

2) TX Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7k~10kΩ resistor. Its states are: Low (0 to 0.8V): Transmitter on (>0.8V, < 2.0V): Undefined High (2.0 to 3.465V): Transmitter Disabled Open: Transmitter Disabled
3) Mod-Def 0,1,2. These are the module definition pins. They should be pulled up with a 4.7k~10kΩ resistor on the host board. The pull-up voltage shall be VccT or VccR. Mod-Def 0 is grounded by the module to indicate that the module is present Mod-Def 1 is the clock line of two wire serial interface for serial ID Mod-Def 2 is the data line of two wire serial interface for serial ID
4) LOS is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor. Pull up voltage between 2.0V and Vcc+0.3V. Logic 1 indicates loss of signal; Logic 0 indicates normal operation. In the low state, the output will be pulled to less than 0.8V.

5) RD-/+: These are the differential receiver outputs. They are internally AC-coupled 100 differential lines which should be terminated with 100Ω (differential) at the user SERDES.

6) TD-/+: These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.

Product Application Display



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