

PRODUCT SPECIFICATION

Part No.:	AC-SPBL-2731G25-30/AC-SPBL-3127G25-30	
Description:	25G SFP28 Transceiver, BIDI Tx1270nm/Rx1310nm 30km 25G SFP28 Transceiver, BIDI Tx1310nm/Rx1270nm 30km	
Release Date	Rev.	Revision Change Description
2020/12/28	A0	New Release

Features

- ◆ Supports 24.3Gb/s to 26.5Gb/s bit rates Up to 30km transmission on SMF
- ◆ Hot-pluggable SFP+ footprint
- ◆ 1270nm DFB laser and APD receiver for SPBL-2731G25-30
- ◆ 1310nm DFB laser and APD receiver for SPBL-3127G25-30
- ◆ Compliant with SFP+ MSA and SFF-8472 with single LC receptacle
- ◆ Compatible with RoHS
- ◆ Single +3.3V power supply
- ◆ Power dissipation<1.5W
- ◆ 2-wire interface with integrated Digital Diagnostic monitoring
- ◆ Metal enclosure, for lower EMI
- ◆ Operating case temperature:
Commercial: 0°C ~ +70°C
-40°C ~ +85°C

Application

- ◇ 25G Ethernet
- ◇ CPRI 10

Standard

- ◇ Compliant with MSA SFP+ specification(SFF-8431)
- ◇ Compliant with SFF-8472
- ◇ CPRI Line Rate Option: 24.33Gb/s
25.78Gb/s
- ◇ Compliant to IEEE 802.3ae

Specification

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V _{cc}	-0.3	4	V
Storage Temperature	T _s	-40	+85	°C
Operating Humidity	-	5	95	%
Signal Input Voltage		V _{cc} -0.3	V _{cc} +0.3	V

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	T _c	0		+70	°C
Power Supply Voltage	V _{cc}	3.135	3.30	3.465	V
Power Supply Current	I _{cc}			360	mA
Data Rate		24.3	25.78	26.5	Gbps
Fiber Length 9/125μm core SMF		-	30	-	km

Optical and Electrical Characteristics

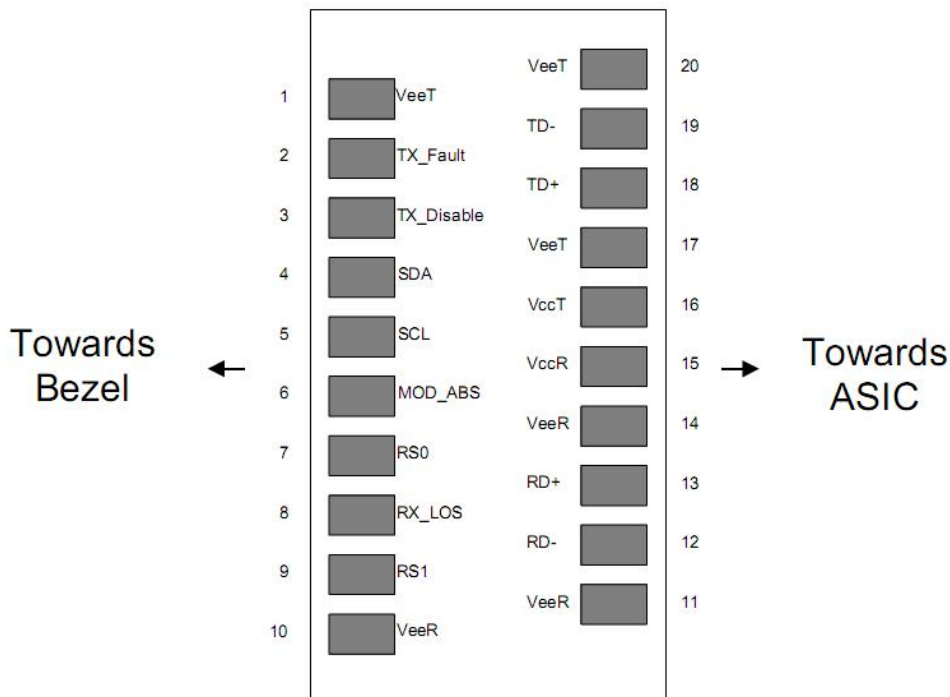
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Centre Wavelength	λ _c	1255	1270	1285	nm	AC-SPBL-2731 G25-30
		1295	1310	1325	nm	AC-SPBL-3127 G25-30
Spectral Width (-20dB)	Δλ			1	nm	
Side-Mode Suppression Ratio	SMSR	30	-		dB	
Average Output Power	P _{out}	0		5	dBm	1
Extinction Ratio	ER	3.5			dB	
Data Input Swing Differential	V _{IN}	180		800	mV	2
Input Differential Impedance	Z _{IN}	80	100	120	Ω	
TX Disable	Disable	V _{cc} - 1.3		V _{cc}	V	
	Enable	V _{ee}		V _{ee} + 0.8	V	
TX Fault	Fault	V _{cc} - 1.3		V _{cc}	V	

	Normal		Vee		Vee + 0.8	V	
Receiver							
Centre Wavelength	λ_c	1295	1310	1325	nm	AC-SPBL-2731 G25-30	
		1255	1270	1285	nm	AC-SPBL-3127 G25-30	
Receiver Sensitivity				-18.5	dBm	3	
Receiver Overload			-6		dBm	3	
LOS De-Assert	LOS _D			-19	dBm		
LOS Assert	LOS _A	-35			dBm		
LOS Hysteresis		0.5		5	dB		
LOS	Fault	Vcc-1.3		VccHost	V		
	Norm	Vee		Vee +0.8	V		

Notes:

1. The optical power is launched into SMF.
2. PECL input, internally AC-coupled and terminated.
3. Measured with a PRBS²³¹-1 test pattern @25780Mbps, BER $\leq 5 \times 10^{-5}$.
4. Internally AC-coupled.

Pin Descriptions



Pin	Signal Name	Description	Plug Seq.	Notes
1	V _{EET}	Transmitter Ground	1	
2	TX FAULT	Transmitter Fault Indication	3	Note 1
3	TX DISABLE	Transmitter Disable	3	Note 2
4	SDA	SDA Serial Data Signal	3	
5	SCL	SCL Serial Clock Signal	3	
6	MOD_ABS	Module Absent. Grounded within the module	3	
7	RS0	Not Connected	3	
8	LOS	Loss of Signal	3	Note 3
9	RS1	Not Connected	3	
10	V _{EER}	Receiver ground	1	
11	V _{EER}	Receiver ground	1	
12	RD-	Inv. Received Data Out	3	Note 4
13	RD+	Received Data Out	3	Note 4
14	V _{EER}	Receiver ground	1	
15	V _{CCR}	Receiver Power Supply	2	
16	V _{CCT}	Transmitter Power Supply	2	
17	V _{EET}	Transmitter Ground	1	
18	TD+	Transmit Data In	3	Note 5
19	TD-	Inv. Transmit Data In	3	Note 5
20	V _{EET}	Transmitter Ground	1	

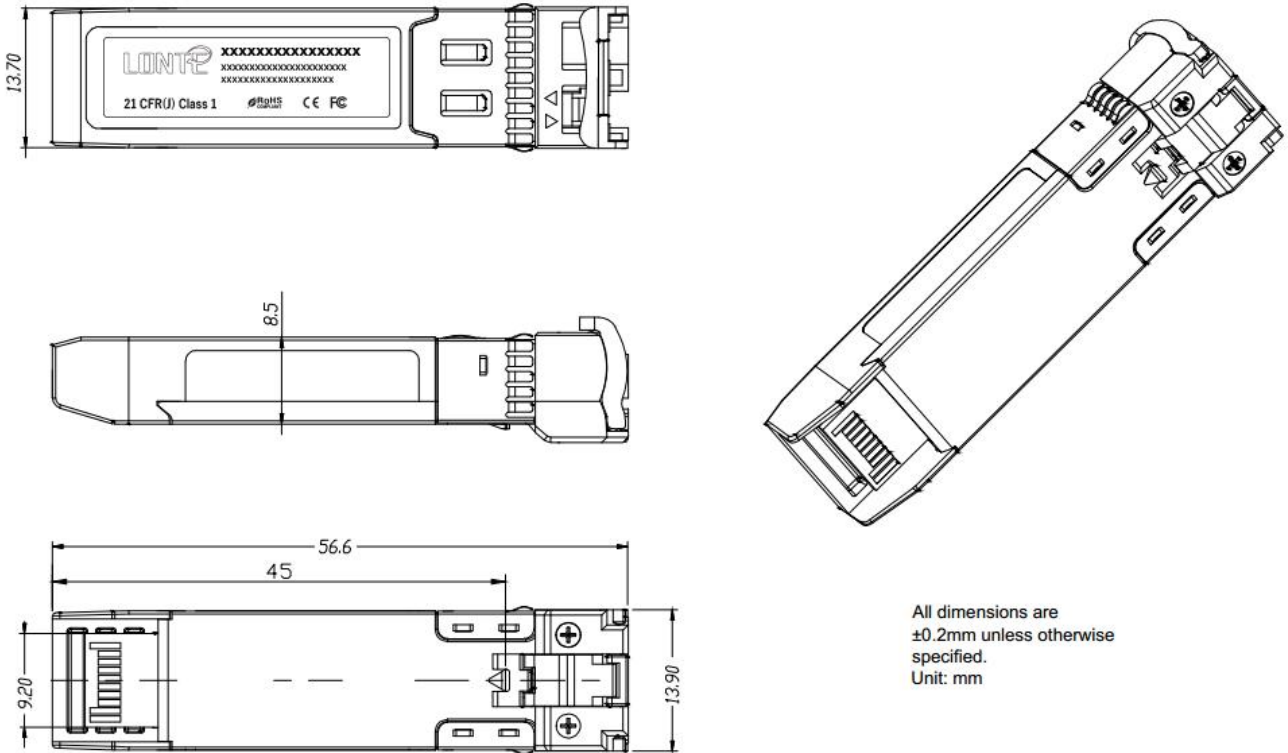
Notes:

Plug Seq.: Pin engagement sequence during hot plugging.

- 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 V_{cc}+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) Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.
- 3) LOS is open collector output Should be pulled up with 4.7k~10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.
- 4) 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.
- 5) TD-/+ : These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.

Mechanical Dimensions

Dimensions are in millimeters. All dimensions are $\pm 0.2\text{mm}$ unless otherwise specified. (Unit: mm)



Regulatory Compliance

Feature	Test	Method
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	Class 1 (>1.5kV) – Human Body Model
Electrostatic Discharge (ESD) Immunity	IEC61000-4-2	Class 2(>4.0kV)
Electromagnetic Interference (EMI)	CISPR22 ITE Class B FCC Class B CENELEC EN55022 VCCI Class 1	Comply with standard
Immunity	IEC61000-4-3	Comply with standard
Eye Safety	FDA 21CFR 1040.10 and 1040.11 EN (IEC) 60825-1,2	Compatible with Class I laser Product

Ordering information

Part. No	Specifications								
	Pack	Rate (Gbps)	Tx (nm)	Po (dBm)	RX	Sen (dBm)	Temp (°C)	Reach (km)	DDM
AC-SPBL-2731G25-30	SFP28	25.78	1270	0~5	APD	<-18.5	0~70	30	Y
AC-SPBL-3127G25-30	SFP28	25.78	1310	0~5	APD	<-18.5	0~70	30	Y
AC-SPBL-2731G25-30F	SFP28	25.78	1270	0~5	APD	<-18.5	-40~85	30	Y
AC-SPBL-3127G25-30F	SFP28	25.78	1310	0~5	APD	<-18.5	40~85	30	Y