Lanmus

LMT-GE-MM850

DATASHEET

1.25Gbps SFP Optical Transceiver, 550m, DDM



PRODUCT INTRODUCTION

Product Overview



LMT-GE-MM850 is a high-performance 1.25Gbps SFP optical transceiver module designed for reliable high-speed data communication across multimode fiber networks.

Engineered with an 850nm VCSEL laser and PIN photodetector, this compact hot-pluggable transceiver supports transmission distances of up to 550 meters over 50/125μm multimode fiber.

Built for enterprise networking, data centers, telecom infrastructure and industrial communication environments, the module delivers stable Gigabit Ethernet connectivity with low power consumption and enhanced signal integrity.

The transceiver is compliant with IEEE 802.3z and SFF-8472 standards, ensuring seamless interoperability with compatible networking equipment and enabling advanced Digital Diagnostic Monitoring (DDM) capabilities for real-time operational visibility.

LMT-GE-MM850

Product Features

- Supports data rates up to 1.25Gbps for Gigabit Ethernet applications
- Operates on 850nm VCSEL laser technology for efficient optical transmission
- Transmission distance up to 550m over 50/125μm multimode fiber
- Standard SFP form factor with LC duplex connector
- Digital Diagnostic Monitoring (DDM) compliant with SFF-8472
- Compatible with 1000Base-SX Ethernet and Fibre Channel applications
- Low EMI design with excellent ESD protection
- Hot-pluggable design for easy deployment and maintenance
- Wide operating temperature range from -40°C to +85°C
- Single +3.3V power supply operation
- IEC-60825 laser safety compliant
- RoHS compliant environmentally friendly design
- Supports applications including Gigabit Ethernet, Fibre Channel, LTE, CPRI and OBSAI networks
- Reliable optical performance with receiver sensitivity up to -19dBm
- Compact and durable design suitable for enterprise and telecom environments

Application

- 1.25Gb/s 1000Base-SX Ethernet
- Dual Rate 1.063/2.125Gb/s Fibre Channel
- Wireless – CPRI, OBSAI, LTE

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Absolute Maximum Ratings：

Parameter	Symbol	Min	Max	Units
Storage Temperature	Tst	-40	+85	C
Supply Voltage	Vcc	0	+3.6	V
Operating Relative Humidity	Tst	-40	+85	%

Operation Environment

Parameter	Symbol	Min	Typical	Max	Units
Supply Voltage	Vcc	3.15	-	3.45	V
Operating Case Temperature	Tc	-40	-	+85	°C
Power Dissipation	-	-	-	1	W
Date Rate	-	-	1250	-	Mbps

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Optical Characteristics

(Ambient Operating Temperature -40°C to +85°C, Vcc =3.3 V)

Parameter	Symbol	Min	Typical	Max	Units
Transmitter Section					
Center Wavelength	λo	830	850	860	nm
Average Output Power	Po	-9	-	-3	dBm
Extinction Ratio	λEr	8	-	-	dB
Rise/Fall Time(20%~80%)	Tr/Tf	-	-	300	ps
Total jitter	Tj	-	-	0.43	UI
Optical Eye Diagram	IEEE 802.3z and ANSI Fibre Channel Compatible				
Receiver Section					
Center Wavelength	λo	830	-	860	nm
Receiver Sensitivity	Rsen	-	-	-19	dBm
Receiver Overload	Rov	-3	-	-	dBm
Return Loss	-	12	-	-	dB

LOS Assert	LOSA	-36	-	-	dB
LOS Dessert	LOSD	-	-	-20	dB
LOS Hysteresis	-	0.5	-	5	-

Electrical Characteristics

(Ambient Operating Temperature-40°C to +85°C, Vcc =3.3V)

Parameter	Symbol	Min	Typical	Max	Units
Transmitter Section					
Input Differential Impendence	Zin	90	100	110	Ohm
Data Input Swing Differential	Vin	500	-	2400	mV
TX Disable	Disable	2.0	-	Vcc	V
	Enable	0		0.8	V
TX Fault	Assert	2.0	-	Vcc	V
	Deassert	0		0.8	V
Receiver Section					
Output Differential Impendence	Zout	-	100	-	Ohm
Data Input Swing Differential	Vout	370	-	2000	mV

Rx_LOS	Assert	2.0	-	Vcc	V
	Deassert	0		0.8	V

EEPROM Information

Addr	Field Size (Bytes)	Name of Field	HEX	Description
0	1	Identifer	03	SEP
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	01	8B10B
12	1	BR, nominal	0D	1250Mbps
13	1	Reserved	00	
14	1	Length (9um)- km	00	
15	1	Length (9um)	00	
16	1	Length (50um)	37	550m

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Addr	Field Size (Bytes)	Name of Field	HEX	Description
17	1	Length (62.5um)	1B	270m
18	1	Length (copper)	00	-
19	1	Reserved	00	-
20-35	8	Transceiver	00 00 00 02 12 00 0D 01	Transmitter Code
36	1	Reserved	00	-
37-39	3	Vendor OUI	00 00 00	-
40-55	16	Vendor PN	xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx	ASC II
56-59	4	Vendor rev	31 2E 30 20	V1.0
60-61	2	Wavelength	03 52	850nm
62	1	Reserved	00	-
63	1	CC BASE	xx	Check sum of byte0~62
64-65	2	Options	00 1A	LOS, TX_DISABLE, TX_FAULT
66	1	BR, max	32	50%

Addr	Field Size (Bytes)	Name of Field	HEX	Description
67	1	BR, min	32	50%
68-83	16	Vendor SN	00 00 00 00 00 00 00 00 0 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

Parameter	Range	Accuracy	Unit	Calibration
Temperature	-40~85	±5	°C	Internal
Voltage	3.15~3.45	±0.1	V	Internal
Bias Current	2~15	±10%	mA	Internal
Tx Power	-9~-2	±3	dBm	Internal
Rx Power	-3~-26	±3	dBm	Internal

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Pin Description

Pins	Name	Description	Note
1	VeeT	Transmitter Ground	-
2	Tx Fault	Transmitter Fault Indication	1
3	Tx Disable	Transmitter Fault	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+	IReceived Data Output	5
14	VeeR	Receiver Ground	-
15	VccR	Receiver Power	-
16	VccT	Transmitter Power	-
17	VeeT	Transmitter Ground	-

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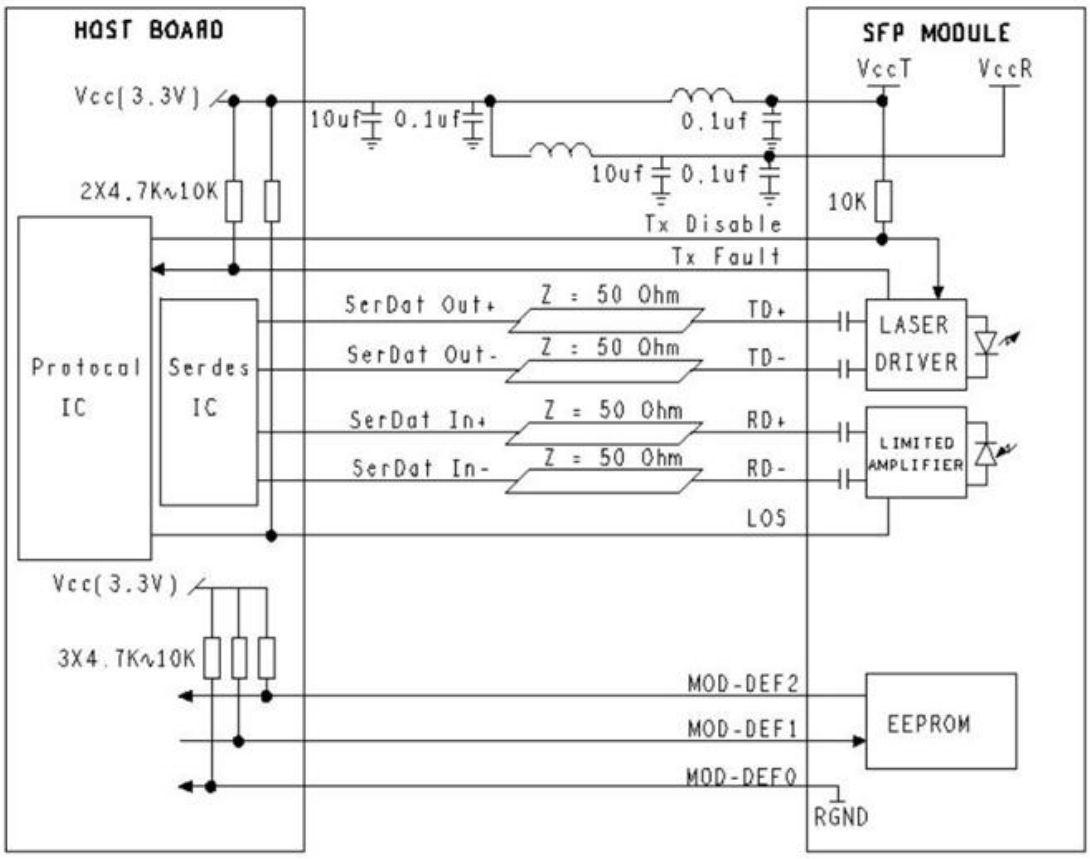
Pins	Name	Description	Note
18	TD+	Transmit Data Input	6
19	TD-	Inv. Transmit Data Input	6
20	VeeT	Transmitter Ground	-

Note :

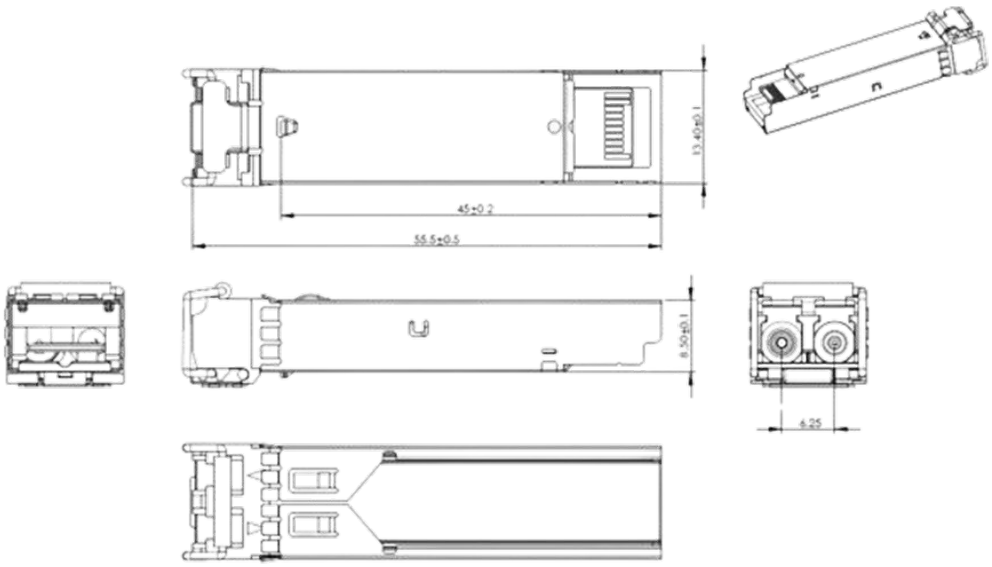
1. TX Fault is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.
2. TX 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 (0~0.8V): Transmitter on (>0.8V, <2.0V): Undefined High (2.0~3.465V): Transmitter Disabled Open: Transmitter Disable.
3. MOD-DEF 0, 1, 2 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 on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; logic 1 indicates loss of signal. In the low state, the output will be pulled to less than 0.8V.
5. These are the differential receiver output. They are internally AC-coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES.
6. These are the differential transmitter inputs. They are AC-coupled, differential lines with 100Ω differential termination inside the module.

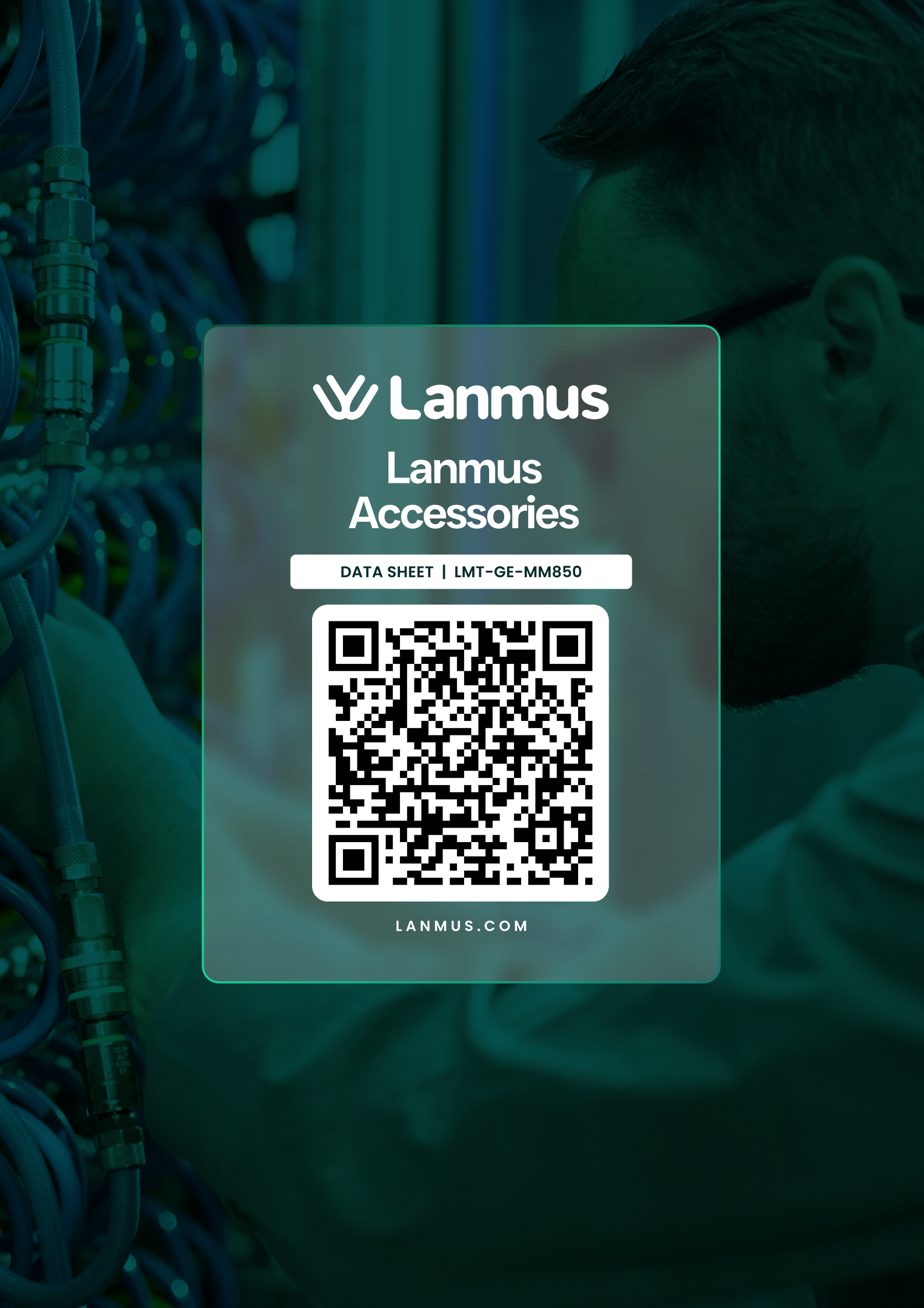
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Recommended Application Circuit



Outline Dimensions (mm)




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