

**OM5642W-30B****Preliminary**

40 Gb/s EA Modulator with Single Mode Fiber, Built-in Cooler

**1. DESCRIPTION**

OM5642W-30B is a C-band electro-absorption (EA) modulator for 40 Gb/s operation with low PDL characteristics in a hermetic sealed package with a V connector.

**2. FEATURES**

- Low polarization sensitivity : Typical 0.5 dB
- 40Gb/s NRZ operation
- High modulation bandwidth over 30 GHz
- Low operating voltage : 3 Vpp
- Built-in thermoelectric cooler (TEC)

**3. APPLICATION**

- SONET/SDH applications (OC-768)
- Optical Demux/Optical Gating

**4. OPTICAL AND ELECTRICAL CHARACTERISTICS**

(at 1550 nm, optical input power 13 dBm, Tsub = 25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Insertion Loss	$L_{in}$	CW, $V_b = 0$ V	—	9	10	dB
Polarization Dependence Loss	PDL	CW, $V_b = 0$ V	—	0.5	1.0	dB
Extinction Ratio	ExR	CW, 0 to -4 V	17	20	—	dB
Bandwidth (-3dB, electrical)	$f_c$	$V_b = -1.2$ V	30	—	—	GHz
TEC Current	$I_{pe}$	$\Delta T = 45^\circ\text{C}$	—	1	—	A
Thermistor Resistance	$R_{th}$	$T_{thm} = 25^\circ\text{C}$	—	10	—	k $\Omega$
Thermistor B Constant	B	—	—	3450	—	K

**5. ABSOLUTE MAXIMUM RATING**(T<sub>op(c)</sub> = 25°C, unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Operating Case Temperature	T <sub>op(c)</sub>	0 to +70	°C
Applied Voltage Range	V <sub>op</sub>	-5 to +1	V
Input Optical Power (peak power)	P <sub>i</sub>	+13 <sup>1)</sup>	dBm
TEC Voltage	V <sub>pe</sub>	4	V
TEC Current	I <sub>pe</sub>	1.8	A

Exceeding these ratings may lead to immediate destruction or permanent deterioration of the device.

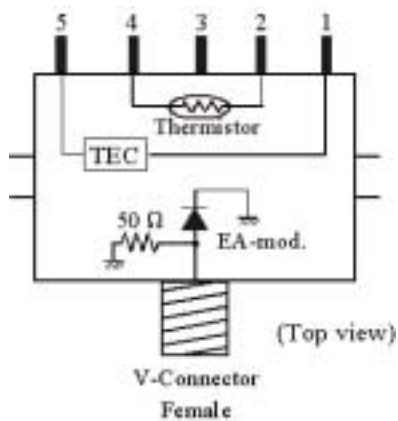
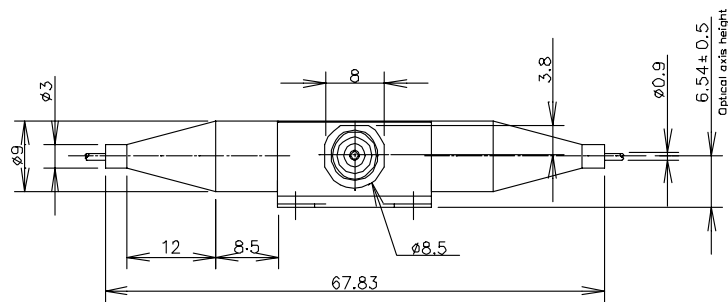
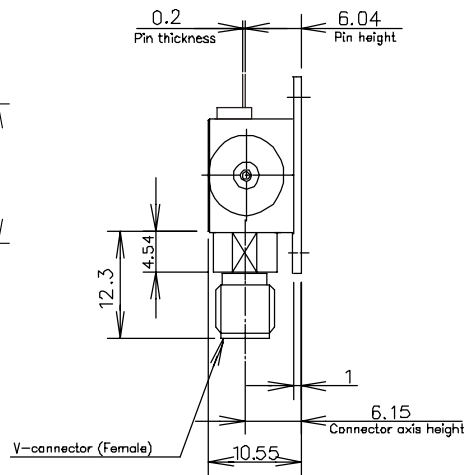
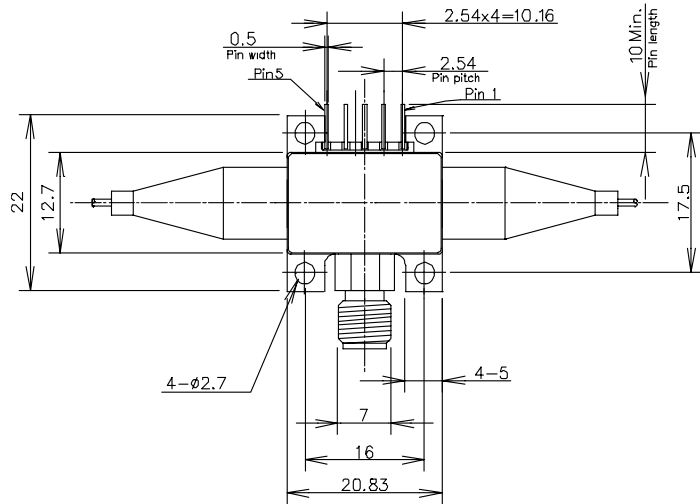
1) Applied voltage range: -5 V < V<sub>op</sub> < +1 V**Note: Operation maximum of Applied Voltage Range: -4 to +1 V****6. CONNECTOR AND FIBER SPECIFICATIONS**

Parameter	Specifications	Unit
Type	SMF	—
Jacket Diameter	0.9	mm
Length	1 (Min.)	m
Connector	FC/SPC	—

7.OUTLINE DRAWING

All dimensions in millimeters

Tolerances Unless Noted +/-0.5



Pinout

PIN	FUNCTION
1	TEC CATHODE
2	THERMISTOR
3	NC
4	THERMISTOR
5	TEC ANODE

**SAFETY INFORMATION ON THIS PRODUCT**

<b>Caution</b>  GaAs Product	The product contains gallium arsenide, GaAs. GaAs vapor and powder are hazardous to human health if inhaled, ingested or swallowed. Do not destroy or burn the product. Do not crush or chemically dissolve the product. Do not put the product in the mouth. Observe related laws and company regulations when discarding this product. The product should be excluded from general industrial waste or household garbage.
<b>Caution</b> Optical Fiber	A glass-fiber is attached on the product. Handle with care. When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments.

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2. The outline of action and examples for application circuits described herein have been chosen as an explanation for the standard action and performance of the product. When planning to use the product, please ensure that the external conditions are reflected in the actual circuit, assembly, and program designs.
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