

OM5753C-30B**Preliminary**

40 Gb/s EA Modulator with Polarization Maintaining Fiber, DC Bias Circuit, Built-in Cooler

1. DESCRIPTION

OM5753C-30B is a C-band electro-absorption (EA) modulator for 40 Gb/s operation with low chirp characteristics in a hermetic sealed package with a DC bias circuit.

2. FEATURES

- Low chirp : $\alpha < 0.5$
- Built-in DC bias circuit
- 40Gb/s NRZ operation
- Low operating voltage : 3 Vpp
- High modulation bandwidth over 30 GHz
- Built-in thermoelectric cooler (TEC)

3. APPLICATION

- SONET/SDH applications (OC-768)
- VSR/Metro/Long-haul DWDM system applications

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	—	7.5	9	dB
Polarization Crosstalk	PCT	CW, $V_b = 0$ V	23	—	—	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 Ω
Thermistor B Constant	B	—	—	3450	—	K

5. ABSOLUTE MAXIMUM RATING(T_{op(c)} = 25°C, unless otherwise noted)

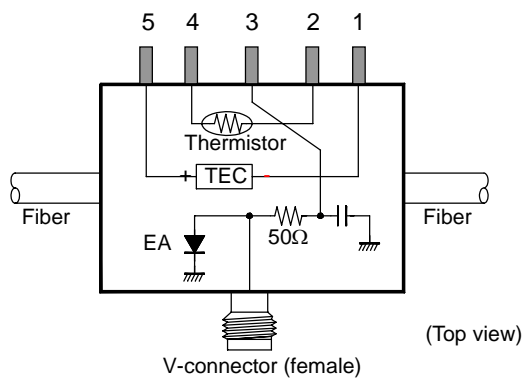
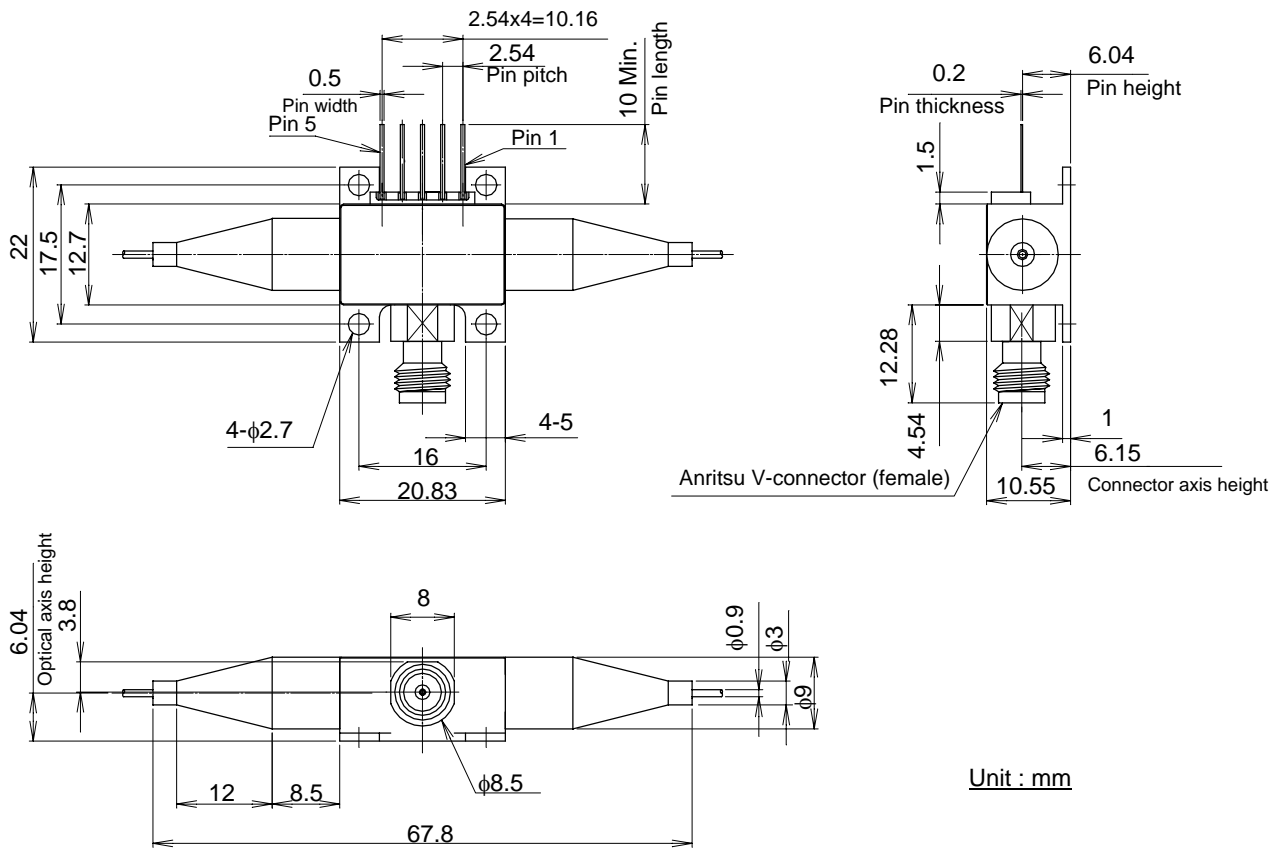
Parameter	Symbol	Ratings	Unit
Operating Case Temperature	T _{op(c)}	0 to +70	°C
Applied Voltage Range	V _{op}	-5 to +1	V
Input Optical Power (peak power)	P _i	+13 ¹⁾	dBm
TEC Voltage	V _{pe}	4	V
TEC Current	I _{pe}	1.8	A

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

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

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

7. OUTLINE DRAWING (All dimensions in millimeters)



Pin	Function
1	TEC cathode
2	Thermistor
3	DC bias
4	Thermistor
5	TEC anode

SAFETY INFORMATION ON THIS PRODUCT

Caution 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.
Caution 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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1. The information contained herein can change without notice owing to product and/or technical improvements. Before using the product, please make sure that the information being referred to is up-to-date.
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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