



Test Data Sheet

PM8 - SWIR-1

(EO-T80T3)

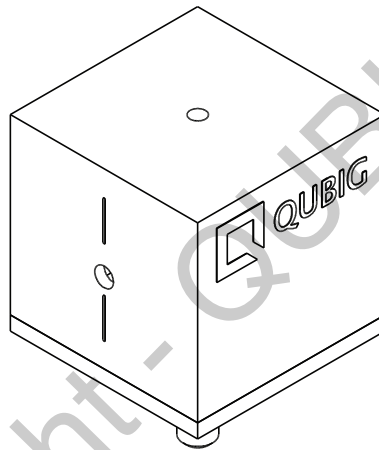
S/N: H3346

High-Q, resonant electro-optic modulator

with

- tunable resonance frequency

- TXC option

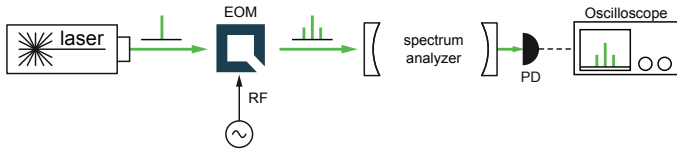


RF properties	Value	Unit
Resonance frequency: f_0 ¹⁾	73.7 - 84.2	MHz
Preset frequency: f_{set} ¹⁾	80.0	MHz
Bandwidth: $\Delta\nu$	586	kHz
Quality factor: Q	137	
Required voltage V_1 for 1rad @ 1.2 1.5 μm ²⁾	9.4 12.0	V _{pp}
max. RF _{in} power: RF _{max} ³⁾	5	W

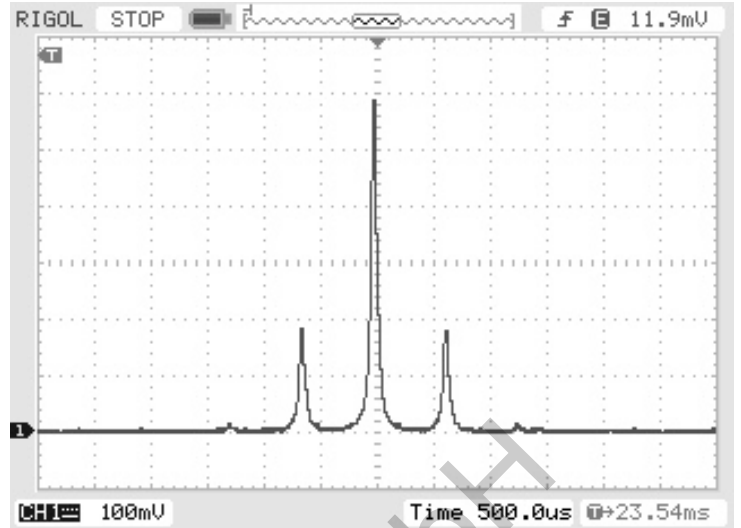
Optical properties		
EO crystal	LT	
Aperture	3x3	mm ²
Wavefront distortion (633nm)	$\lambda/6$	nm
max. optical intensity (1064nm)	1	W/mm ²
AR coating (R<1.5%)	800 - 2000	nm

¹⁾ at 20.1°C ²⁾ with 50 Ω termination ³⁾ no damage with RF_{in} < 10W

Measured modulation



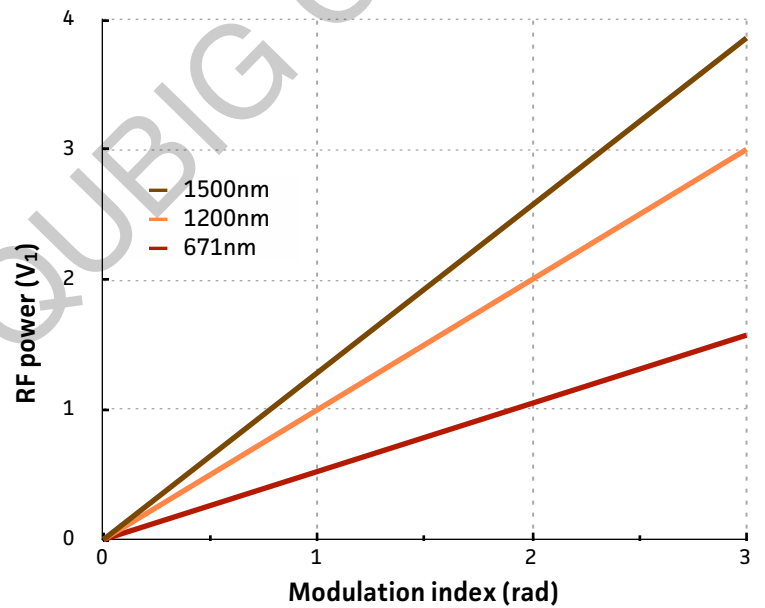
Test wavelength	λ_{test}	671	nm
Resonance frequency	f_0	80.0	MHz
RF power	RF_{in}	5.0	V _{pp}
		18.0	dBm



Expected modulation for $\beta=1\text{rad}$

Wavelength	λ_{use}	1.2 1.5	μm
Resonance frequency	f_0	80.0	MHz
RF power	RF_{in}	9.4 12.0	V _{pp}
		23.5 25.6	dBm
		225 361	mW

Note: After turn on, the resonance frequency might drift slightly with applied rf power. Please compensate by tuning the rf drive frequency until steady-state.

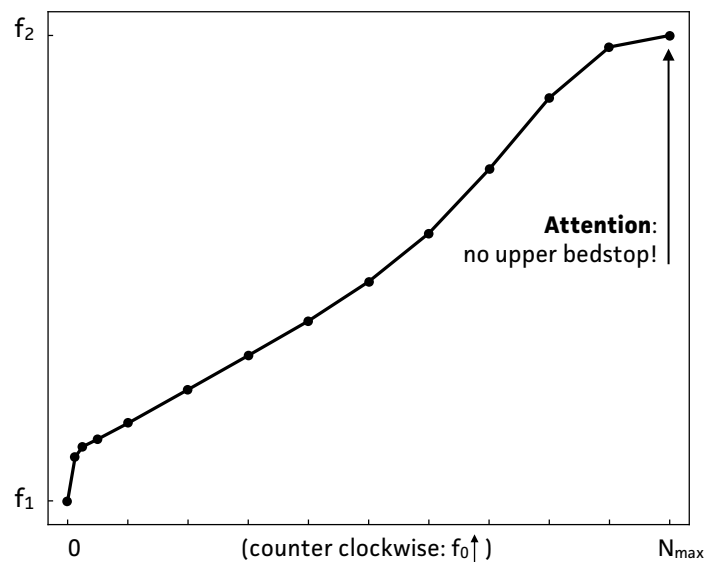


Tuning performance

f_0 min max*	f_1 f_2	73.7 84.2	MHz
max. number of turns	N_{max}	11	turns
incr. frequency shift	Δf	~1	MHz / turn
tuning orientation		ccw	$f_0 \uparrow$

Attention!!

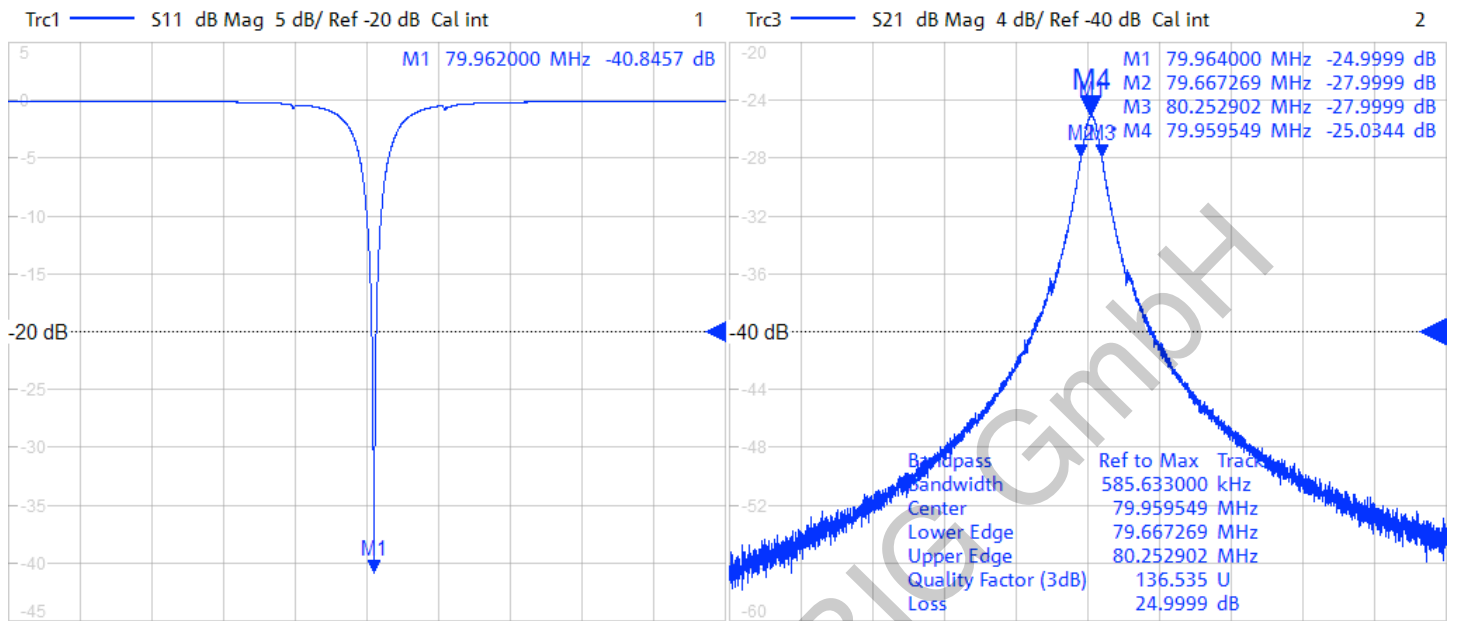
- use only supplied tuning tool
- actuate tuner carefully
- do not apply too much pressure or torque
- keep tuning tool coaxial
- tuner might not be perfectly orthogonal to box



Return loss

Optical modulation

3/20/2015 2:49:22 PM
1328.5170K92-100178-XI



Ch1 Center 79.864 MHz Pwr -10 dBm Bw 10 kHz

Span 10 MHz

Ch3 Center 79.864 MHz Pwr -10 dBm Bw 10 kHz

Span 20 MHz

Trc2 — S11 Smith 200 mU/ Ref 1 U Cal int 3

3

Trc4 — S21 Phase 45°/ Ref 0° Cal int 4

4

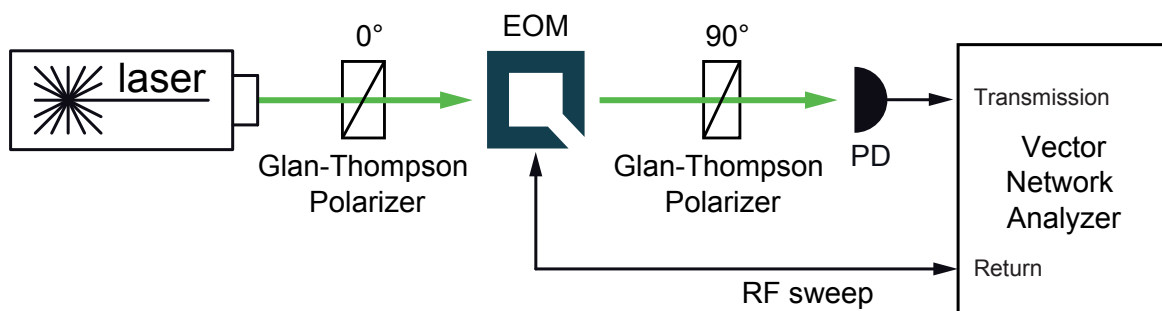
Ch2 Center 79.864 MHz Pwr -10 dBm Bw 10 kHz

Span 10 MHz

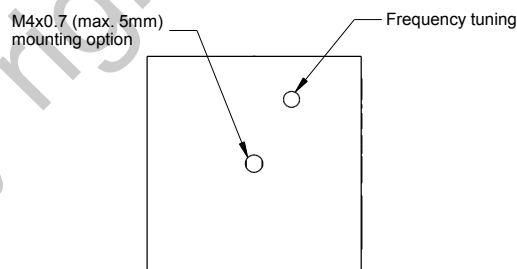
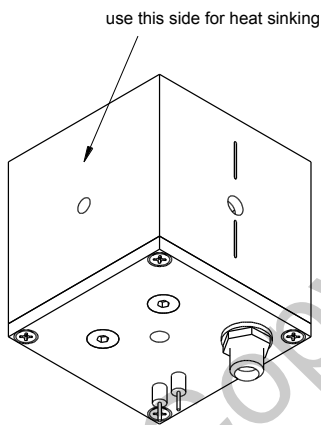
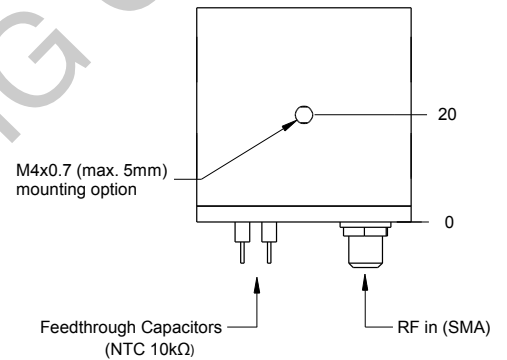
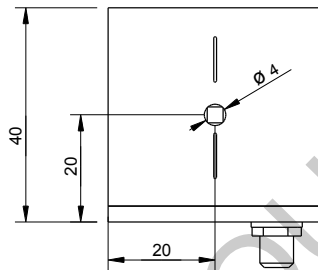
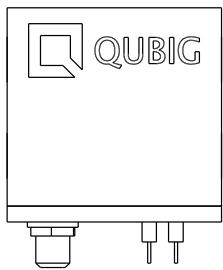
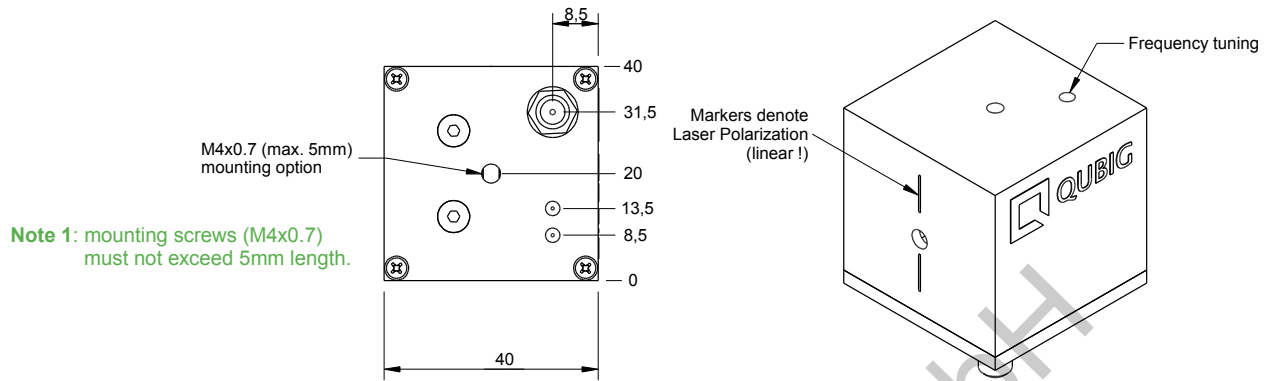
Ch4 Center 79.864 MHz Pwr -10 dBm Bw 10 kHz

Span 10 MHz

Test setup



Package drawing



Attention!

- use only supplied tuning tool
- actuate tuner carefully
- do not apply too much pressure or torque
- keep tuning tool coaxial
- tuner might not be perfectly orthogonal to box

Tested by:

Tel: +49 89 2302 9101
 Fax: +49 89 2302 9102
 eMail: mail@qubig.com
 web: www.qubig.com

QUBIG GmbH
 Balanstr. 57
 81541 München
 Germany