



## Test Data Sheet

**EO-Rb85M3**

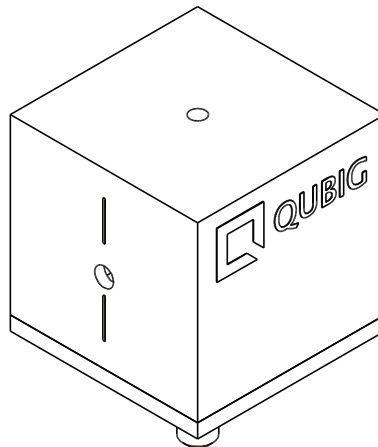
S/N:

**High-Q, resonant electro-optic phase modulator**

with

- tunable resonance frequency

- thermal crystal mount

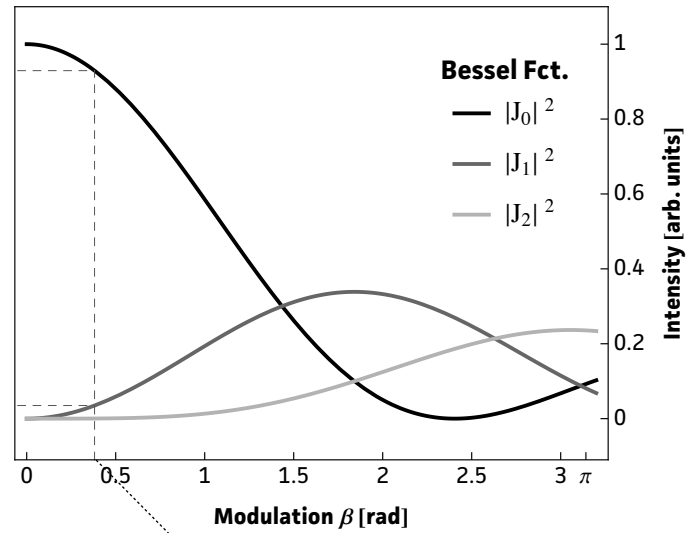
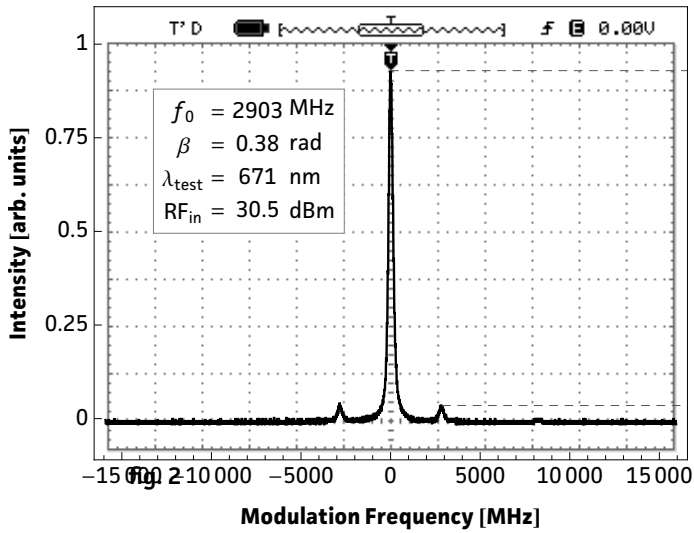


RF properties	Value	Unit
Resonance frequency: $f_0$ <sup>1)</sup>	2.63 - 2.97	GHz
Preset frequency: $f_{set}$ <sup>1)</sup>	2903	MHz
Bandwidth: $\Delta\nu$	15	MHz
Quality factor: Q	200	
Required RF power for 1rad @ 780nm <sup>2)</sup>	40.4	dBm
max. RF power: $RF_{max}$ <sup>3)</sup>	5	W

Optical properties		
EO crystal	MLN	
Aperture	3x3	mm <sup>2</sup>
Wavefront distortion (633nm)	$\lambda/4$	nm
max. optical intensity (780nm)	<10	W/mm <sup>2</sup>
AR coating (R<0.5%)	500 - 1100	nm

<sup>1)</sup> at 24.3°C <sup>2)</sup> with 50 $\Omega$  termination <sup>3)</sup> no damage with  $RF_{in} < 10W$

## Measured modulation

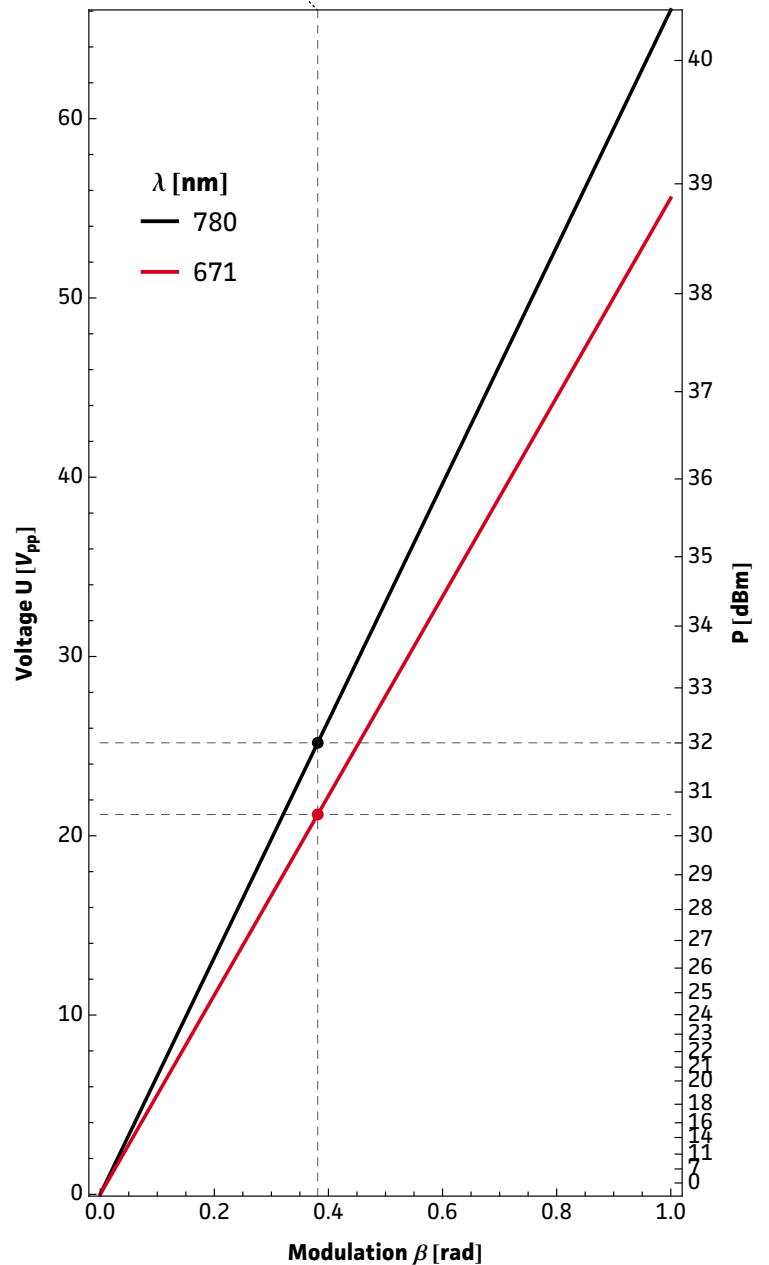
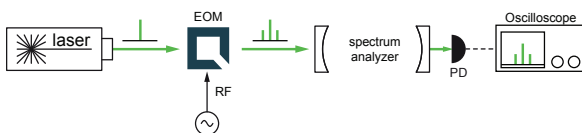


## Expected modulation

Wavelength	$\lambda_{\text{use}}$	780	nm
Resonance frequency	$f_0$	2903	MHz
Modulation	$\beta$	1.0	rad
RF power	U	66.1	V <sub>pp</sub>
	P <sub>dBm</sub>	40.4	dBm
	P <sub>W</sub>	10.9	W
	U <sub>π</sub>	208	V <sub>pp</sub>
Modulation efficiency	$\beta/U$	0.01	rad/V

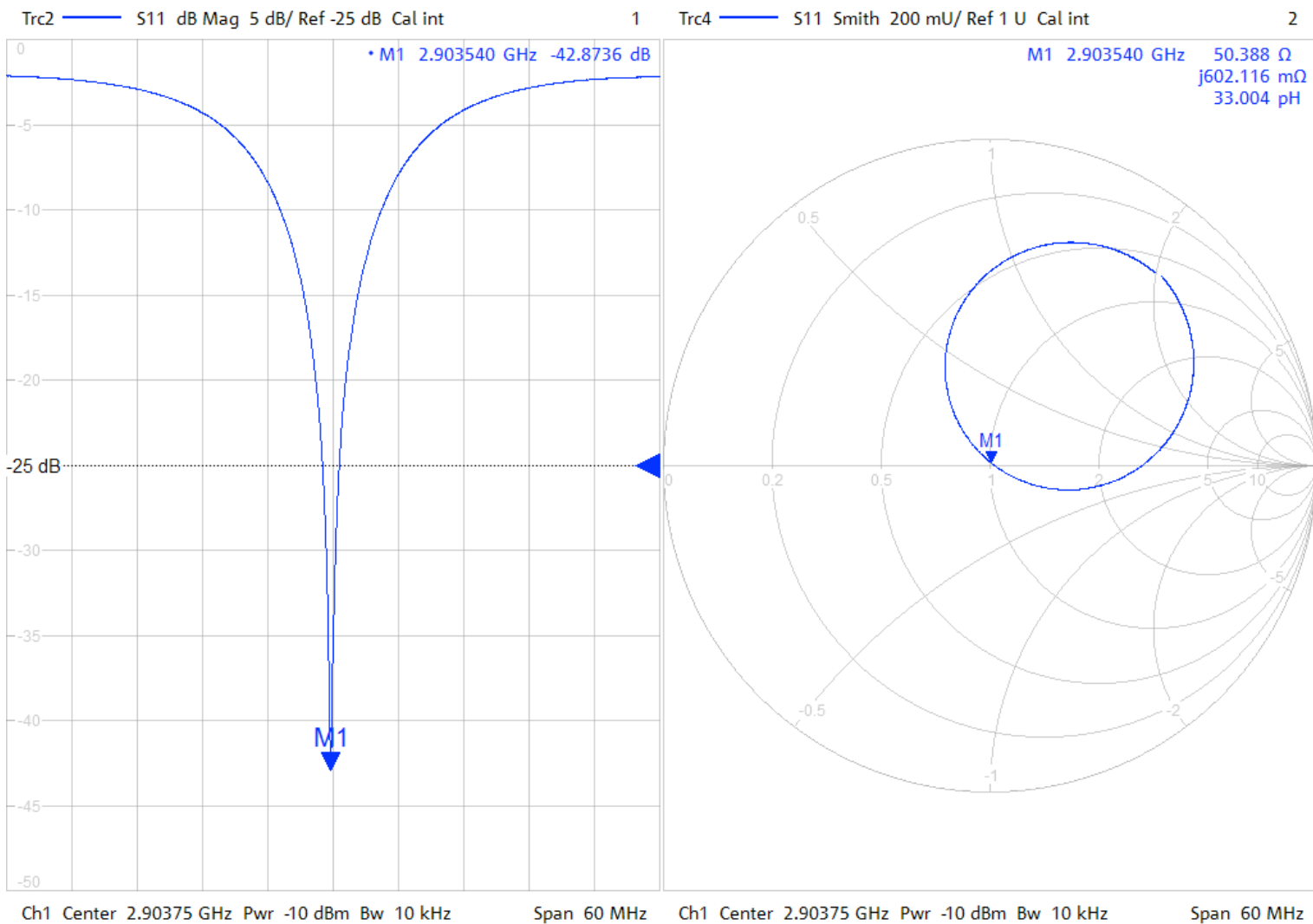
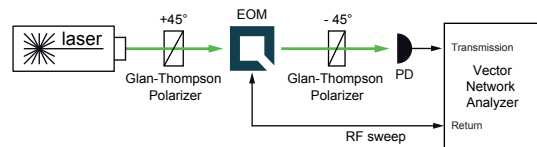
**Note:** After turn on, the resonance frequency might drift slightly with applied rf power. Please compensate by tuning the rf drive frequency until steady-state.

## Test setup



# Resonance characteristics

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1328.5170K92-100178-XI

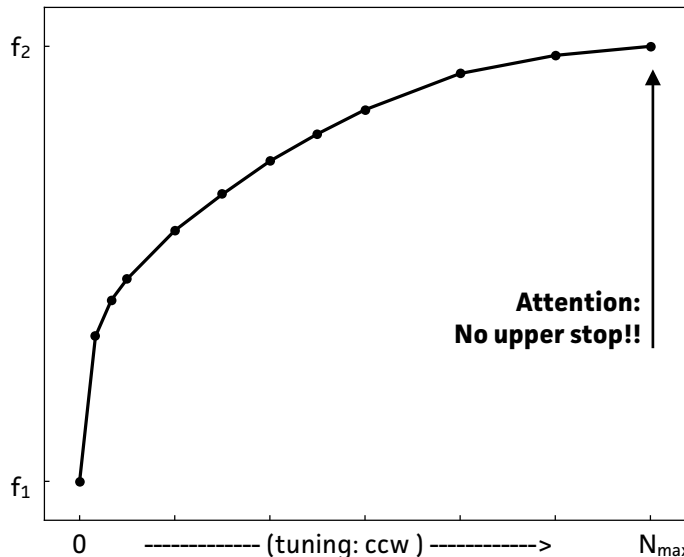


# Tuning performance

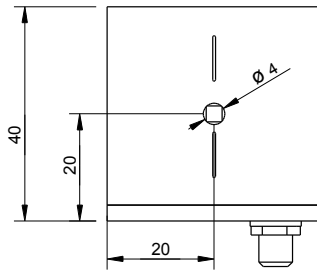
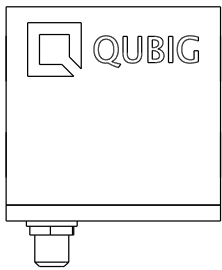
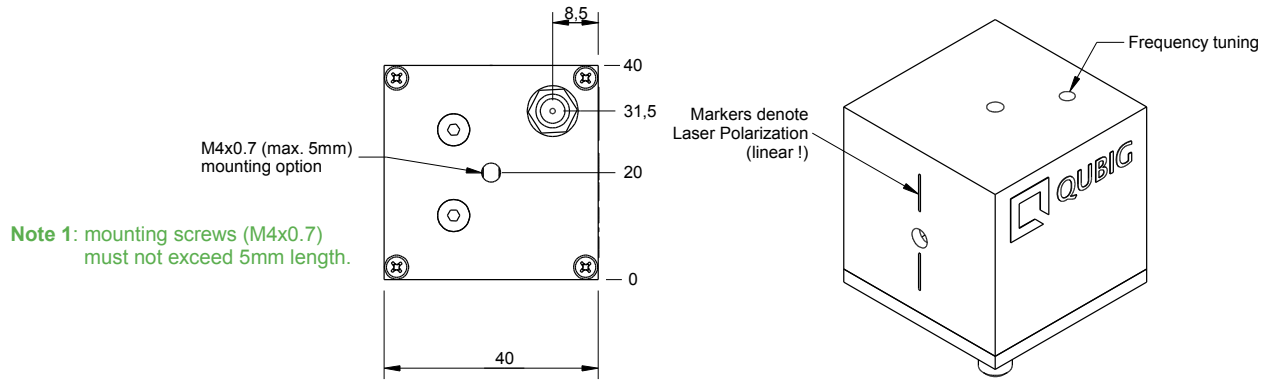
$f_0$ min   max*	$f_1$   $f_2$	2.63   2.97	GHz
max. number of turns	$N_{max}$	6	turns
incr. frequency shift	$\Delta f$	~ 55	MHz / turn
tuning orientation		ccw	$f_0 \uparrow$

### Attention!!

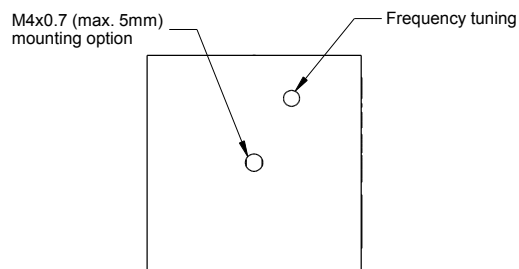
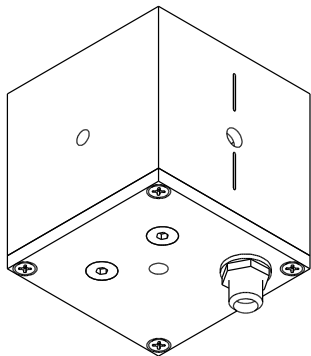
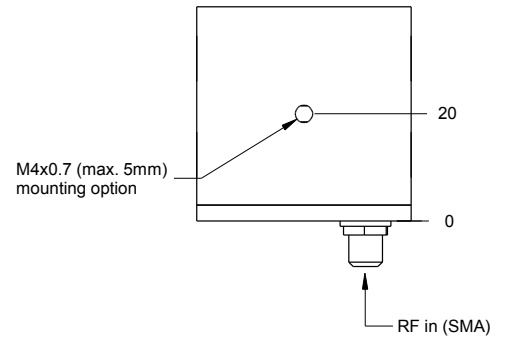
- use only supplied tuning tool
- actuate tuner carefully
- do not apply too much pressure or torque
- keep tuning tool coaxial
- tuner might not be perfectly orthogonal to box



# Package drawing



Note 2: crystal aperture is 3x3mm.



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- tuner might not be perfectly orthogonal to box