

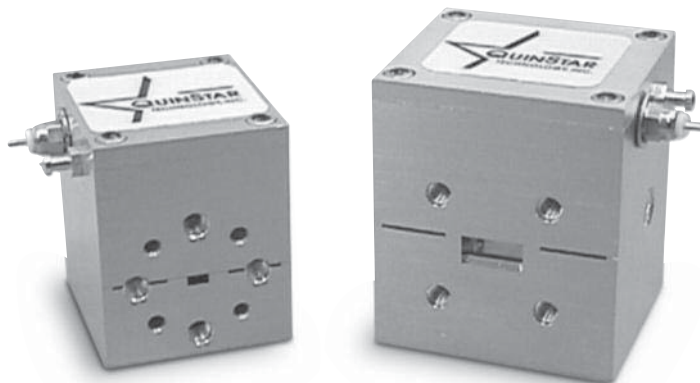


Mechanically-Tunable Gunn Oscillators

QTM

Characteristics

- ◆ High Output Power
- ◆ Excellent Frequency Stability
- ◆ Low AM and FM Noise



Product Description

QuinStar Technology's **QTM** series of **mechanically-tunable Gunn oscillators** cover the frequency range of 18 to 150 GHz in nine waveguide bands. They combine a high-Q resonant circuit with either a GaAs or InP Gunn diode. Typically, InP diodes are used for high-power applications at the higher frequencies. Each oscillator has an internal low-frequency bias circuit with an oscillation suppression network and over-voltage protection. Standard units are rated over 0 to +50° C operating temperature and incorporate a screw tuner with a reliable self-locking feature. Gunn oscillators can be provided with broader

tuning ranges, higher power levels, micrometer tuners, temperature controlled heaters, integral isolators, voltage regulators, modulators and injection-locking capability. If higher power is required, QuinStar can provide an amplified version of the oscillators using power amplifiers.

Series QTM oscillators provide a small bias tuning of operating frequency. Often, bias tuning can be used in place of varactor-tuning (series QTV). Phase-locked oscillators (Series QPL) are also available.

Specifications

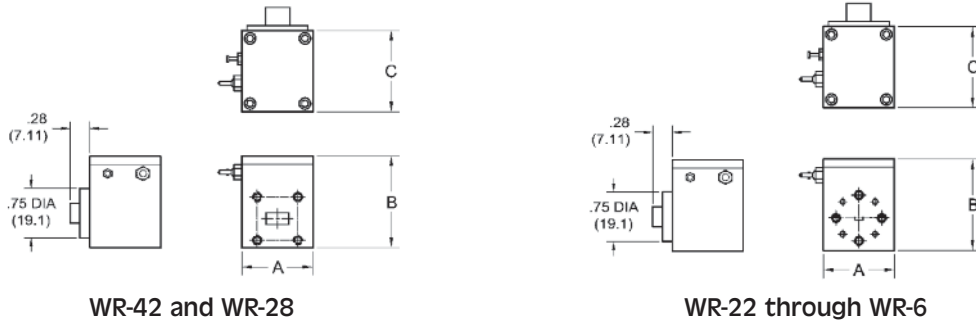
FREQUENCY BAND	K	Ka	Q	U	V	E	W	F	D	
Frequency Range (GHz)	18-26.5	26.5-40	33-50	40-60	50-75	60-90	75-110	100-140	130-150	
Waveguide Size	WR-42	WR-28	WR-22	WR-19	WR-15	WR-12	WR-10	WR-8	WR-6	
Output Power Range ¹	(mW)	10-500	10-300	10-250	10-200	10-100	10-80	10-50	1-30	1-20
	(dBm)	10-27	10-25	10-24	10-23	10-20	10-19	10-17	0-15	0-13
DC Bias Voltage Range (typ)	GaAs (volts)	5-8	5-7	5-6	5-6	3-6	3-6	3-6	--	--
	InP (volts)	--	--	6-11	6-10	6-10	8-10	8-10	8-10	8-10
DC Bias Current Range (typ)	GaAs (Amp)	0.6-2.0	0.6-2.6	0.6-2.0	0.6-2.0	0.6-1.5	0.6-1.5	0.6-1.5	--	--
	InP (Amp)	--	--	0.3	0.3	0.3	0.25	0.25	0.25	0.25
Mechanical Tuning Range (GHz) ²	0.1-4	0.1-5	0.1-5	0.1-5	0.1-5	0.1-8	0.1-10	0.1-2	0.1-2	
Frequency Stability (MHz/°C typ)	-1.5	-2.0	-2.5	-3.0	-4.0	-4.0	-5.0	-6.0	-6.0	
Power Stability (dB/°C typ)	-0.02	-0.02	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	
Operating Temperature	0 to 50°C									

Other waveguide sizes are available.

¹ Higher power outputs are available at selected frequencies. Amplified versions offered with significantly higher power output.

² Standard units have a minimum tuning range of ± 250 MHz. Broader mechanical tuning ranges are available.


Outline Drawings/Mechanical Specifications



FREQUENCY BAND	WAVEGUIDE SIZE	FLANGE PATTERN	OUTLINE DIMENSIONS, inches/mm ¹		
			A	B	C
K	WR-42	UG-595/U	1.13/28.7	1.38/35.1	1.00/25.4
Ka	WR-28	UG-599/U	1.13/28.7	1.38/35.1	1.00/25.4
Q	WR-22	UG-383/U	1.13/28.7	1.38/35.1	1.00/25.4
U	WR-19	UG-383/U	1.13/28.7	1.38/35.1	1.00/25.4
V	WR-15	UG-385/U	0.88/22.4	1.13/28.7	1.00/25.4
E	WR-12	UG-387/U	0.88/22.4	1.13/28.7	1.00/25.4
W	WR-10	UG-387/U	0.88/22.4	1.13/28.7	1.00/25.4
F	WR-8	UG-387/U	0.88/22.4	1.13/28.7	1.00/25.4
D	WR-6	UG-387/U	0.88/22.4	1.13/28.7	1.00/25.4

¹ Consult factory for exact outline dimensions if options are specified.

Ordering Information

Model Number QTM - **AB CD EF G H**  Please specify exact center frequency, tuning range and options when ordering.

center frequency (rounded to nearest GHz) ← **AB**
 (A0 = 100 GHz, A1 = 101 GHz, B0 = 110 GHz, etc.)

power output in dBm ← **CD**

tuning bandwidth (in hundreds of MHz) ← **EF**
 (05 = 500 MHz)

options ← **G H**

H = heater *
 I = isolator *
 B = heater and isolator *
 R = compact regulator (see Gunn Regulators/Modulators, QCR)
 C = heater, isolator and compact regulator *

M = micrometer tuner
 A = full feature regulator (see Gunn Regulators/Modulators, QCR)
 0 = no option
 S = special combination of preceding options (please specify)
 Z = custom

waveguide band designator

K = K-band E = E-band
 A = Ka-band W = W-band
 Q = Q-band F = F-band
 U = U-band D = D-band
 V = V-band

* Addition of heater and isolator options reduce output power.