

DESCRIPTION

The HGM and HGV series Gunn Oscillators cover the range from 26.5—110 GHz. A wide variety of designs provide the user with a solution for most applications. Units are available with mechanical and/or electrical tuning, providing many possible tuning configurations. Superior frequency and power stability are achieved using cavity design and diode selection. Heaters can be provided to achieve greater frequency stability.

GaAs and InP Gunns are used depending on the frequency and performance requirements. Cavity designs are mated with the proper Gunn diode to maximize performance.

Gunn oscillators are used as sources for mixer LO's, to drive multipliers, transmitters, and radars. Options include voltage regulators, heaters, isolators, heat sinks, and micrometer tuners.



Applications

Transmitters
Local Oscillators
Transceivers
Radar Sources

Features

Low Phase Noise
High Frequency Stability
High Output Power
Rugged Construction

Mechanically-Tuned Gunn Oscillators							
Waveguide	Center Frequency Range (GHz)	Typical Tuning Range ⁵ (MHz)	Standard Flange	Power Max (mW) (Note 5)	Frequency Stability (MHz/°C) (typ)	Bias Voltage (typ)	Bias Current Amps (typ)
WR – 28/22	26.5 – 40.0	500	UG–599/U	50	-0.9	7.0	0.4
WR – 22/19	40.0 – 45.0	500	UG–599/U	50	-0.9	5.0	0.5
WR – 22/19	45.0 – 50.0	500	UG–599/U	50	-1.0	5.0	0.4
WR – 19/15	50.0 – 55.0	1000	UG–599/U	50	-1.8	4.5	0.8
WR – 19/15	55.0 – 60.0	1000	UG–599/U	50	-2.5	4.0	0.8
WR – 15/12	60.0 – 65.0	1000	UG–385/U	50	-3.0	3.5	0.8
WR – 15/12	65.0 – 70.0	1000	UG–385/U	50	-3.2	3.5	0.8
WR – 12	70.0 – 75.0	1000	UG–387/U	40	-3.5	3.5	0.8
WR – 12/10	75.0 – 80.0	1000	UG–387/U-M	40	-4.0	4.0	0.8
WR – 12/10	80.0 – 85.0	1000	UG–387/U-M	40	-4.0	5.0	0.8
WR – 12/10	85.0 – 90.0	1000	UG–387/U-M	40	-4.5	5.0	0.7
WR – 12/10	90.0 – 95.0	1000	UG–387/U-M	40	-5.0	5.0	0.7
WR – 12/10	95.0 – 100.0	1000	UG–387/U-M	10	-6.0	4.0	0.7
WR – 12/10	100.0 – 110.0	Consult Factory	UG–387/U-M	Consult Factory			

Notes:

1. Specifications @ 35°C T_{CASE}.. Specifications subject to change without notice.
2. Bias current is dependent on output power required.
3. Typical capabilities shown, consult factory with exact requirement.
4. For higher output power, refer to specifications for InP Gunn oscillators.
5. High output power and wide tuning range are difficult to achieve in the same unit. Please contact factory to discuss your requirements.

Voltage-Tuned Gunn Oscillators								
Waveguide	Frequency Range (GHz)	Typical Tuning Range ⁵ (MHz)	Typical Output Power ⁵ (mW)	Standard Flange	Varactor Tuning (volts)	Typical Frequency Stability (MHz/°C)	Typical Bias Voltage (volts)	Typical Bias Current ² (amps)
WR – 28/22	26.5 – 40.0	500	50	UG-599/U	0 - 25	-0.9	7.0	0.4
WR – 22/19	40.0 – 45.0	500	50	UG-599/U	0 - 25	-1.3	5.0	0.5
WR – 22/19	45.0 – 50.0	300	20	UG-599/U	0 - 25	-1.3	5.0	0.4
WR – 19/15	50.0 – 55.0	1000	20	UG-599/U	0 - 25	-1.8	4.5	0.8
WR – 19/15	55.0 – 60.0	1000	40	UG-599/U	0 - 25	-2.5	4.0	0.8
WR – 15/12	60.0 – 65.0	1000	40	UG-385/U	0 - 25	-3.0	3.5	0.8
WR – 15/12	65.0 – 70.0	750	30	UG-385/U	0 - 25	-3.5	3.5	0.8
WR – 12	70.0 – 75.0	500	20	UG-387/U	0 - 25	-4.0	3.5	0.8
WR – 12/10	75.0 – 80.0	500	10	UG-387/U-M	0 - 25	-4.5	4.0	0.8
WR – 12/10	80.0 – 85.0	500	10	UG-387/U-M	0 - 25	-5.0	5.0	0.8
WR – 12/10	85.0 – 90.0	500	10	UG-387/U-M	0 - 25	-6.0	5.0	0.7
WR – 12/10	90.0 – 95.0	500	10	UG-387/U-M	0 - 25	-7.0	5.0	0.7
WR – 12/10	95.0 – 100.0	Consult Factory	Consult Factory	UG-387/U-M	0 - 25	-8.0	4.0	0.7
WR – 12/10	100.0 – 110.0	Consult Factory	Consult Factory	UG-387/U-M	Consult Factory			

Notes:

1. Specifications @ 35°C T_{CASE}. Specifications subject to change without notice.
2. Bias current is dependent on output power required.
3. Typical capabilities shown, consult factory with exact requirement.
4. For higher output power, refer to specifications for InP Gunn VCOs.
5. High output power and wide tuning range are difficult to achieve in the same unit. Please contact factory to discuss your requirements.

**Mechanically-Tuned Gunn Oscillators & Gunn VCOs
Wideband or High Power Models**

Waveguide	Center Frequency Range (GHz)	Standard Flange	Mechanical Tuning Maximum (Note 5)	Varactor Tuning Maximum (Note 5)	Power Maximum (Note 5)	Frequency Stability (MHz/°C) (typ)	Bias Voltage (typ)	Bias Current (typ)
WR – 28	30.0 – 40.0	UG–599/U	5 GHz	4 GHz	400 mW	-2.0	Consult Factory	Consult Factory
WR – 22	33.0 – 50.0	UG–599/U-M	5 GHz	4 GHz	300 mW	-2.5	Consult Factory	Consult Factory
WR – 19	40.0 – 60.0	UG–599/U-M	5 GHz	4 GHz	250 mW	-3.0	Consult Factory	Consult Factory
WR – 15	50.0 – 75.0	UG–385/U	5 GHz	4 GHz	200 mW	-4.0	Consult Factory	Consult Factory
WR – 12	60.0 – 90.0	UG–387/U	4 GHz	4 GHz	100 mW	-4.0	Consult Factory	Consult Factory
WR – 10	75.0 – 110.0	UG–387/U-M	4 GHz	4 GHz	100 mW	-5.0	Consult Factory	Consult Factory

Notes:

1. Specifications @ 35°C T_{CASE}. Specifications subject to change without notice.
2. Contact factory with your requirement.
3. Bias current is dependent on output power required.
4. Typical capabilities shown, consult factory with exact requirement.
5. Maximum power and maximum tuning are not available in the same unit. Please contact factory to discuss your requirements.
6. InP oscillator availability and specifications are subject to diode availability.



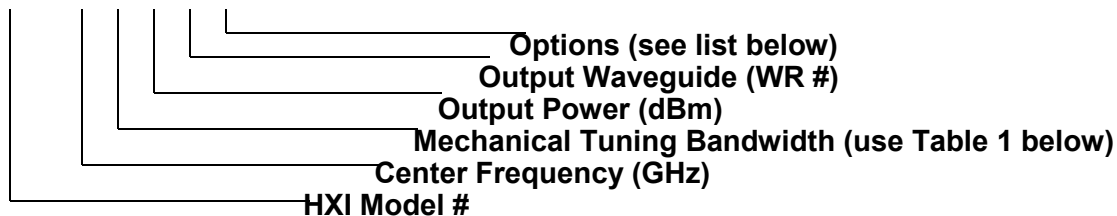
Series HGM & HGV Mechanically-Tuned Gunn Oscillators & VCOs

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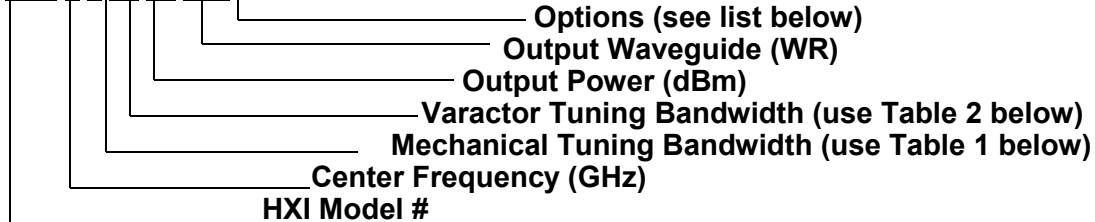
Requesting Quotes

When requesting a quote for HGM or HGV oscillators, please specify center frequency, tuning bandwidth and output power, as well as any other required specifications. The part number guide below can also be used as a reference for requesting quotes.

HGM 59.5 2 20 15 IRH



HGV 59.5 2 4 20 15 IRH



Please refer to tables on pages 2 and 3 of this datasheet for frequency tuning limitations

Table 1
Mechanical Tuning Range

0:	Fixed Frequency
1:	± 100 MHz
2:	± 250 MHz
3:	± 500 MHz
4:	± 750 MHz
5:	± 1000 MHz
6:	± 1500 MHz
7:	± 2000 MHz
8:	± 2500 MHz

Table 2
Varactor Tuning Range

1:	50 MHz
2:	100 MHz
3:	200 MHz
4:	350 MHz
5:	500 MHz
6:	750 MHz
7:	1000 MHz
8:	1500 MHz
9:	2000 MHz
A:	3000 MHz

Available Options

I = Isolator
HS = Heat Sink

R = Voltage Regulator
MT = Micrometer Frequency Tuner
/383 = UG-383 Flange Option (for WR-22 only)