

Mechanically Tuned Gunn Oscillators

18 - 140 GHz

6 (WG) M Series

V2.00

Features

- GaAs or InP
- Excellent Frequency Stability
- High Output Power
- Low AM and FM Noise
- Small and Lightweight
- Standard and Broadband Tuning
- Multi-diode Combining
- 15 or 28 Vdc Temperature Controller Available

Description

These mechanically tuned Gunn oscillators are specially designed for low AM and FM noise characteristics. They combine either GaAs or InP Gunn diodes with high Q waveguide cavities to generate RF power from 28 to 140 GHz. Standard models can be provided with temperature compensation techniques that translate to superior frequency stability necessary for local oscillators in radio communications, doppler radars and many receiver systems. Broadband models are designed to produce the highest possible power with reliable and repeatable mechanical tuning ideally suited for laboratory use or drivers for wideband high frequency multipliers. An optional micrometer-driven tuning mechanism further enhances these oscillators by allowing convenient and reliable frequency resetting.

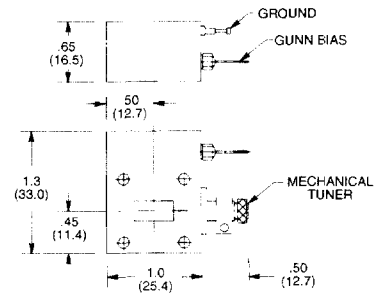
Other options include a temperature controller to improve the frequency stability of these oscillators due to changes in ambient temperature and an isolator which reduces the frequency pulling caused by changes in load VSWR.

Environmental

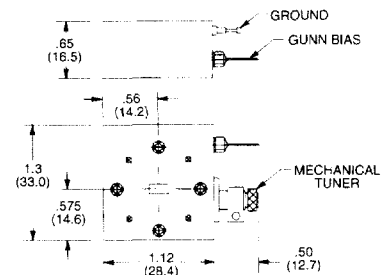
These devices are designed to meet the following conditions:

Test	MIL-STD	Method	Condition
Temperature Cycle	202	102A	-50°C to +85°C 5 cycles, 1/2 hour per cycle
Acceleration (Non-Operating)	202	212	11 G, three mutually perpendicular axes
Vibration (High Freq.)	202	204B	10 G Peak, 10-2000 Hz

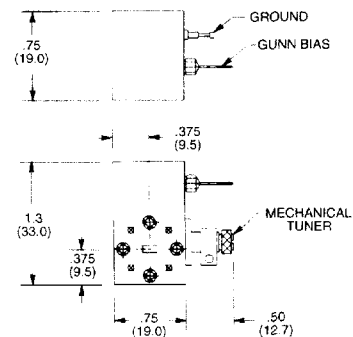
6-42M & 6-28M Series



6-22M & 6-19M Series



6-15M, 6-12M, 6-10M, 6-08M Series



Dimensions apply to standard models only.
Consult factory regarding other models.

Specifications Subject to Change Without Notice.

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North America: Tel. (800) 366-2266
Fax (800) 618-8883

Asia/Pacific: Tel. +81 (03) 3226-1671
Fax +81 (03) 3226-1451

Europe: Tel. +44 (1344) 869 595
Fax +44 (1344) 300 020

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Maximum Ratings

Storage Temp.	-50°C to +85°C
Operating Temp. ¹	-30°C to +70°C

1. Units will operate from -30°C to +70°C although specifications listed above are guaranteed only between 0°C and +50°C. Broader temperature units are available. Test data measured at a case temperature of $30 \pm 5^\circ\text{C}$ is provided with each unit.

Typical Specifications at $T_C 30^\circ\text{C}$ ^{1,3}

Frequency (GHz) ²	Output Power (mW)		Frequency Stability* (MHz/°C Max.)	Power Stability (dB/°C Max.)	dc Power (V/A Max.)	
	Standard	Broadband			GaAs	InP
18-26.5	250	150	1.0	0.03	8/1.5	N/A
26.5-40	300	150	1.0	0.03	8/1.5	13/0.3
33-50	250	125	2.0	0.03	7/1.5	13/0.3
40-60	200	100	2.0	0.03	7/1.5	12/0.3
50-60	200	100	3.5	0.03	6/1.5	11/0.4
60-75	100	70	3.5	0.03	6/1.5	11/0.4
60-75	100	70	4.0	0.03	6/1.4	11/0.4
75-90	70	40	4.0	0.03	6/1.4	11/0.4
75-95	70	40	5.0	0.03	6/1.4	11/0.4
95-110	50	20	5.0	0.03	6/1.4	11/0.4

Typ. Tuning Range Options

Standard	Broadband
Fixed Frequency	± 500 MHz
± 100 MHz	± 750 MHz
± 250 MHz	± 1000 MHz
	± 1500 MHz
	± 2000 MHz

Typ. Output Power Options

10mW	100mW
20mW	125mW
30mW	150mW
40mW	200mW
50mW	250mW
70mW	300mW

Typ. Other Options

Integrated Ferrite Isolator⁶
 Temperature Controller⁷
 (15 or 28 Vdc)
 Micrometer Tuner

Mechanical Specifications

Waveguide	WR-42	WR-28	WR-22	WR-19	WR-15	WR-12	WR-10	WR-08
RF Mating Flange ⁴	54-001-M	68-001	67B-006	67B-007	67B-008	67B-009	67B-010	67B-010 MOD
MIL-F-3922/ ⁵		68-002						
UG Reference	595/U	599/U	383/U	383/U-M	385/U	387/U	387/U-M	387/U-M
dc Connector	Feed Thru							
Cooling	Conduction ⁵							

Notes:

- This table lists the maximum power available in the frequency ranges specified. For a specific combination of tuning range and output power, consult the factory.
- All oscillators are supplied with a center frequency tolerance of ± 50 MHz unless otherwise stated.
- Units will operate from -30°C to +70°C although specifications listed above are guaranteed only between 0°C and +50°C. Broader temperature units are available. Test data measured at a case temperature of $30 \pm 5^\circ\text{C}$ is provided with each unit.
- Other waveguide flange patterns and custom designs are available.
- Heat sink can be provided. Consult factory.
- When ordered with ferrite isolator, the output power will be reduced by the isolator loss.
- When temperature controller is ordered, the units are stabilized at $55 \pm 2^\circ\text{C}$ and the output power is reduced by approximately 1.0 dB.
- Frequency stability is improved typically by a factor of 2 with temperature compensated units.

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