

## Discrete Frequency: Cathode Heatsink

### *Features*

- CW Designs to 500 mW
- Pulsed Designs to 10 W
- Frequency Coverage Specified from 5.9–95 GHz
- Low Phase Noise
- High Reliability

### *Applications*

- Motion Detectors
- Transmitters and Receivers
- Beacons
- Automotive Collision Avoidance Radars
- Radars
- Radiometers
- Instrumentation



### *Description*

Microsemi's GaAs Gunn diodes, epi-down (cathode heatsink), are fabricated from epitaxial layers grown at MSC by the Vapor Phase Epitaxy technique. The layers are processed using proprietary techniques resulting in low phase and 1/f noise. MDT Gunn diodes are available in a variety of microwave ceramic packages are available for operation from 5–110 GHz.

(Discrete Frequency: Cathode Heatsink)

*C Band Gunn Diodes (Specifications @ 25°C)*

Part Number	Operating Frequency <sup>1</sup> (GHz)	Min. Power <sup>2</sup> (mW)	Typ. Operating Voltage (V)	Operating Current		Package Outline <sup>3</sup>
				Min. (mA)	Max. (mA)	
MG1001-11	5.9–8.2	50	12	200	400	M11
MG1002-11	5.9–8.2	100	12	300	600	M11
MG1003-15	5.9–8.2	250	12	600	1100	M15
MG1004-15	5.9–8.2	500	12	900	1300	M15

*X Band Gunn Diodes (Specifications @ 25°C)*

Part Number	Operating Frequency <sup>1</sup> (GHz)	Min. Power <sup>2</sup> (mW)	Typ. Operating Voltage (V)	Operating Current		Package Outline <sup>3</sup>
				Min. (mA)	Max. (mA)	
MG1005-11	8.2–12.0	50	10	200	400	M11
MG1006-11	8.2–12.0	100	10	400	700	M11
MG1007-15	8.2–12.0	250	10	700	1200	M15
MG1008-15	8.2–12.0	500	10	1000	1600	M15

*Ku Band Gunn Diodes (Specifications @ 25°C)*

Part Number	Operating Frequency <sup>1</sup> (GHz)	Min. Power <sup>2</sup> (mW)	Typ. Operating Voltage (V)	Operating Current		Package Outline <sup>3</sup>
				Min. (mA)	Max. (mA)	
MG1009-11	12.4–18.0	50	8	300	500	M11
MG1010-11	12.4–18.0	100	8	400	800	M11
MG1011-15	12.4–18.0	250	8	800	1200	M15
MG1012-15	12.4–18.0	500	8	1100	1700	M15

*K Band Gunn Diodes (Specifications @ 25°C)*

Part Number	Operating Frequency <sup>1</sup> (GHz)	Min. Power <sup>2</sup> (mW)	Typ. Operating Voltage (V)	Operating Current		Package Outline <sup>3</sup>
				Min. (mA)	Max. (mA)	
MG1013-16	18.0–26.5	50	6	400	600	M16
MG1014-16	18.0–26.5	100	6	500	1000	M16
MG1015-16	18.0–26.5	200	6	800	1400	M16
MG1016-17	18.0–23.0	400	6	900	1700	M17

<sup>1</sup>Microsemi Gunn diodes are specified to operate within a narrow range of a customer-designated center frequency within the operating frequency range shown. Additional frequencies are available; Please contact the factory.

<sup>2</sup>Power is measured using a critically coupled test cavity. For pulsed diodes, pulse width = 1  $\mu$ S, duty factor = 1% typ.

<sup>3</sup> Polarity: anode is the cap and cathode is the heatsink.

**Gunn Diodes (Discrete Frequency: Cathode Heatsink)**
***Ka Band Gunn Diodes (Specifications @ 25°C)***

Part Number	Operating Frequency <sup>1</sup> (GHz)	Min. Power <sup>2</sup> (mW)	Typ. Operating Voltage (V)	Operating Current		Package Outline <sup>3</sup>
				Min. (mA)	Max. (mA)	
MG1017-16	26.5–40.0	50	4.5	300	700	M16
MG1018-16	26.5–40.0	100	4.5	600	1100	M16
MG1019-16	26.5–40.0	200	5.0	800	1400	M16
MG1020-16	26.5–40.0	250	5.5	800	1600	M16
MG1039-16	26.5–35.0	300	5.5	1000	1700	M16
MG1040-16	26.5–35.0	350	5.5	1000	1800	M16

***U Band Gunn Diodes (Specifications @ 25°C)***

Part Number	Operating Frequency <sup>1</sup> (GHz)	Min. Power <sup>2</sup> (mW)	Typ. Operating Voltage (V)	Operating Current		Package Outline <sup>3</sup>
				Min. (mA)	Max. (mA)	
MG1021-16	40.0–60.0	50	4	400	800	M16
MG1022-16	40.0–60.0	100	4	700	1200	M16
MG1023-16	40.0–50.0	150	4	800	1600	M16

***V and W Band Gunn Diodes (Specifications @ 25°C)***

Part Number	Operating Frequency <sup>1</sup> (GHz)	Min. Power <sup>2</sup> (mW)	Typ. Operating Voltage (V)	Operating Current		Package Outline <sup>3</sup>
				Min. (mA)	Max. (mA)	
MG1036-16	60.5–85.0	10	4.5	400	900	M16
MG1037-16	60.5–85.0	50	5	500	1100	M16
MG1024-16	85–95	10	4.5	450	1100	M16
MG1025-16	85–95	20	4.5	500	1000	M16
MG1038-16	85–95	50	5	450	1200	M16

***High Power Pulsed Gunn Diodes (Specifications @ 25°C)***

Part Number	Operating Frequency <sup>1</sup> (GHz)	Min. Power <sup>2</sup> (mW)	Typ. Operating Voltage (V)	Typ. Operating Current (Amps.)	Package Outline <sup>3</sup>
MG1034-15	9.3	5	35	8	M15

***Stacked Pulsed Gunn Diodes (Specifications @ 25°C)***

Part Number	Operating Frequency <sup>1</sup> (GHz)	Min. Power <sup>2</sup> (Watts)	Typ. Operating Voltage (V)	Typ. Operating Current (Amps)	Number of Stacks	Package Outline <sup>3</sup>
MG1060-15	9.3	10	70	6	2	M15

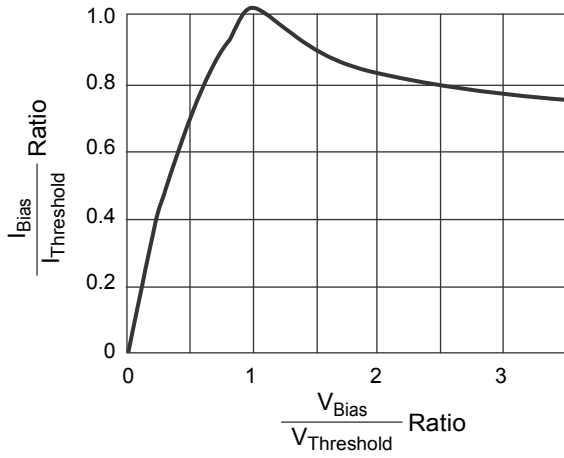
<sup>1</sup> Microsemi Gunn diodes are specified to operate within a narrow range of a customer-designated center frequency within the operating frequency range shown. Additional frequencies are available; Please contact the factory.

<sup>2</sup> Power is measured using a critically coupled test cavity. For pulsed diodes, pulse width = 1 μs, duty factor = 1% typ.

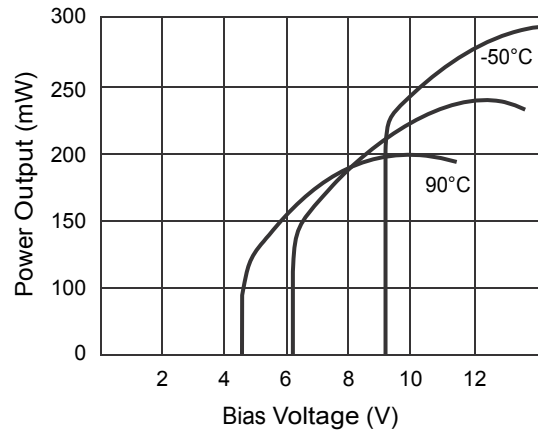
<sup>3</sup> Polarity: anode is the cap and cathode is the heatsink.

Gunn Diodes (Discrete Frequency: Cathode Heatsink)

*Typical Characteristics*



**$I_{Bias}$  Ratio vs.  $V_{Bias}$  Ratio**



**Power Output vs. Bias Voltage**

**IMPORTANT:** For the most current data, consult our website: [www.MICROSEMI.com](http://www.MICROSEMI.com)  
 Specifications are subject to change. Consult factory for the latest information.



These devices are ESD sensitive and must be handled using ESD precautions.

These products are supplied with a RoHS complaint Gold finish.