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 using the chemical vapor deposition (CVD) epitaxy process. The layers are processed using proprietary techniques resulting in low phase and 1/f noise. Our Gunn diodes are available in a variety of microwave ceramic packages are available for operation from 5.9–95 GHz.

IMPORTANT: For the most current data, consult our website: ***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.

Microsemi
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75 Technology Drive, Lowell, MA. 01851, 978-442-5600, Fax: 978-937-3748

(Discrete Frequency: Cathode Heatsink)

C Band Gunn Diodes (Specifications @ 25°C)

Part Number	Operating Frequency[1] (GHz)	Min. Power[2] (mW)	Typ. Operating Voltage (V)	Operating Current		Package Outline[3]
				Min. (mA)	Max. (mA)	
MG1001-M11	5.9–8.2	50	12	200	400	M11
MG1002-M11	5.9–8.2	100	12	300	600	M11
MG1003-42	5.9–8.2	250	12	600	1100	42
MG1004-42	5.9–8.2	500	12	900	1300	42

X Band Gunn Diodes (Specifications @ 25°C)

Part Number	Operating Frequency[1] (GHz)	Min. Power[2] (mW)	Typ. Operating Voltage (V)	Operating Current		Package Outline[3]
				Min. (mA)	Max. (mA)	
MG1005-M11	8.2–12.0	50	10	200	400	M11
MG1006-M11	8.2–12.0	100	10	400	700	M11
MG1007-42	8.2–12.0	250	10	700	1200	42
MG1008-42	8.2–12.0	500	10	1000	1600	42

Ku Band Gunn Diodes (Specifications @ 25°C)

Part Number	Operating Frequency[1] (GHz)	Min. Power[2] (mW)	Typ. Operating Voltage (V)	Operating Current		Package Outline[3]
				Min. (mA)	Max. (mA)	
MG1009-M11	12.4–18.0	50	8	300	500	M11
MG1010-M11	12.4–18.0	100	8	400	800	M11
MG1011-42	12.4–18.0	250	8	800	1200	42
MG1012-42	12.4–18.0	500	8	1100	1700	42

K Band Gunn Diodes (Specifications @ 25°C)

Part Number	Operating Frequency[1] (GHz)	Min. Power[2] (mW)	Typ. Operating Voltage (V)	Operating Current		Package Outline[3]
				Min. (mA)	Max. (mA)	
MG1013-M16 or -83B	18.0–26.5	50	6	400	600	M16 or 83B
MG1014-M16 or -83B	18.0–26.5	100	6	500	1000	M16 or 83B
MG1015-M16 or -83B	18.0–26.5	200	6	800	1400	M16 or 83B
MG1016-83B	18.0–23.0	400	6	900	1700	83B

[1] 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.
[2] Power is measured using a critically coupled test cavity. For pulsed diodes, pulse width = 1 µS, duty factor = 1% typ.
[3] Polarity: anode is the cap and cathode is the heatsink.

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Gunn Diodes (Discrete Frequency: Cathode Heatsink)

Ka Band Gunn Diodes (Specifications @ 25°C)

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

U Band Gunn Diodes (Specifications @ 25°C)

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

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

Part Number	Operating Frequency[1] (GHz)	Min. Power[2] (mW)	Typ. Operating Voltage (V)	Operating Current		Package Outline[3]
				Min. (mA)	Max. (mA)	
MG1036-M16	60.5–85.0	10	4.5	400	900	M16
MG1037-M16	60.5–85.0	50	5	500	1100	M16
MG1024-M16	85–95	10	4.5	450	1100	M16
MG1025-M16	85–95	20	4.5	500	1000	M16
MG1038-M16	85–95	30	5	450	1200	M16

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

Part Number	Operating Frequency[1] (GHz)	Min. Power[2] (mW)	Typ. Operating Voltage (V)	Typ. Operating Current (Amps.)	Package Outline[3]
MG1034-42	9.3	5	35	8	42

Stacked Pulsed Gunn Diodes (Specifications @ 25°C)

Part Number	Operating Frequency[1] (GHz)	Min. Power[2] (Watts)	Typ. Operating Voltage (V)	Typ. Operating Current (Amps)	Number of Stacks	Package Outline[3]
MG1060-42	9.3	10	70	6	2	42

[1] 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.
[2] Power is measured using a critically coupled test cavity. For pulsed diodes, pulse width = 1 µS, duty factor = 1% typ.
[3] Polarity: anode is the cap and cathode is the heatsink.

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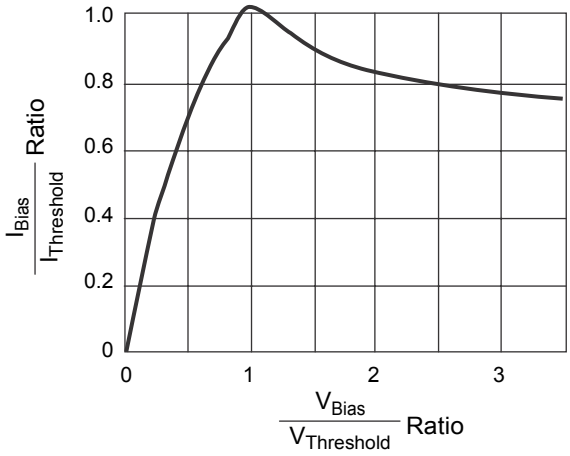
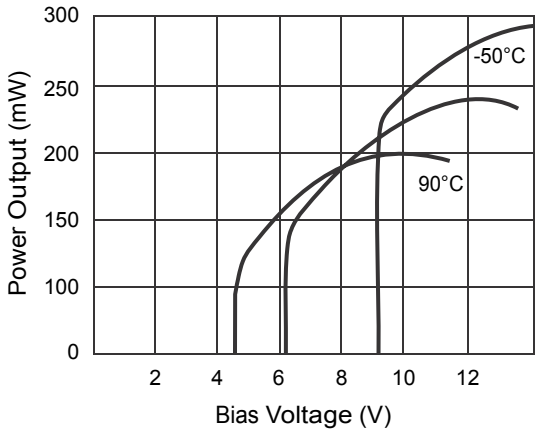
Gunn Diodes (Discrete Frequency: Cathode Heatsink)

Typical Characteristics



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



Power Output vs. Bias Voltage

STANDARD GUNN DIODE PACKAGE STYLES	
PACKAGE STYLE M11(EPI DOWN)	PACKAGE STYLE M16
	
PACKAGE STYLE 42	PACKAGE STYLE 83B
	
OTHER PACKAGE STYLES AVAILABLE – CONSULT FACTORY	