

### Features

- High Output Powers — Over 5 W at 35 GHz
- High Efficiency
- 2 and 3 Stack Options
- High Cut-Off Frequency
- Low Thermal Resistance

### Applications

- Frequency Multipliers to Beyond 110 GHz
- High-Power mmW Transceivers
- mmW Phase Arrays
- Drivers for mm Power Amplifiers

### ISIS Diode Schematic (2 Stack)

ohmic metal
P+ Layer
N Layer
N+ Layer
P+ Layer
N Layer
N+ Layer
Substrate
ohmic metal

### Specifications @ 25°C

2 Stack ISIS Diodes —  
Breakdown Voltage: 55 V Min.

Part Number	Junction Capacitance @ Zero Bias (pF)	Min. 6 V Cut-Off Frequency (GHz)	Typ. Package Capacitance (pF)
MIV41001-21	0.1–0.3	1000	0.15
MIV41002-21	0.3–0.5	700	0.15
MIV41003-21	0.5–1.0	600	0.15
MIV41001-29	0.1–0.3	1000	0.10
MIV41002-29	0.3–0.5	700	0.10
MIV41003-29	0.5–1.0	600	0.10



### Description

Microsemi's ISIS frequency multiplier varactors are fabricated by epitaxially stacking the P-N junctions in GaAs to obtain high power at millimeter wave frequencies. The MIV series of ISIS multiplier diodes has been designed to have the high cut-off frequency to produce very low conversion loss when used in appropriately designed circuits. MSC offers 2 and 3 stacked devices to produce high CW power from 40–110 GHz. CW power up to 3 W at 44 GHz (conversion loss <3 dB) and 1 W in W band (conversion loss <9 dB) are realizable with single devices. ISIS diodes are offered in the low parasitic (<10 fF), low thermal resistance M29 package and in other packages.

3 Stack ISIS Diodes —  
Breakdown Voltage: 75 V Min.

Part Number	Junction Capacitance @ Zero Bias (pF)	Min. 6 V Cut-Off Frequency (GHz)	Typ. Package Capacitance (pF)
MIV41011-21	0.1–0.3	1000	0.15
MIV41012-21	0.3–0.5	700	0.15
MIV41013-21	0.5–1.0	600	0.15
MIV41011-29	0.1–0.3	1000	0.10
MIV41012-29	0.3–0.5	700	0.10
MIV41013-29	0.5–1.0	600	0.10

**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 compliant Gold finish.  
Other package styles are available on request.