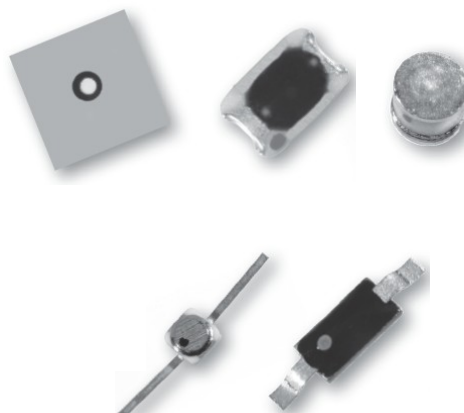


## GaAs Hyperabrupt Varactor Diodes 1.25 Constant Gamma

Rev. V1

### Features

- 0 to 22 V Tuning Voltage
- Tuning Ratios up to 10
- Screening Available per:  
MIL-PRF-19500 and MIL-PRF-35834
- RoHS\* Compliant
- Also Available in 0.75 and 1.0 Constant Gamma  
Families: MGV075-x and MGV100-x



### Description

The MGV series of hyperabrupt varactor diodes feature passivated mesa construction for low leakage and excellent post tuning drift. Available in three constant gamma families of 0.75, 1.0 and 1.25.

These diodes will find application in tunable filters and oscillators up to 40 GHz. Optimum performance is obtained using die however packaged devices are available as well screened per MIL-PRF-19500 and MIL-PRF-38534.

### Chip (C01A)

**Electrical Specifications:**  $T_A = +25^\circ\text{C}$ ,  $V_B = 22\text{ V min.}$ ,  $I_R = 100\text{ nA max.}$

| Model     | Total Capacitance (pF)            |      |      | Tuning Ratio            |      |                         | Q                                  |
|-----------|-----------------------------------|------|------|-------------------------|------|-------------------------|------------------------------------|
|           | $V_R = 4\text{ V, } 1\text{ MHz}$ |      |      | $V_R = 2\text{ to } 12$ |      | $V_R = 2\text{ to } 20$ | $V_R = 4\text{ V, } 50\text{ MHz}$ |
|           | Min.                              | Nom. | Max. | Min.                    | Typ. | Typ.                    | Min.                               |
| MGV125-08 | 0.25                              | 0.30 | 0.35 | 4.0                     | 5.0  | 10                      | 4,000                              |
| MGV125-09 | 0.35                              | 0.40 | 0.45 | 4.0                     | 5.0  | 10                      | 4,000                              |
| MGV125-20 | 0.45                              | 0.50 | 0.55 | 4.0                     | 5.0  | 10                      | 4,000                              |
| MGV125-21 | 0.63                              | 0.70 | 0.77 | 4.0                     | 5.0  | 10                      | 4,000                              |
| MGV125-22 | 0.90                              | 1.00 | 1.10 | 4.0                     | 5.0  | 10                      | 3,000                              |
| MGV125-23 | 1.08                              | 1.20 | 1.32 | 4.0                     | 5.0  | 10                      | 3,000                              |
| MGV125-24 | 1.35                              | 1.50 | 1.65 | 4.0                     | 5.0  | 10                      | 3,000                              |
| MGV125-25 | 1.63                              | 1.70 | 1.87 | 4.0                     | 5.0  | 10                      | 3,000                              |
| MGV125-26 | 1.80                              | 2.00 | 2.20 | 4.0                     | 5.0  | 10                      | 3,000                              |

\* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

## GaAs Hyperabrupt Varactor Diodes 1.25 Constant Gamma

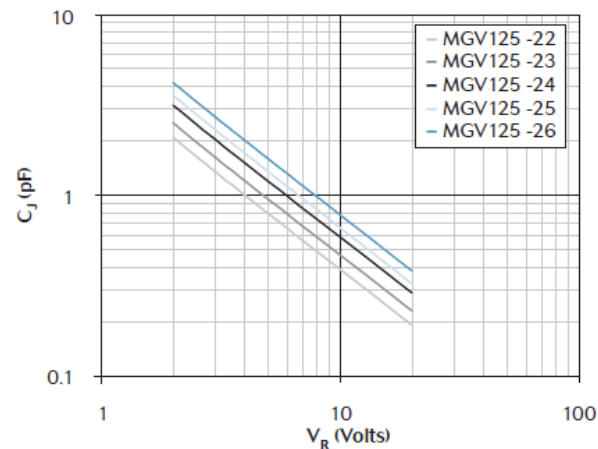
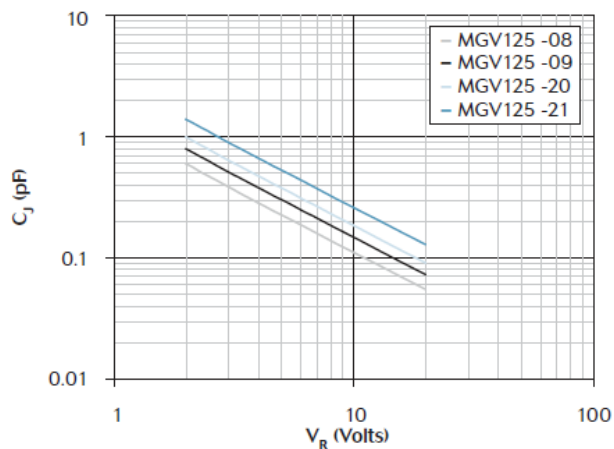
Rev. V1

**Packaged (E28, 28X, H20, P55, 0805-2)**

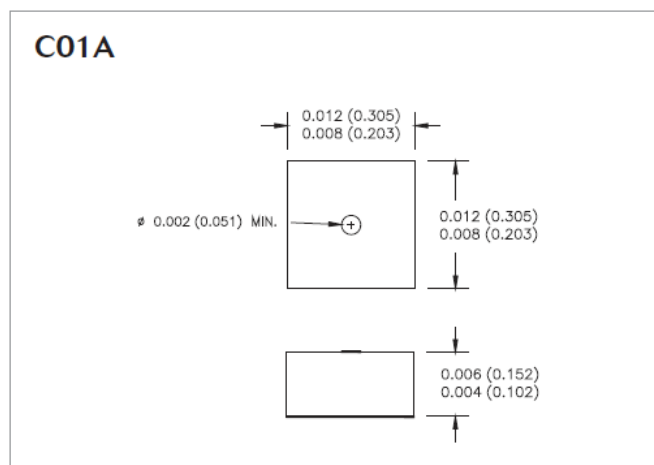
**Electrical Specifications:  $T_A = +25^\circ\text{C}$ ,  $V_B = 22\text{ V min.}$ ,  $I_R = 100\text{ nA max.}$**

| Model                | Total Capacitance (pF)            |      |      | Tuning Ratio            |      |                         | Q                                  |
|----------------------|-----------------------------------|------|------|-------------------------|------|-------------------------|------------------------------------|
|                      | $V_R = 4\text{ V, } 1\text{ MHz}$ |      |      | $V_R = 2\text{ to } 12$ |      | $V_R = 2\text{ to } 20$ | $V_R = 4\text{ V, } 50\text{ MHz}$ |
|                      | Min.                              | Nom. | Max. | Min.                    | Typ. | Typ.                    | Min.                               |
| MGV125-08-E28 / 28 X | 0.32                              | 0.38 | 0.44 | 2.5                     | 3.9  | 6.5                     | 4,000                              |
| MGV125-08H20         | 0.41                              | 0.48 | 0.56 | 0.7                     | 2.4  | 4.1                     | 4,000                              |
| MGV125-08-P55        | 0.36                              | 0.43 | 0.50 | 1.6                     | 3.1  | 5.3                     | 4,000                              |
| MGV125-08-0805-2     | 0.30                              | 0.36 | 0.42 | 2.9                     | 4.1  | 7.0                     | 4,000                              |
| MGV125-09-E28 / 28 X | 0.42                              | 0.48 | 0.54 | 2.9                     | 4.1  | 7.0                     | 4,000                              |
| MGV125-09-H20        | 0.51                              | 0.58 | 0.66 | 1.6                     | 3.0  | 5.1                     | 4,000                              |
| MGV125-09-P55        | 0.46                              | 0.53 | 0.60 | 2.3                     | 3.6  | 6.0                     | 4,000                              |
| MGV125-09-0805-2     | 0.40                              | 0.46 | 0.52 | 3.2                     | 4.3  | 7.4                     | 4,000                              |
| MGV125-20-E28 / 28 X | 0.52                              | 0.58 | 0.64 | 3.2                     | 4.3  | 7.3                     | 4,000                              |
| MGV125-20-H20        | 0.61                              | 0.68 | 0.76 | 2.2                     | 3.4  | 5.8                     | 4,000                              |
| MGV125-20-P55        | 0.56                              | 0.63 | 0.70 | 2.7                     | 3.8  | 6.6                     | 4,000                              |
| MGV125-20-0805-2     | 0.50                              | 0.56 | 0.62 | 3.4                     | 4.5  | 7.7                     | 4,000                              |
| MGV125-21-E28 / 28 X | 0.70                              | 0.78 | 0.86 | 3.4                     | 4.5  | 7.9                     | 4,000                              |
| MGV125-21-H20        | 0.79                              | 0.88 | 0.98 | 2.7                     | 3.8  | 6.7                     | 4,000                              |
| MGV125-21-P55        | 0.74                              | 0.83 | 0.92 | 3.1                     | 4.2  | 7.3                     | 4,000                              |
| MGV125-21-0805-2     | 0.68                              | 0.76 | 0.84 | 3.6                     | 4.6  | 8.1                     | 4,000                              |
| MGV125-22-E28 / 28 X | 0.97                              | 1.08 | 1.19 | 3.6                     | 4.6  | 8.3                     | 3,000                              |
| MGV125-22-H20        | 1.06                              | 1.18 | 1.31 | 3.1                     | 4.2  | 7.5                     | 3,000                              |
| MGV125-22-P55        | 1.01                              | 1.13 | 1.25 | 3.3                     | 4.4  | 7.9                     | 3,000                              |
| MGV125-22-0805-2     | 0.95                              | 1.06 | 1.17 | 3.7                     | 4.7  | 8.5                     | 3,000                              |
| MGV125-23-E28 / 28 X | 1.15                              | 1.28 | 1.41 | 3.7                     | 4.7  | 8.9                     | 3,000                              |
| MGV125-23-H20        | 1.24                              | 1.38 | 1.53 | 3.2                     | 4.3  | 8.2                     | 3,000                              |
| MGV125-23-P55        | 1.19                              | 1.33 | 1.47 | 3.4                     | 4.5  | 8.6                     | 3,000                              |
| MGV125-23-0805-2     | 1.13                              | 1.26 | 1.39 | 3.7                     | 4.8  | 9.1                     | 3,000                              |
| MGV125-24-E28 / 28 X | 1.42                              | 1.58 | 1.74 | 3.7                     | 4.8  | 9.5                     | 3,000                              |
| MGV125-24-H20        | 1.51                              | 1.68 | 1.86 | 3.4                     | 4.5  | 8.9                     | 3,000                              |
| MGV125-24-P55        | 1.46                              | 1.63 | 1.80 | 3.6                     | 4.6  | 9.2                     | 3,000                              |
| MGV125-24-0805-2     | 1.40                              | 1.56 | 1.72 | 3.8                     | 4.8  | 9.6                     | 3,000                              |
| MGV125-25-E28 / 28 X | 1.70                              | 1.78 | 1.96 | 3.8                     | 4.8  | 9.6                     | 3,000                              |
| MGV125-25-H20        | 1.79                              | 1.88 | 2.08 | 3.5                     | 4.5  | 9.0                     | 3,000                              |
| MGV125-25-P55        | 1.74                              | 1.83 | 2.02 | 3.6                     | 4.7  | 9.3                     | 3,000                              |
| MGV125-25-0805-2     | 1.68                              | 1.76 | 1.94 | 3.8                     | 4.8  | 9.7                     | 3,000                              |
| MGV125-26-E28 / 28 X | 1.87                              | 2.08 | 2.29 | 3.8                     | 4.8  | 9.6                     | 3,000                              |
| MGV125-26-H20        | 1.96                              | 2.18 | 2.41 | 3.5                     | 4.6  | 9.2                     | 3,000                              |
| MGV125-26-P55        | 1.91                              | 2.13 | 2.35 | 3.7                     | 4.7  | 9.4                     | 3,000                              |
| MGV125-26-0805-2     | 1.85                              | 2.06 | 2.27 | 3.8                     | 4.9  | 9.7                     | 3,000                              |

### Typical Performance, Chips



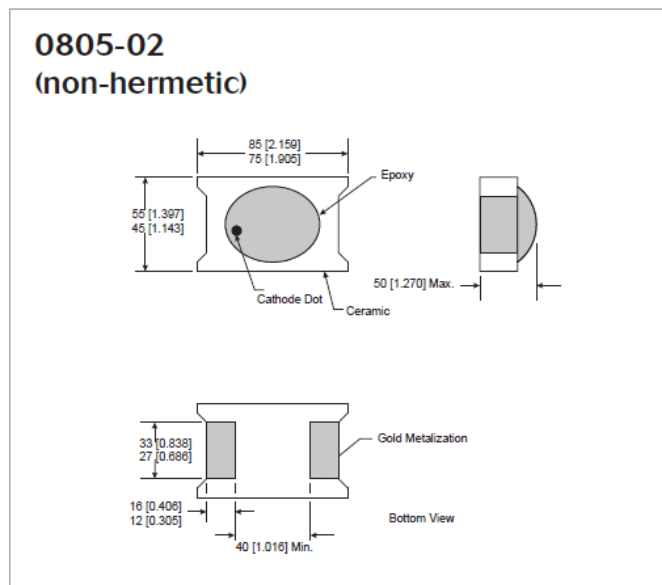
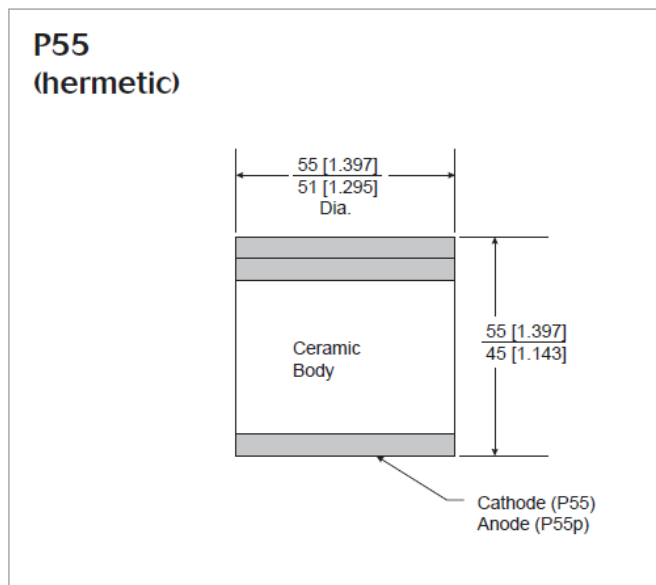
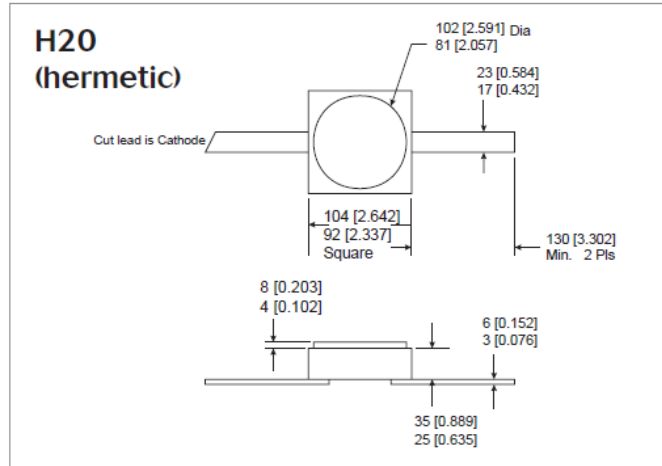
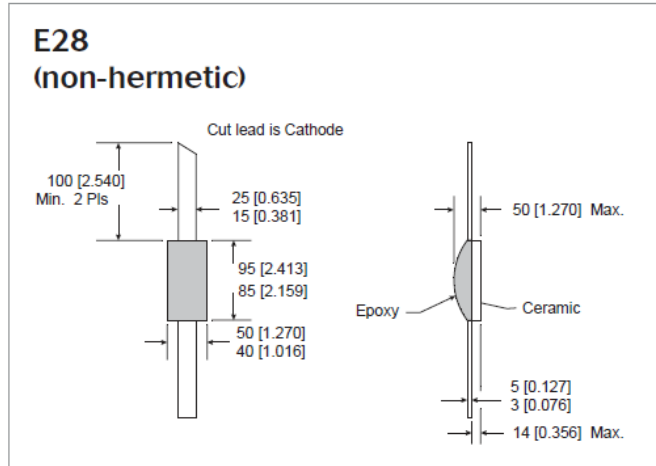
### Chip Outline Drawings



## GaAs Hyperabrupt Varactor Diodes 1.25 Constant Gamma

Rev. V1

### Packaged Outline Drawings



| Package Style | Capacitance @ 1 GHz | Inductance @ 1 GHz |
|---------------|---------------------|--------------------|
| E28 / 28X     | 0.08                | 0.40               |
| H20           | 0.18                | 0.50               |
| P55           | 0.13                | 0.35               |
| 0805-2        | 0.06                | 0.40               |

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