

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
	$V_R = 4\text{ V, 1 MHz}$			$V_R = 2\text{ to }12$	$V_R = 2\text{ to }20$	$V_R = 4\text{ V, 50 MHz}$	
	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.

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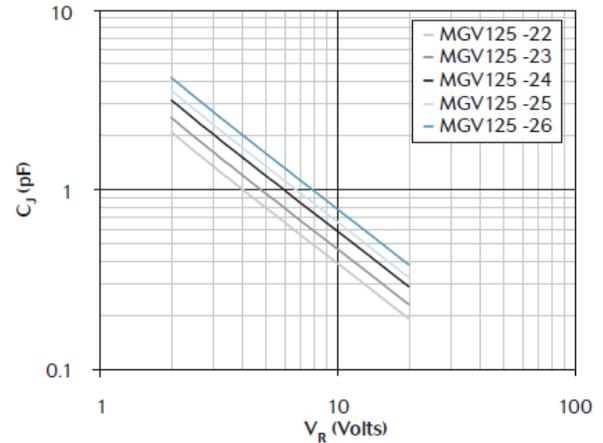
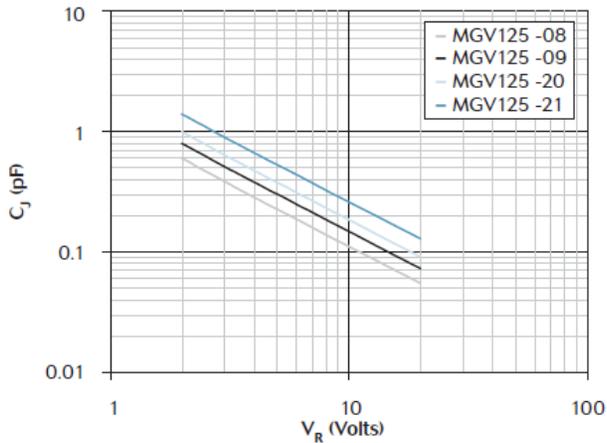
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Packaged (E28, 28X, H20, P55, 0805-2)

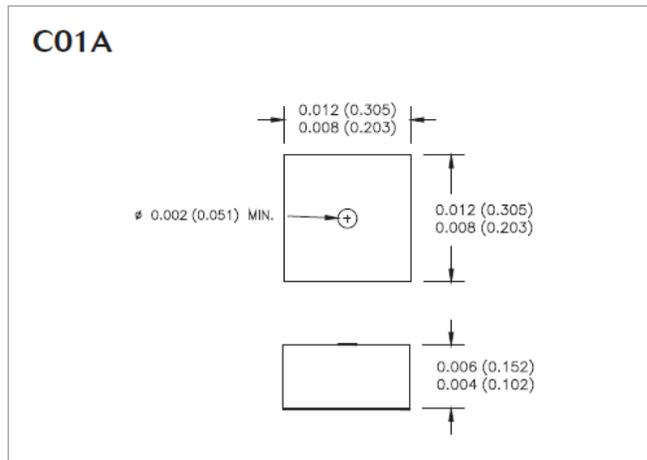
Electrical Specifications: $T_A = +25^\circ\text{C}$, $V_B = 22\text{ V min.}$, $I_R = 100\text{ nA max.}$

Model	Total Capacitance (pF)			Tuning Ratio			Q
	$V_R = 4\text{ V, 1 MHz}$			$V_R = 2\text{ to }12$		$V_R = 2\text{ to }20$	$V_R = 4\text{ V, 50 MHz}$
	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

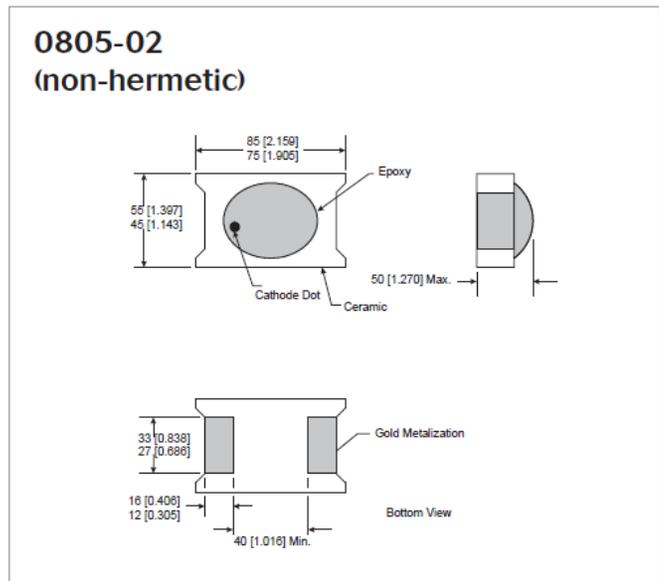
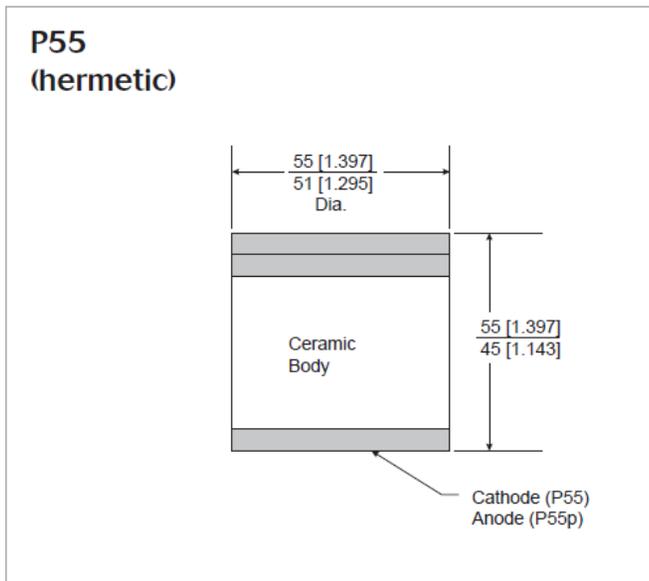
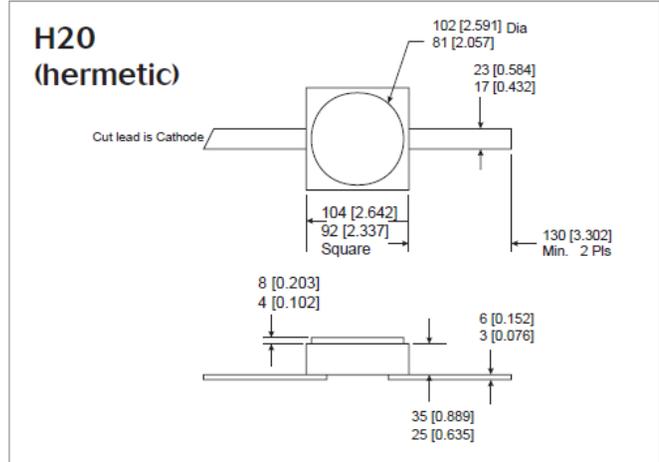
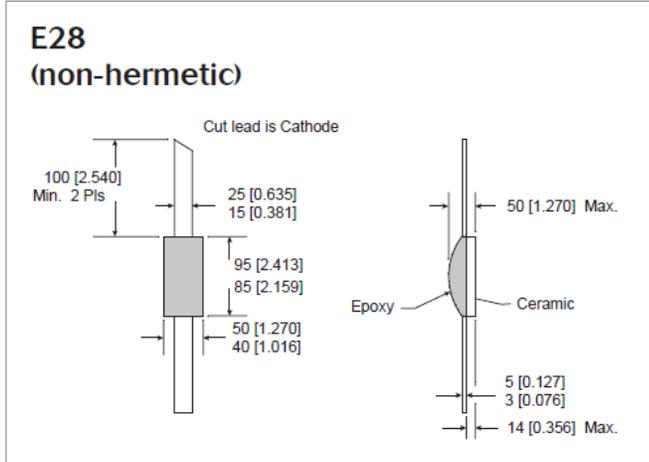
Typical Performance, Chips



Chip Outline Drawings



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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