

Solderable 0201 Flip-Chip Hyperabrupt GaAs Varactor

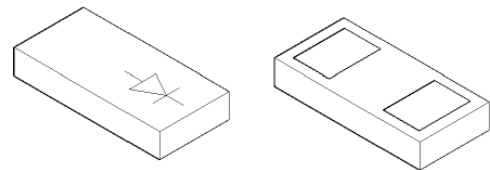
Product Overview

MV3903-P2010 is a Surface Mount, Flip Chip GaAs Varactor, designed for use as tuning elements in VCOs, modulators, tunable filters and Antenna tuning at microwave and millimeter wave frequencies. The MV3903-P2010 Varactor incorporates our expertise in GaAs material processing, silicon nitride protective coating and high temperature metallization. This Varactor diode maintains the high frequency performance of a beam lead structure in a more rugged SMT configuration.

Key Features

- Very High Q GaAs Material
- 1.0 Constant Gamma Varactors
- Wide Tuning Range
- Very Low Parasitic Capacitance (0.03 pF)
- Surface Mount Device
- Large (7.5 x 8.5 mils) Solderable (Au/Ti) Bond Pads
- Silicon Nitride Protective Coating
- Suitable for pick and place

Functional Block Diagram



Applications

- Military and space
- Telecom infrastructure
- Wideband microwave radios
- Microwave and millimeter-wave communication systems

Performance Overview

Parameter	Units	Typ.	Conditions
Total Capacitance (CT)	pF	0.25	0V, 1 MHz
		0.075	4V, 1 MHz
		0.03	17V, 1 MHz
Capacitance Ration (CT0/CT17)		8.3	
Rs	Ohms	1.5	If = 30mA
Q		30000.0	4V, 50 MHz
Vb	V	30.0	Ir = 10 uA
Gamma		0.88	2V to 20V

Export Classification: EAR99

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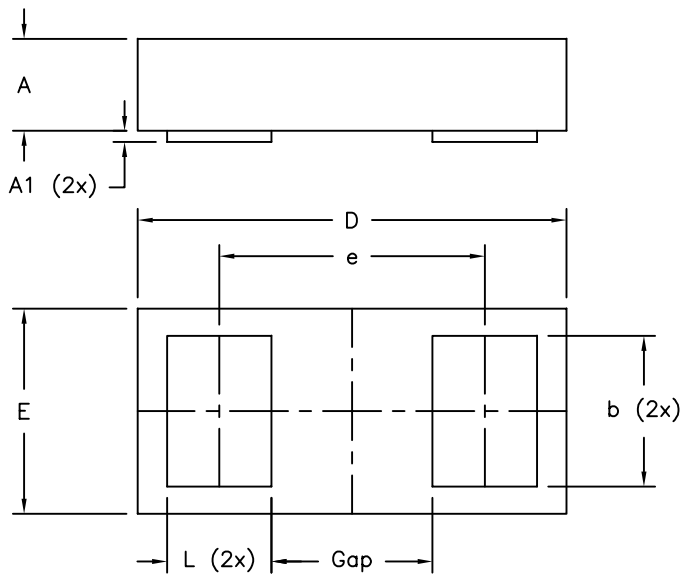
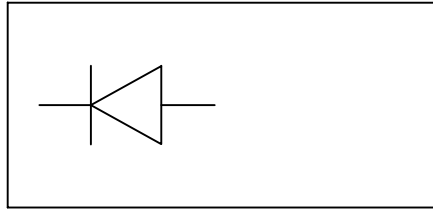
1. Electrical Specifications

Temp = 25 °C (Unless specified otherwise)

Test Vb, Ir, CT, and Vf 100% on process control monitor (PCN)

Parameter	Units	Min.	Typ.	Max.	Conditions
Total Capacitance (CT)	pF	0.235	0.25	0.265	0V, 1 MHz
		0.05	0.075	0.15	4V, 1 MHz
		0.025	0.03	0.035	17V, 1 MHz
Capacitance Ration (CT0/CT17)		7.0	8.3	9.5	
Rs	Ohms	1.0	1.5	2.0	If = 30mA
Q		3000.0	30000.0	50000.0	4V, 50 MHz
Vb	V	20.0	30.0		Ir = 10 uA
Ir	nA		30.0	200.0	Vr = 15V
Gamma		0.82	0.88	0.94	2V to 20V
Vf	V	0.2	1.3	1.5	If = 10mA

2. Flip Chip Outline Drawing (P2010)



DIM	INCHES			MM		
	MIN	TYP	MAX	MIN	TYP	MAX
A	0.00386	0.00426	0.00465	0.098	0.108	0.118
A1	0.00008	-	0.00009	0.002	-	0.002
b	0.00793	0.00801	0.00809	0.202	0.204	0.206
D	0.02264	0.02362	0.02461	0.575	0.600	0.625
E	0.01083	0.01181	0.01280	0.275	0.300	0.325
e	0.01402	0.01409	0.01410	0.356	-	0.358
L	0.00551	0.00559	0.00567	0.140	0.142	0.144
Gap	0.00843	0.00850	0.00858	0.214	0.216	0.218

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