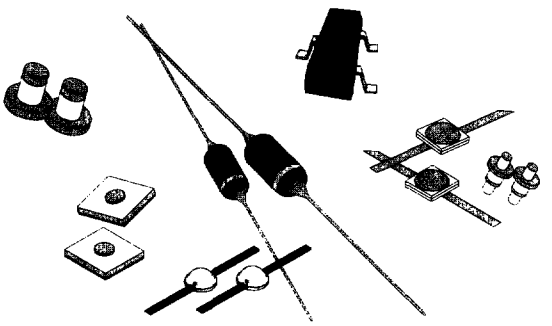
Alpha

Silicon Hyperabrupt Varactor Diodes

CKV2020 Series (exDKV6510 Series)

Features

- Medium to High Frequency Operation
- Guaranteed 10:1 Tuning Ratio from 2 to 10 Volts
- Q of 500 at 1 MHz Typical



Maximum Ratings

Reverse Voltage, V_R:	Same as V_{BR}
Forward Current, I_F:	100 mA
Power Dissipation at 25°C:	250 mW
Operating Temperature:	–55 to 150°C
Storage Temperature:	–65 to 200 °C

Description

Alpha uses Ion implantation to provide this series tuning diodes with closely controlled characteristics. The highly reproducible capacitance versus voltage behavior of this family permits Alpha to supply matched sets and also assures the customer of Ion term availability of parts having uniform electrical properties. Passivated, hermetically–sealed construction allows their use under the most adverse conditions, both in commercial equipment and in high reliability space and military applications.

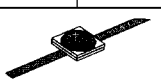
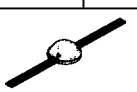
Hyperabrupt diodes are offered in various package styles to suit current applications. Capacitance values change slightly due to variations in package parasitics.

Applications

Designer oriented families offer types selected and tested with each customer's applications in mind. Premium units CKV2020–03–099–001 and CKV2020–06–099–001 thru CKV2020–15–099–001 tune up to 30 MHz with frequency ratios as high as 4:1 and can be used up to 300 MHz in oscillators. Alpha's CKV2020 diodes tune over 4:1 frequency ratios up to 10 MHz and are also ideal for wide deviation voltage–tuned crystal oscillators. They are suited to applications where economy is a prime consideration and may be used as replacements for devices which are not Ion implanted, with, in most cases, performance advantages. Low frequency oscillators, voltage–tuned filters, VCXO–TCXO modules, and frequency/phase modulators using this series achieve new levels of frequency swing and linearity.

Electrical Specifications

Reverse Breakdown Voltage, VBR (10 uA): 12 V Minimum
Reverse Leakage Current, IR (9.6 V): 100 nA Maximum

Catalog Part Number	Cpack (pF)	Capacitance @ 2V (pF)		Capacitance @ 10V (pF)		Tuning Ratio @ 2V/10V		Q @ 2V, 1 MHz	Previous Catalog Part Number
		Min	Max	Min	Max	Min	Max	Min	
Square Passivated Silicon Chip 									
CKV2020–03	–	45	75	3.9	6.9	10	17	750	CKV2020–03
CKV2020–06	–	100	150	7.9	12.9	10	17	500	CKV2020–06
CKV2020–09	–	140	210	10.9	17.9	10	17	500	CKV2020–09
CKV2020–12	–	180	270	13.9	21.9	10	17	500	CKV2020–12
CKV2020–15	–	280	420	21.9	33.9	10	17	300	CKV2020–15
Axial Leaded Glass Package Outline Drawing Number: 099–001 (DO–7) 									
CKV2020–03–099–001	0.10	45	75	4.0	7.0	10	17	750	DKV6510–12
CKV2020–06–099–001	0.10	100	150	8.0	13.0	10	17	500	DKV6515–12
CKV2020–09–099–001	0.10	140	210	11.0	18.0	10	17	500	DKV6516–12
CKV2020–12–099–001	0.10	180	270	14.0	22.0	10	17	500	DKV6517–12
CKV2020–15–099–001	0.10	280	420	22.0	34.0	10	17	300	DKV6518–12
Coaxial Ceramic Package **Outline Drawing Number: 168–001** 									
CKV2020–03–168–001	0.18	45	75	4.1	7.1	10	17	750	DKV3802–03
CKV2020–06–168–001	0.18	100	150	8.1	13.1	10	17	500	DKV3802–06
CKV2020–09–168–001	0.18	140	210	11.1	18.1	10	17	500	DKV3802–09
CKV2020–12–168–001	0.18	180	270	14.1	22.1	10	17	500	DKV3802–12
CKV2020–15–168–001	0.18	280	420	22.1	34.1	10	17	300	DKV3802–15
Stripline Hermetic Ceramic Package **Outline Drawing Number: 325–011** 									
CKV2020–03–325–011	0.12	45	75	4.0	7.0	10	17	750	DKV3803–03
Stripline Epoxy Encapsulated Ceramic Package **Outline Drawing Number: 130–011** 									
CKV2020–03–130–011	0.15	45	75	4.05	7.05	10	17	750	DKV3804–03

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