

CODI SEMICONDUCTOR

Division of CODI CORPORATION

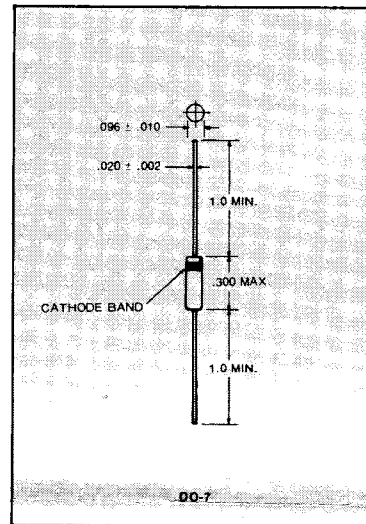
1N 4611, A, B, C
through 1N 4613, A, B, C
MULTI-CURRENT RANGE
VOLTAGE REFERENCE

LOW NOISE MULTI-CURRENT RANGE

TEMPERATURE COMPENSATED REFERENCE DIODES

1N4611, A, B, C THROUGH 1N4613, A, B, C

High reliable voltage reference sources utilizing CODI Semiconductor's Bi-Taxial™ processed junctions for long-term stability LOW NOISE and guaranteed low temperature coefficient over an extended current range. The junctions are encapsulated in hermetically sealed DO-7 glass package and can be provided with a guaranteed long-term stability - 10 ppm/yr..



Physical Dimensions

MAXIMUM RATINGS

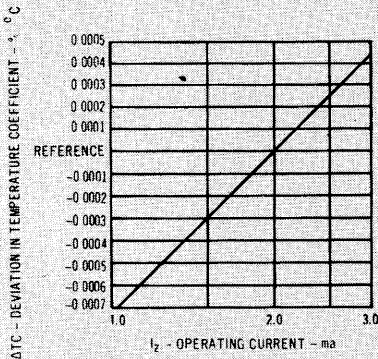
Power Dissipation	400 mw
Operating Temperature	- 65° to 175°C
Storage Temperature	- 65° to 200°C

ELECTRICAL CHARACTERISTICS: (25°C unless otherwise specified)

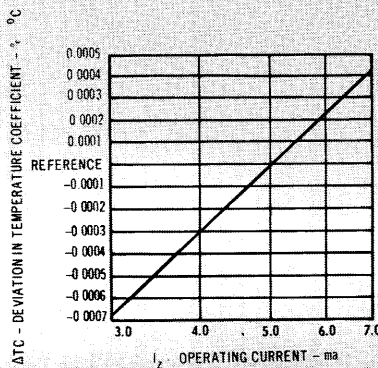
JEDEC TYPE	VOLTAGE $V_Z \pm 5\%$	OPERATING CURRENT I_Z	MAXIMUM TEMPERATURE COEFFICIENT, TC_1 @ I_Z - 50°C to 100°C	OPERATING CURRENT RANGE	MAXIMUM TEMPERATURE COEFFICIENT, TC_2 + OPERATING CURRENT RANGE - 50°C to 100°C	MAXIMUM DYNAMIC IMPEDANCE Z_Z	MAXIMUM REVERSE CURRENT, I_R @ 3.0 V	TYPICAL NOISE
	volt	ma	%/°C	ma	%/°C	ohm	ua	uv
1N 4611	6.6	2.0	.005	1.0-3.0	.01	75.0	.20	1.0
1N4611A	6.6	2.0	.002	1.0-3.0	.005	75.0	.20	1.0
1N4611B	6.6	2.0	.001	1.0-3.0	.002	75.0	.20	1.0
1N 4611C	6.6	2.0	.0005	1.0-3.0	.001	75.0	.20	1.0
1N 4612	6.6	5.0	.005	3.0-7.0	.01	25.0	.20	1.0
1N4612A	6.6	5.0	.002	3.0-7.0	.005	25.0	.20	1.0
1N4612B	6.6	5.0	.001	3.0-7.0	.002	25.0	.20	1.0
1N 4612C	6.6	5.0	.0005	3.0-7.0	.001	25.0	.20	1.0
1N 4613	6.6	10.0	.005	7.0-15.0	.01	15.0	.20	1.0
1N4613A	6.6	10.0	.002	7.0-15.0	.005	15.0	.20	1.0
1N4613B	6.6	10.0	.001	7.0-15.0	.002	15.0	.20	1.0
1N 4613C	6.6	10.0	.0005	7.0-15.0	.001	15.0	.20	1.0

TYPICAL CHARACTERISTICS:

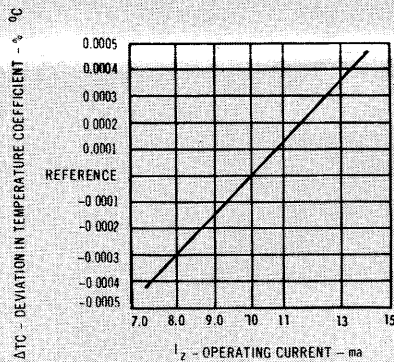
1N 4611, A, B, C
through 1N 4613, A, B, C
MULTI-CURRENT RANGE
VOLTAGE REFERENCE



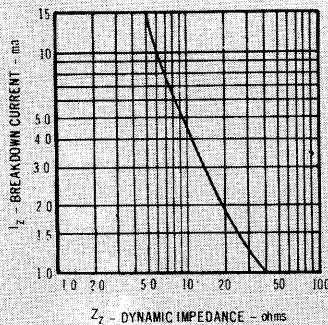
TEMPERATURE COEFFICIENT
VS OPERATING CURRENT
1N 4611 TYPES



TEMPERATURE COEFFICIENT
VS OPERATING CURRENT
1N 4612 TYPES

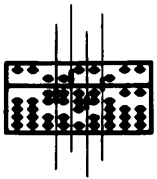


TEMPERATURE COEFFICIENT
VS OPERATING CURRENT
1N 4613 TYPES



DYNAMIC IMPEDANCE VS
BREAKDOWN CURRENT
ALL TYPES

All reference devices manufactured by CODI's Bi-Taxial™ process are also available with guaranteed long-time stability, low noise level. Devices with 10 ppm/year stability are available in production quantities. For further information and any special requirement, consult factory.



CODI SEMICONDUCTOR
DIVISION OF CODI CORPORATION

**HIGH Q
VOLTAGE VARIABLE
CAPACITORS
1N5681 thru 1N5695**

HIGH Q - MEDIUM TUNING RANGE VOLTAGE VARIABLE CAPACITORS

for UHF tuning applications

1N5681, A, B, C thru 1N5695, A, B, C

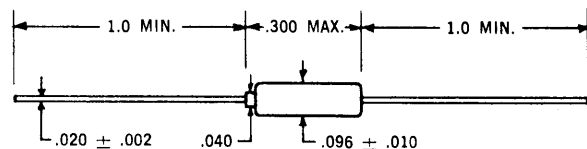
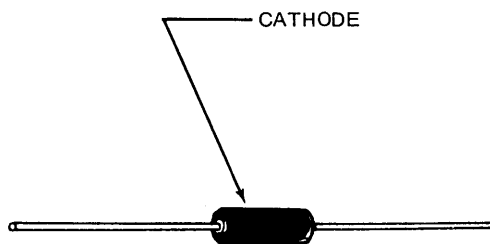
6.8-100 pica farad

CODI Semiconductor's BiTaxial™, high Q, abrupt-junction Voltage Variable Capacitors are designed specifically for critical and sophisticated frequency control applications through the UHF range.

The computer-aided design and evaluation of these devices guarantees tight tolerance of capacitance-versus-voltage tracking over the complete range of tuning. A computer printout which includes the capacitance equation with calculated values of the barrier-voltage and the exponent can be supplied at extra cost.

SPECIAL FEATURES

- High Q
- Medium Tuning Range
- Precision Tracking
- Low Leakage
- High Reliability
- Stable



(DO-7)
PHYSICAL CHARACTERISTICS

1N5681, A, B, C thru 1N5695, A, B, C

Specifications

MAXIMUM RATINGS (At $T_A = 25^\circ\text{C}$ unless otherwise specified)

Reverse Breakdown Voltage (BV_R)	@ $I_R = 10\mu\text{A dc}$	45 volts
Reverse Current (I_R)	@ $V_R = 40\text{Vdc}$	$0.02\mu\text{A}$
	@ $V_R = 40\text{Vdc}$, $T_A = 150^\circ\text{C}$	$20.00\mu\text{A}$
Series Inductance (L_s)	@ $f = 250\text{MHz}$ lead length = $1/16''$	6nH
Case Capacitance (C_c)	@ $f = 1\text{MHz}$	$0.25\text{pf} \pm 20\%$
Diode Capacitance	@ $V_R = 4.0\text{Vdc}$,	$300\text{ppm}/^\circ\text{C}$
Temperature Coefficient (TC)	@ 25°C	
Dissipation (P_D): 400mw (Derate $2.65\text{ mW}/^\circ\text{C}$ above $T_A = 25^\circ\text{C}$)		
Operating Temperature Range (T_A): -65°C to $+150^\circ\text{C}$		
Storage Temperature Range (T_{STG}): -65°C to $+200^\circ\text{C}$		

ELECTRICAL CHARACTERISTICS

(At $T_A = 25^\circ\text{C}$ unless otherwise specified)

JEDEC Type No.	Nominal Capacitance * C_j @ $V_R = 4\text{Vdc}$ $f = 1\text{MHz}$	Capacitance Tuning Ratio $C2V/C30V$ $f = 1\text{MHz}$		Figure of Merit. Q @ $V_R = 4\text{Vdc}$ $f = 50\text{MHz}$
		(Min.)	(Typ.)	
	(pf)	(Min.)	(Typ.)	(Min.)
1N5681	6.8	3.1	3.3	600
1N5682	8.2	3.1	3.3	600
1N5683	10.0	3.2	3.4	550
1N5684	12.0	3.2	3.4	550
1N5685	15.0	3.2	3.4	550
1N5686	18.0	3.2	3.4	500
1N5687	22.0	3.3	3.5	500
1N5688	27.0	3.3	3.5	500
1N5689	33.0	3.3	3.5	500
1N5690	39.0	3.3	3.5	450
1N5691	47.0	3.3	3.5	400
1N5692	56.0	3.3	3.5	300
1N5693	68.0	3.3	3.5	250
1N5694	82.0	3.3	3.5	225
1N5695	100.0	3.3	3.5	200

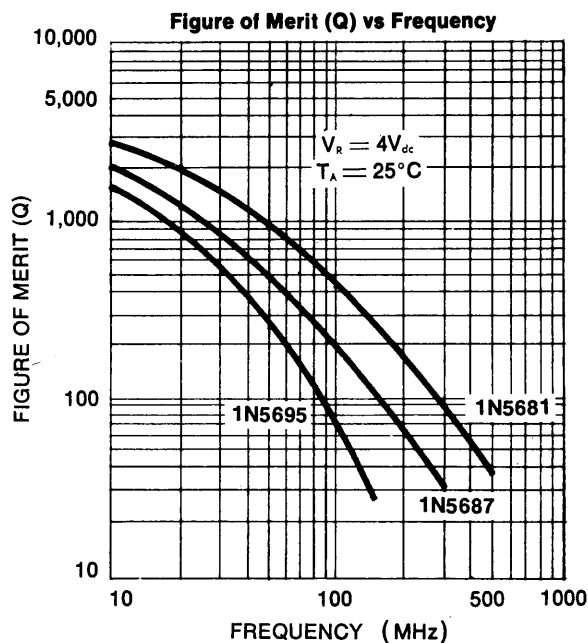
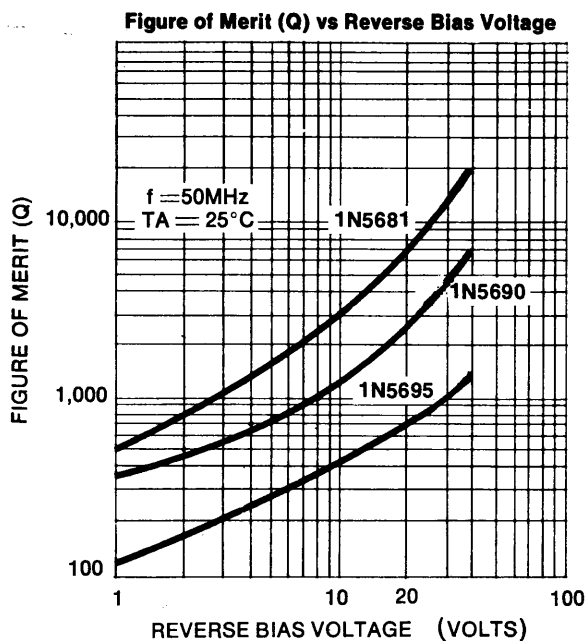
CODI welcomes your inquiries concerning other Voltage Variable Capacitors

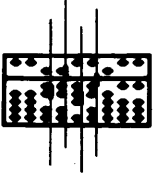
- Higher Tuning ratio
- Ultra-Low Leakage
- JAN TX types
- Higher Capacitance
- Micro miniature package

* Available in the following tolerances:

No Suffix	$\pm 20\%$
A	$\pm 10\%$
B	$\pm 5\%$
C	$\pm 2\%$

HIGH Q VOLTAGE VARIABLE CAPACITORS 1N5681 thru 1N5695





CODI SEMICONDUCTOR
DIVISION OF CODI CORPORATION

**HIGH Q
VOLTAGE VARIABLE
CAPACITORS
1N5696 thru 1N5710**

HIGH Q - HIGH TUNING RANGE VOLTAGE VARIABLE CAPACITORS for UHF tuning applications

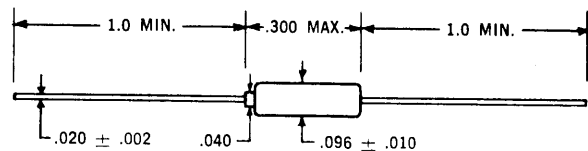
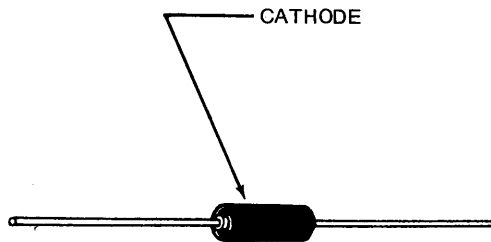
1N5696, A, B, C thru 1N5710, A, B, C
6.8-100 pica farad

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SPECIAL FEATURES

- High Q
- High Tuning Range
- Precision Tracking
- Low Leakage
- High Reliability
- Stable



(DO-7)
PHYSICAL CHARACTERISTICS

4. 7. 75

1N5696, A, B, C thru 1N5710, A, B, C Specifications

HIGH Q VOLTAGE VARIABLE CAPACITORS 1N5696 thru 1N5710

MAXIMUM RATINGS (At $T_A = 25^\circ\text{C}$ unless otherwise specified)

Reverse Breakdown Voltage (BV_R)	@ $I_R = 10\mu\text{A dc}$	65 volts
Reverse Current (I_R)	@ $V_R = 60\text{V dc}$ @ $V_R = 60\text{V dc}, T_R = 150^\circ\text{C}$	0.02 μA 20.00 μA
Series Inductance (L_S)	@ $f = 250\text{MHz}$ lead length = 1/16"	6nH
Case Capacitance (C_c)	@ $f = 1\text{MHz}$	0.25pf $\pm 20\%$
Diode Capacitance	@ $V_R = 4.0\text{V dc}$,	300ppm/ $^\circ\text{C}$
Temperature Coefficient (TC)	25°C .	
Dissipation (P_D): 400mw (Derate 2.65 mW/ $^\circ\text{C}$ above $T_A = 25^\circ\text{C}$)		
Operating Temperature Range (T_A): -65° to $+150^\circ\text{C}$		
Storage Temperature Range (T_{STG}): -65°C to $+200^\circ\text{C}$		

ELECTRICAL CHARACTERISTICS

(At $T_A = 25^\circ\text{C}$ unless otherwise specified)

JEDEC Type No.	Nominal Capacitance * C_j @ $V_R = 4\text{V dc}$ $f = 1\text{MHz}$	Capacitance Tuning Ratio C_{2V}/C_{30V} $f = 1\text{MHz}$		Figure of Merit. Q @ $V_R = 4\text{V dc}$ $f = 50\text{MHz}$
		(pf)	(Min.)	(Typ.)
1N5696	6.8	2.7	2.9	450
1N5697	8.2	2.7	2.9	450
1N5698	10.0	2.8	3.0	400
1N5699	12.0	2.8	3.0	400
1N5700	15.0	2.8	3.0	400
1N5701	18.0	2.9	3.0	375
1N5702	22.0	3.2	3.4	375
1N5703	27.0	3.2	3.4	350
1N5704	33.0	3.2	3.4	350
1N5705	39.0	3.2	3.4	325
1N5706	47.0	3.2	3.4	300
1N5707	56.0	3.2	3.4	225
1N5708	68.0	3.2	3.4	175
1N5709	82.0	3.2	3.4	150
1N5710	100.0	3.2	3.4	150

CODI welcomes your inquiries concerning other Voltage Variable Capacitors

- Higher Tuning ratio
- Ultra-Low Leakage
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- Micro miniature package

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Figure of Merit (Q) vs Reverse Bias Voltage

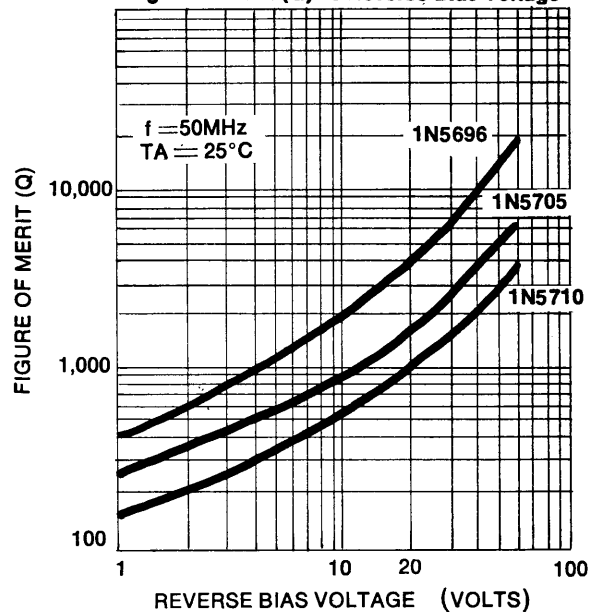


Figure of Merit (Q) vs Frequency

