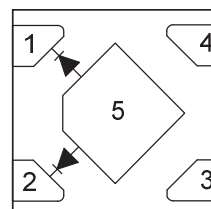


### Features

- High capacitance ratio:  $C_{0V} / C_{5V} = 3.4$  (typ.)
- Low series resistance for low phase noise
- Designed for high volume commercial applications
- Available in tape and reel packaging
- Industry Standard DFN1x1-4L Package



Functional Block Diagram

### Product Description

The YVC063P034RD device is GaAs hyperabrupt junction varactor diodes specifically designed for 3 V platforms. The specified high capacitance ratio and low  $R_S$  of these varactors make them attractive for low phase noise VCOs in wireless systems up to and beyond 2.5GHz. Applications include low-noise and wideband UHF and VHF VCO for GSM, PCS, CDMA and analog phones.

### Absolute Maximum Ratings

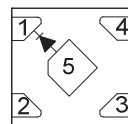
Characteristic	Rating	Unit
Reverse voltage ( $V_R$ )	15	V
Forward current ( $I_F$ )	20	mA
Power dissipation ( $P_D$ )	250	mW
Storage temperature ( $T_{ST}$ )	-55 to +150	°C
Operating temperature ( $T_{OP}$ )	-55 to +125	°C
ESD human body model	Class1B	

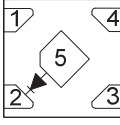
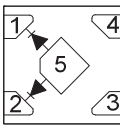


### Caution!

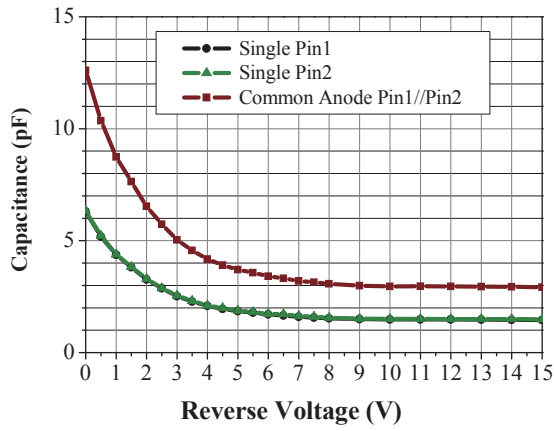
Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability.

### Electrical Specifications@25 °C

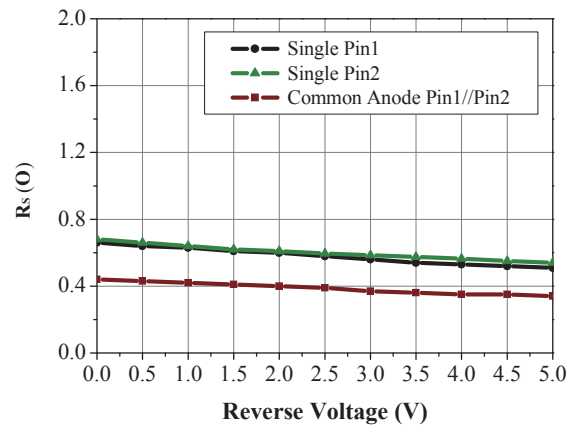
Applications	Parameter	Condition	Specification			Unit
			Min.	Typ.	Max.	
Single Pin1 	Reverse Current ( $I_R$ )	$V_R = 15\text{ V}$			20	nA
	Capacitance ( $C_T$ )	$C_T @ 0.5\text{ V}, V_R = 0.5\text{ V}, F = 10\text{ MHz}$		5.18		pF
	Capacitance ( $C_T$ )	$C_T @ 5\text{ V}, V_R = 5\text{ V}, F = 10\text{ MHz}$		1.85		pF
	Capacitance Ratio ( $C_{TR}$ )	$C_T(0.5\text{ V}) / C_T(5\text{ V})$		2.8		
	Series Resistance ( $R_S$ )	$V_R = 1\text{ V}, F = 100\text{ MHz}$			0.63	$\Omega$
	Breakdown Voltage ( $V_{BR}$ )	$I_R = 10\text{ }\mu\text{A}$	20			V

Applications	Parameter	Condition	Specification			Unit
			Min.	Typ.	Max.	
 Single Pin2	Reverse Current ( $I_R$ )	$V_R = 15\text{ V}$			20	nA
	Capacitance ( $C_T$ )	$C_T @ 0.5\text{ V}, V_R = 0.5\text{ V}, F = 1\text{ MHz}$		5.22		pF
	Capacitance ( $C_T$ )	$C_T @ 5\text{ V}, V_R = 5\text{ V}, F = 1\text{ MHz}$		1.88		pF
	Capacitance Ratio ( $C_{TR}$ )	$C_T (0.5\text{ V})/C_T (5\text{ V})$		2.78		
	Series Resistance ( $R_S$ )	$V_R = 1\text{ V}, F = 100\text{ MHz}$			0.64	$\Omega$
	Breakdown Voltage ( $V_{BR}$ )	$I_R = 10\ \mu\text{A}$	20			V
Applications	Parameter	Condition	Specification			Unit
			Min.	Typ.	Max.	
 Common Anode Pin1//Pin2	Reverse Current ( $I_R$ )	$V_R = 15\text{ V}$			20	nA
	Capacitance ( $C_T$ )	$C_T @ 0.5\text{ V}, V_R = 0.5\text{ V}, F = 1\text{ MHz}$		10.36		pF
	Capacitance ( $C_T$ )	$C_T @ 5\text{ V}, V_R = 5\text{ V}, F = 1\text{ MHz}$		3.7		pF
	Capacitance Ratio ( $C_{TR}$ )	$C_T (0.5\text{ V})/C_T (5\text{ V})$		2.8		
	Series Resistance ( $R_S$ )	$V_R = 1\text{ V}, F = 100\text{ MHz}$			0.42	$\Omega$
	Breakdown Voltage ( $V_{BR}$ )	$I_R = 10\ \mu\text{A}$	20			V

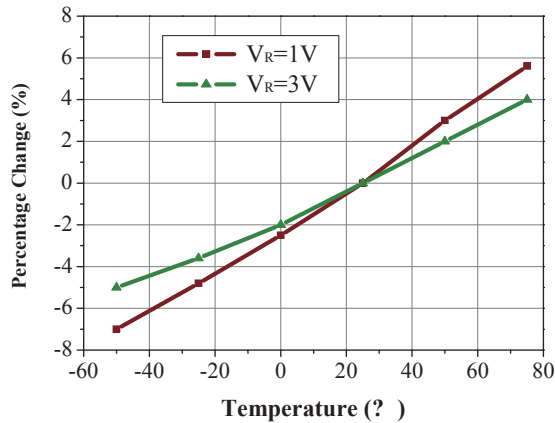
### Typical Performance Data



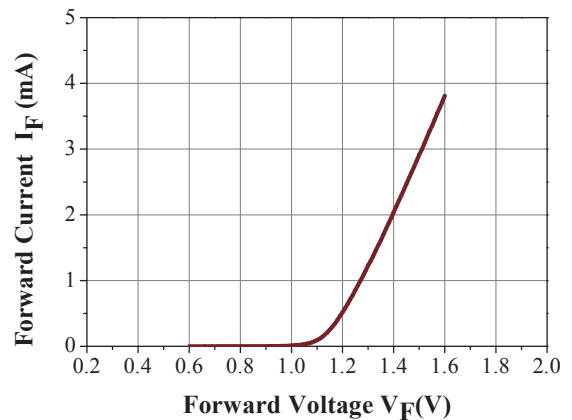
**Capacitance vs. Reverse Voltage**



**Series Resistance vs. Reverse Voltage  
@ 100 MHz**



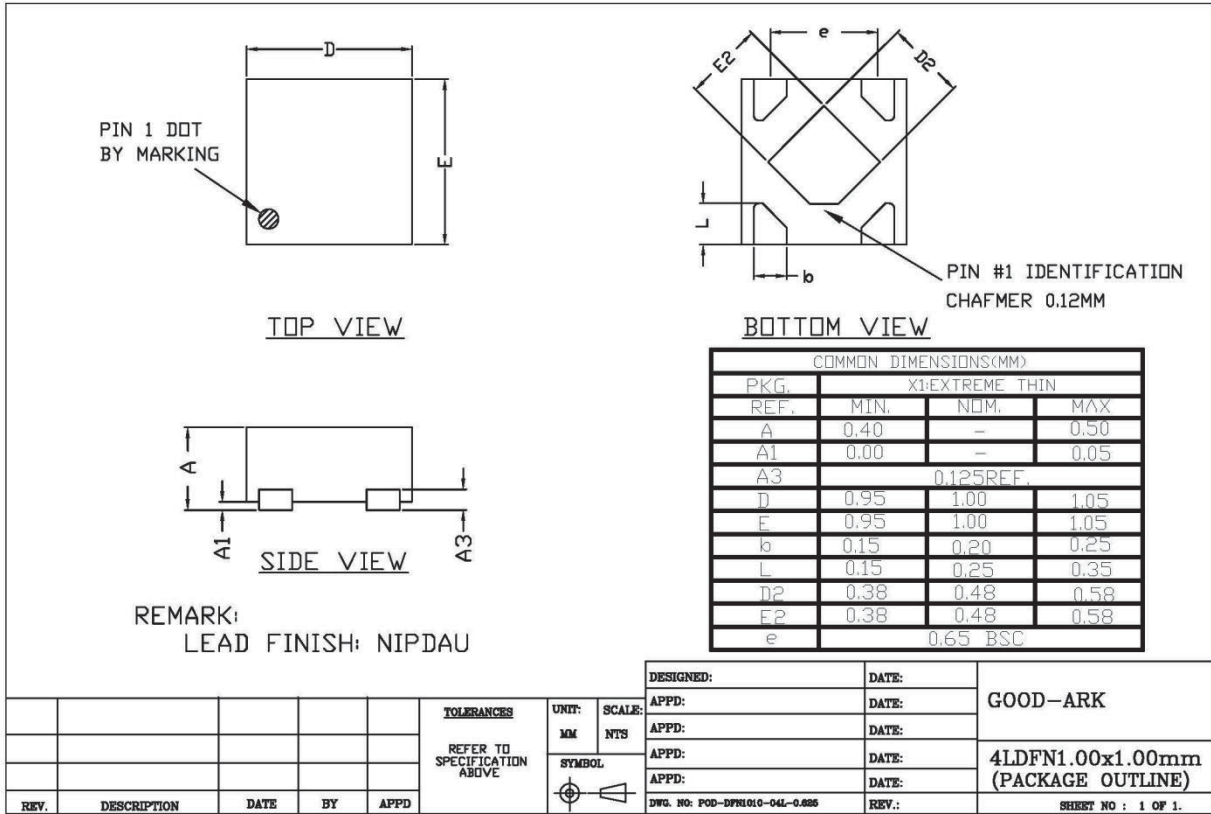
**Relative Capacitance Change  
vs. Temperature**



**Forward I-V characteristic curve**

## Package Diagram

(Units: millimeters)



## Part Number Naming Conventions:

(e.g.) **Y** **VC** **063** **P** **034** **R** **(D)**

- ① ② ③ ④ ⑤ ⑥ ⑦

- ① Company: INNOTION
- ② Product ID: (VC=Variable Capacitance Diode)
- ③ Capacitance ( $C_T$ )@ $V_R=0V$  is expressed by three-digit alphanumeric (e.g. 063=6.3pF, 228=22.8pF)
- ④ Capacitance Unit: pF
- ⑤ Capacitance ratio:  $C_{0V} / C_{5V}$  is expressed by three-digit alphanumeric (e.g. 034 is  $C_{0V} / C_{5V} = 3.4$ )
- ⑥ Ratio
- ⑦ There are two varactors inside, which can be used in parallel. For a single Varactor product, this letter is omitted.