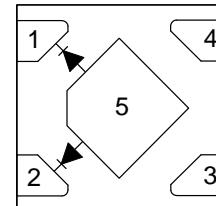


## Features

- 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 YVC024P034RD device is GaAs hyperabrupt junction varactor diode is designed for use in VCOs with low tuning voltage operation. The low resistance of YVC024P034RD makes it appropriate for high Q resonators in wireless system VCOs to frequencies beyond 3.5 GHz. The YVC024P034RD is fully characterized for capacitance and resistance over temperature.

## Absolute Maximum Ratings

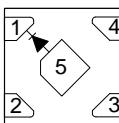
Characteristic	Rating	Unit
Reverse voltage ( $V_R$ )	15	V
Forward current ( $I_F$ )	20	mA
Power dissipation ( $P_D$ )	250	mW
Storage temperature ( $T_{ST}$ )	-55 to +150	°C
Operating temperature ( $T_{OP}$ )	-55 to +125	°C
ESD human body model	Class1B	

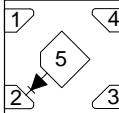
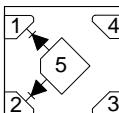


### Caution!

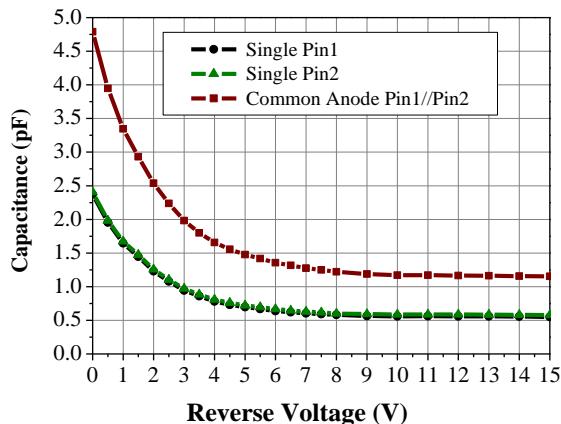
Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability.

## Electrical Specifications @25 °C

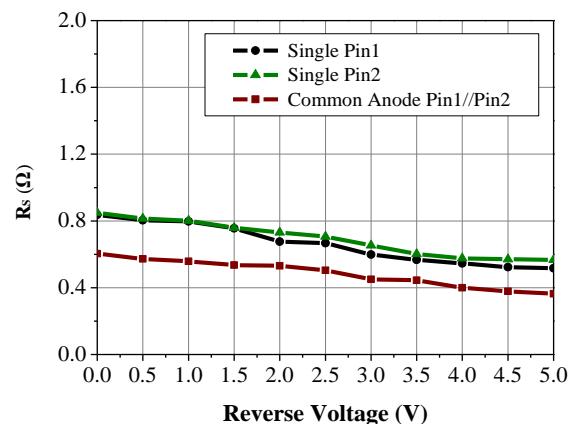
Applications	Parameter	Condition	Specification			Unit
			Min.	Typ.	Max.	
Single Pin1 	Reverse Current ( $I_R$ )	$V_R = 15$ V			20	nA
	Capacitance ( $C_T$ )	$C_T @ 0.5$ V, $V_R = 0.5$ V, $F = 10$ MHz		1.96		pF
	Capacitance ( $C_T$ )	$C_T @ 5$ V, $V_R = 5$ V, $F = 10$ MHz		0.70		pF
	Capacitance Ratio ( $C_{TR}$ )	$C_T (0.5 V) / C_T (5 V)$		2.8		
	Series Resistance ( $R_S$ )	$V_R = 1$ V, $F = 100$ MHz			0.84	Ω
	Breakdown Voltage ( $V_{BR}$ )	$I_R = 10$ μA	20			V

Applications	Parameter	Condition	Specification			Unit
			Min.	Typ.	Max.	
Single Pin2  	Reverse Current ( $I_R$ )	$V_R = 15 \text{ V}$			20	nA
	Capacitance ( $C_T$ )	$C_T @ 0.5 \text{ V}, V_R = 0.5 \text{ V}, F = 1 \text{ MHz}$		1.98		pF
	Capacitance ( $C_T$ )	$C_T @ 5 \text{ V}, V_R = 5 \text{ V}, F = 1 \text{ MHz}$		0.72		pF
	Capacitance Ratio ( $C_{TR}$ )	$C_T (0.5 \text{ V})/C_T (5 \text{ V})$		2.75		
	Series Resistance ( $R_S$ )	$V_R = 1 \text{ V}, F = 100 \text{ MHz}$			0.85	$\Omega$
	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 ( $C_T$ )	$C_T @ 0.5 \text{ V}, V_R = 0.5 \text{ V}, F = 1 \text{ MHz}$		3.95		pF
	Capacitance ( $C_T$ )	$C_T @ 5 \text{ V}, V_R = 5 \text{ V}, F = 1 \text{ MHz}$		1.48		pF
	Capacitance Ratio ( $C_{TR}$ )	$C_T (0.5 \text{ V})/C_T (5 \text{ V})$		2.67		
	Series Resistance ( $R_S$ )	$V_R = 1 \text{ V}, F = 100 \text{ MHz}$			0.6	$\Omega$
	Breakdown Voltage ( $V_{BR}$ )	$I_R = 10 \mu\text{A}$	20			V

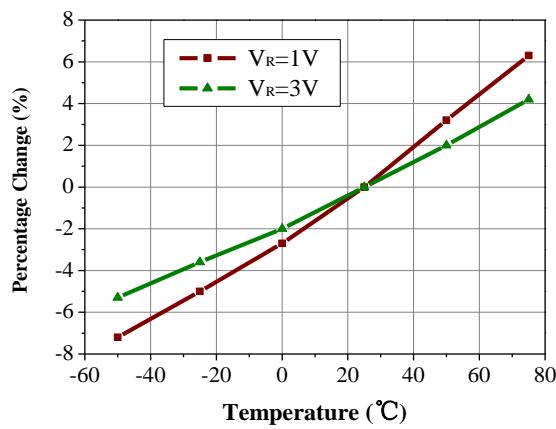
## Typical Performance Data



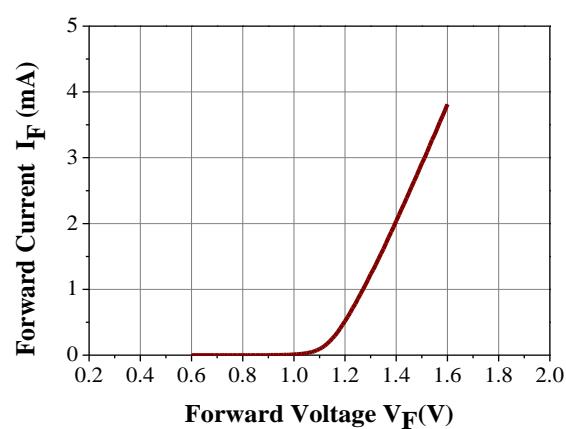
Capacitance vs. Reverse Voltage



Series Resistance vs. Reverse Voltage  
@ 100 MHz



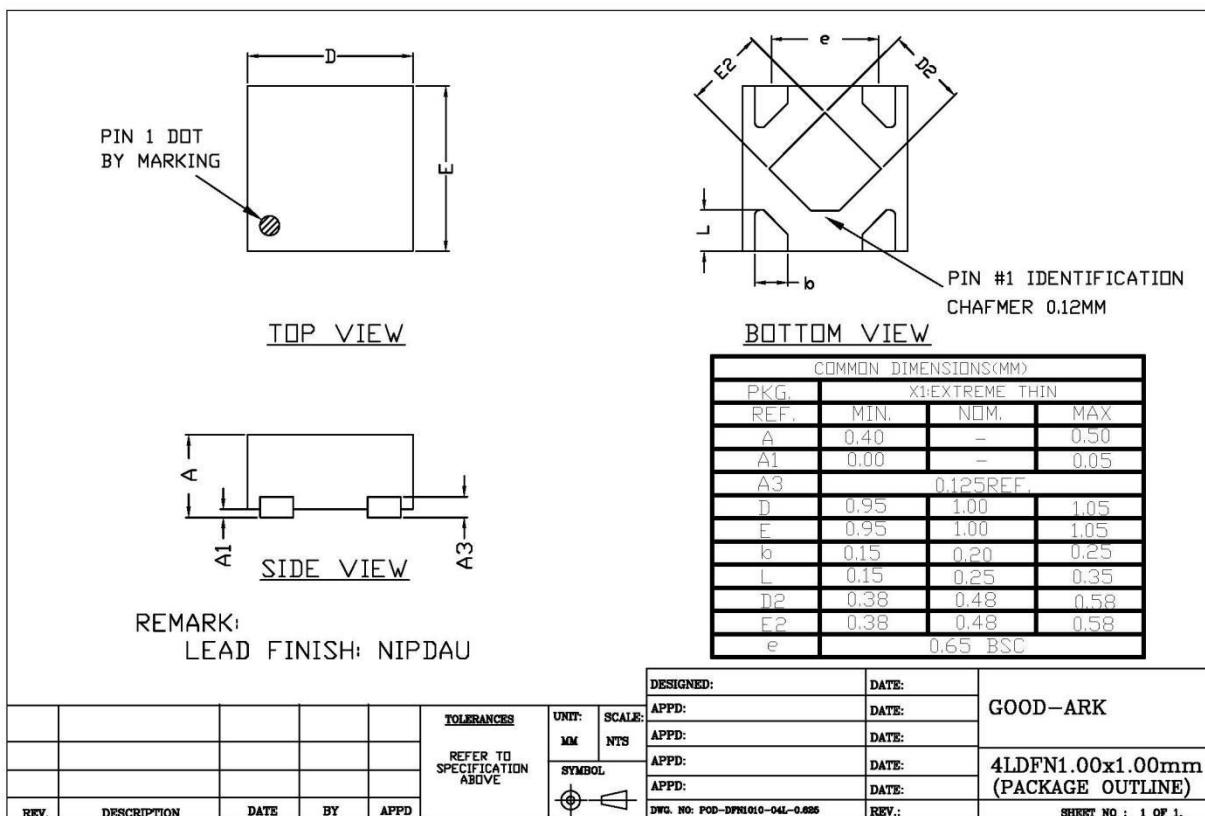
Relative Capacitance Change  
vs. Temperature



Forward I-V characteristic curve

### Package Diagram

(Units: millimeters)



### Part Number Naming Conventions:

(e.g.) **Y VC 024 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. **024**=2.4pF, **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.