

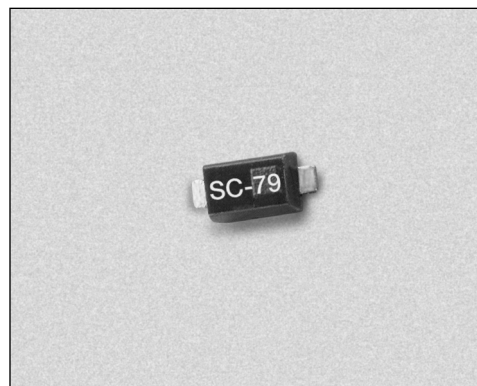
# Hyperabrupt Junction Tuning Varactor



SMV1763-079

## Features

- Low Series Resistance
- High Capacitance Ratio at Low Reverse Voltage
- Ultra Small SC-79 Package
- Designed for High Volume, Low Cost Battery Applications
- Available in Tape and Reel Packaging



## Description

The SMV1763-079 is a silicon hyperabrupt junction varactor diode specifically designed for 3 V platforms. The specified high capacitance ratio and low  $R_S$  of this varactor make it attractive for low phase noise VCOs in wireless systems up to and beyond 2.5 GHz. Applications include low noise and wideband UHF and VHF VCO for GSM, PCS, CDMA and analog phones.

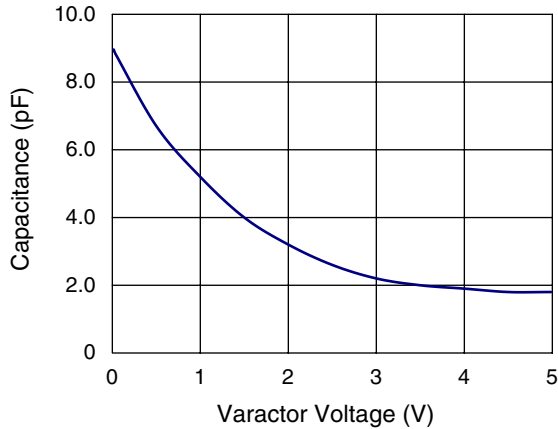
## Absolute Maximum Ratings

Characteristic	Value
Forward Current ( $I_F$ )	20 mA
Power Dissipation ( $P_D$ )	250 mW
Storage Temperature ( $T_{ST}$ )	-55°C to +150°C
Operating Temperature ( $T_{OP}$ )	-55°C to +125°C

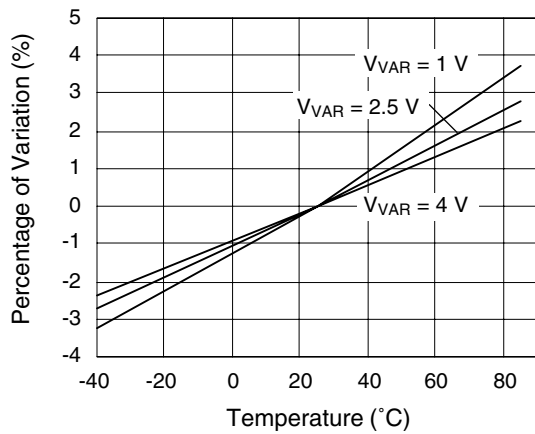
## Electrical Specifications at 25°C

Parameter	Condition	Min.	Typ.	Max.	Unit
Reverse Current ( $I_R$ )	$V_R = 8\text{ V}$			20.0	nA
Capacitance ( $C_T$ )	$C_T @ 0.5\text{ V}, V_R = 0.5\text{ V}, F = 1\text{ MHz}$	6.2	6.7	7.2	pF
Capacitance ( $C_T$ )	$C_T @ 2.5\text{ V}, V_R = 2.5\text{ V}, F = 1\text{ MHz}$	2.3	2.6	2.9	pF
Capacitance Ratio ( $C_{TR}$ )	$C_T(0.5\text{ V})/C_T(2.5\text{ V})$	2.3	2.5		
Series Resistance ( $R_S$ )	$V_R = 1\text{ V}, F = 900\text{ MHz}$		0.5	0.7	$\Omega$
Breakdown Voltage ( $V_{BR}$ )	$I_R = 10\ \mu\text{A}$	10.0			V

### Typical Performance Data



Capacitance vs. Voltage

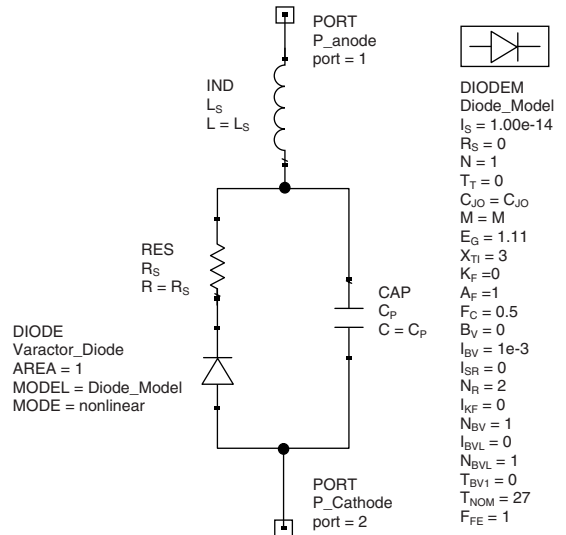


Relative Capacitance Change vs. Temperature

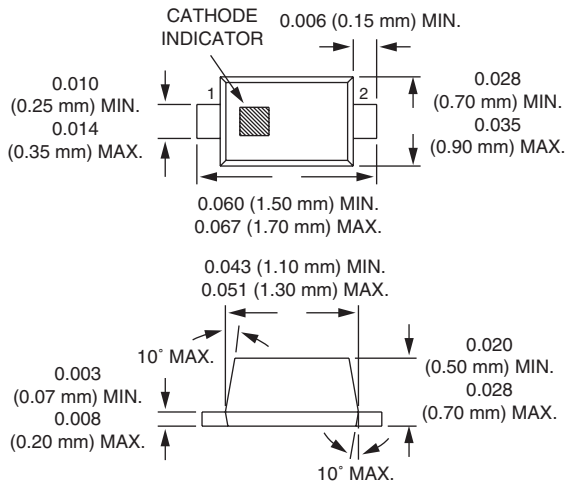
### Capacitance vs. Voltage

V <sub>R</sub> (V)	C <sub>T</sub> (pF)
0.0	9.0
0.5	6.7
1.0	5.2
1.5	4.0
2.0	3.2
2.5	2.6
3.0	2.2
3.5	2.0
4.0	1.9
4.5	1.8
5.0	1.8

### SPICE Model



### SC-79



Part Number	C <sub>J0</sub> (pF)	V <sub>J</sub> (V)	M	C <sub>P</sub> (pF)	R <sub>S</sub> (Ω)	L <sub>S</sub> (nH)
SMV1763-079	8.2	15	9.5	0.67	0.5	0.8