

Hyperabrupt Junction Tuning Varactor



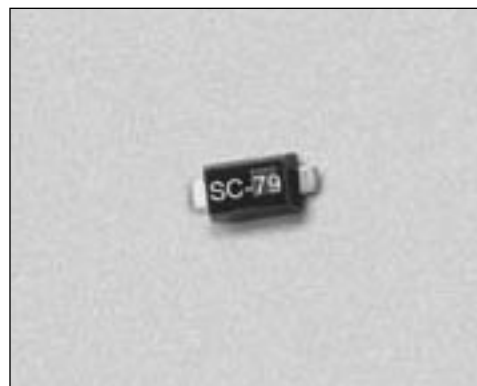
SMV1270-079

Features

- High Capacitance Ratio
- Ultra Small Size SC-79 Package
- Designed for High Volume, Low Cost Battery Applications
- Available in Tape and Reel Packaging

Description

The SMV1270-079 is a silicon hyperabrupt junction varactor diode specifically designed for battery operation. The specified high capacitance ratio and low R_S of this varactor make it appropriate for low noise VCOs used at frequencies in wireless systems to beyond 2.5 GHz. Applications include low noise and wideband UHF and VHF VCO for GSM, PCS, CDMA and analog phones.



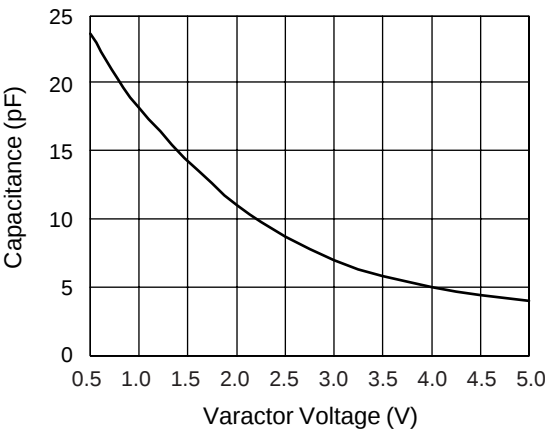
Absolute Maximum Ratings

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

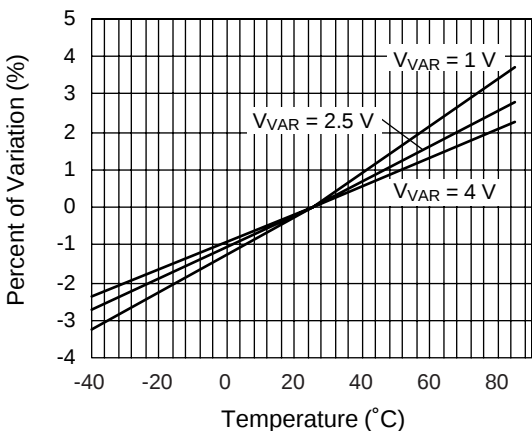
Electrical Specifications at 25°C

Parameter	Condition	Min.	Typ.	Max.	Unit
Reverse Current (I_R)	$V_R = 20\text{ V}$			20.0	nA
Capacitance (C_T)	$C_T @ 0.5\text{ V}, V_R = 0.5\text{ V}, F = 1\text{ MHz}$	22.1	23.6	25.1	pF
Capacitance (C_T)	$C_T @ 2.5\text{ V}, V_R = 2.5\text{ V}, F = 1\text{ MHz}$	7.7	8.6	9.8	pF
Capacitance Ratio (C_{TR})	$C_T (0.5\text{ V}) / C_T (2.5\text{ V})$	2.3	2.7		
Series Resistance (R_S)	$V_R = 1\text{ V}, F = 470\text{ MHz}$		0.7		Ω
Breakdown Voltage (V_{BR})	$I_R = 10\text{ }\mu\text{A}$	20.0			V

Typical Performance Data



Capacitance vs. Voltage

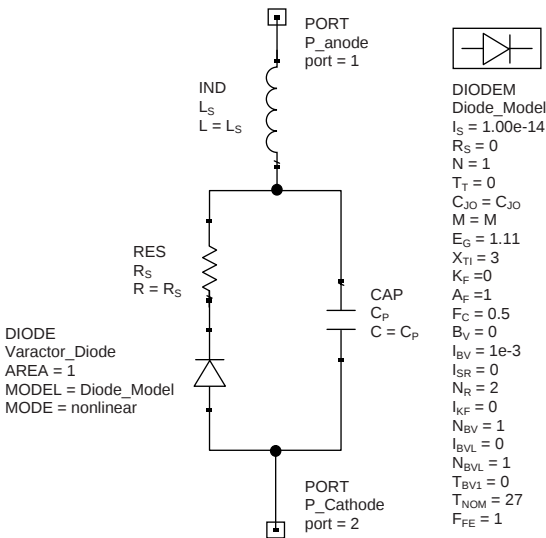


Relative Capacitance Change vs. Temperature

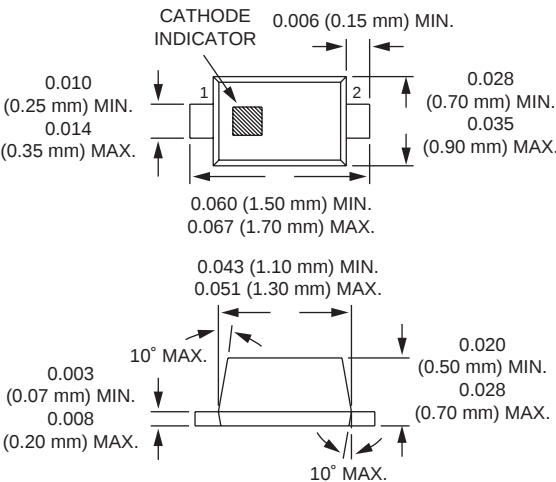
Capacitance vs. Voltage

V _R (V)	C _T (pF)
0.5	23.64
1.0	17.81
1.5	13.69
2.0	10.74
2.5	8.60
3.0	7.03
3.5	5.87
4.0	5.00
4.5	4.35
5.0	3.85

SPICE Model



SC-79



Part Number	C _{JO} (pF)	V _J (V)	M	C _P (pF)	R _S (Ω)	L _S (nH)
SMV1270-079	30	12	8	2	0.7	1.7