

DATA SHEET

SMV1245-011, SMV1245-011LF: Hyperabrupt Junction Tuning Varactor

Features

- High tuning ratio
- Low series resistance
- SOD-323 package
- Available lead (Pb)-free and RoHS-compliant MSL-1 @ 260 °C per JEDEC J-STD-020
- Designed for high-volume, low-cost applications
- Available in tape and reel packaging

Description

The SMV1245-011 is a surface mount varactor diode in the SOD-323 plastic package. It is designed for very low series resistance applications such as RF and microwave VCOs.

NEW Skyworks offers lead (Pb)-free, RoHS (Restriction of Hazardous Substances)-compliant packaging.



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
ESD human body model	Class 0


Performance is guaranteed only under the conditions listed in the specifications table and is not guaranteed under the full range(s) described by the Absolute Maximum specifications. Exceeding any of the absolute maximum/minimum specifications may result in permanent damage to the device and will void the warranty.

CAUTION: Although this device is designed to be as robust as possible, ESD (Electrostatic Discharge) can damage this device. This device must be protected at all times from ESD. Static charges may easily produce potentials of several kilovolts on the human body or equipment, which can discharge without detection. Industry-standard ESD precautions must be employed at all times.

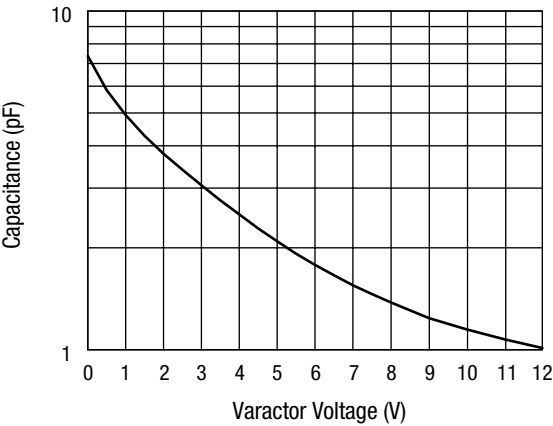
Electrical Specifications at 25 °C

Parameter	Condition	Min.	Typ.	Max.	Unit
Reverse current (I_R)	$V_R = 10\text{ V}$			20	nA
Capacitance (C_T)	$C_T @ 1\text{ V}, V_R = 1\text{ V}, F = 1\text{ MHz}$	4.4		5.4	pF
Capacitance ratio (C_{TR})	$C_T (1\text{ V})/C_T (3\text{ V})$	1.47		1.76	
Capacitance ratio (C_{TR})	$C_T (1\text{ V})/C_T (9\text{ V})$	3.5		4.2	
Series resistance (R_S)	$V_R = 1\text{ V}, F = 500\text{ MHz}$			2	Ω
Breakdown voltage (V_{BR})	$I_R = 10\text{ }\mu\text{A}$	26			V


Single
SOD-323
SMV1245-011 Marking: CL
SMV1245-011LF Marking: HL
$L_S = 1.5\text{ nH}$

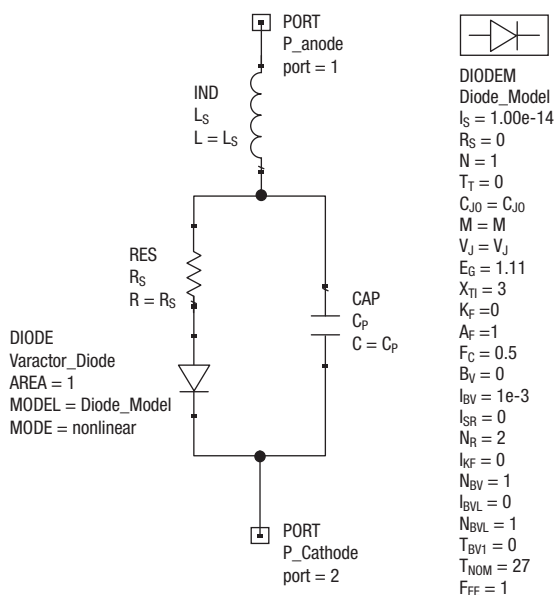
 LF denotes lead (Pb)-free, RoHS-compliant packaging option as an alternative to our standard tin/lead (Sn/Pb) packaging.

Typical Performance Data



Capacitance vs. Voltage

SPICE Model



Part Number	C _{J0} (pF)	V _J (V)	M	C _P (pF)	R _S (Ω)	L _S (nH)
SMV1245-011	6.9	3.5	1.7	0.47	2	1.7

Recommended Solder Reflow Profiles

Refer to the “[Recommended Solder Reflow Profile](#)” Application Note.

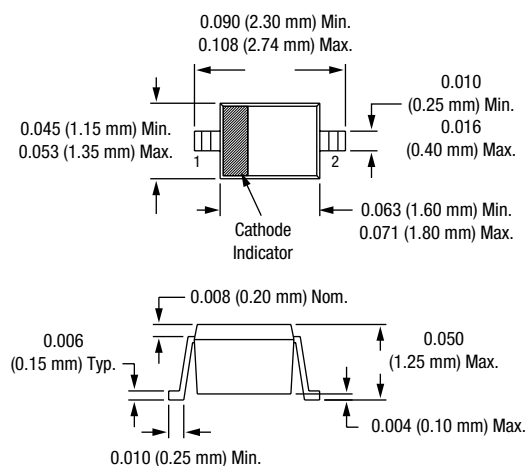
Tape and Reel Information

Refer to the ["Discrete Devices and IC Switch/Attenuators Tape and Reel Package Orientation"](#) Application Note.

Capacitance vs. Voltage

V_R (V)	C_T (pF)
0	7.37
0.5	5.84
1	4.93
1.5	4.28
2	3.79
2.5	3.4
3	3.06
3.5	2.76
4	2.51
4.5	2.28
5	2.09
5.5	1.92
6	1.78
6.5	1.66
7	1.55
7.5	1.46
8	1.38
8.5	1.32
9	1.26
9.5	1.2
10	1.16
10.5	1.12
11	1.08
11.5	1.05
12	1.02

SOD-323



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