STVD901J

VARICAP

FEATURES AND BENEFITS

- High capacitance ratio
- Tuned for 900 Mhz band in mobile phone
- Surface mount device

DESCRIPTION

The STDV901J is a variable capacitance diode in SOD-323 package. This diode is intended to be used in mobile phone application to control the VCO frequency.

SOD-323

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value	Unit
V_R	Continuous reverse voltage	6	V
I_F	Continuous forward current	20	mA
T_{stg}	Storage temperature range	- 65 to +150	°C
T_j	Maximum junction temperature	150	°C
T_L	Maximum temperature for soldering	260	°C

STATIC ELECTRICAL CHARACTERISTICS (Tj = 25°C otherwise specified)

Symbol	Parameter	Tests Conditions	Min.	Typ.	Max.	Unit
I_R	Continuous reverse current	V_R = 6V			10	nA

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	500	°C/W

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
C_t	Diode capacitance	V_R = 0.25 V	f = 1 MHz	3.6	4	4.4	pF
r_f	Diode series resistance	V_R = 1V	f = 100 MHz		0.5		Ohm
L_s	Series inductance				1.5		nH
Cd (0.25 V) / Cd (2.7 V)	Capacitance ratio	f = 1 MHz		2			

Fig. 1: Reverse leakage current versus reverse voltage applied (typical values).

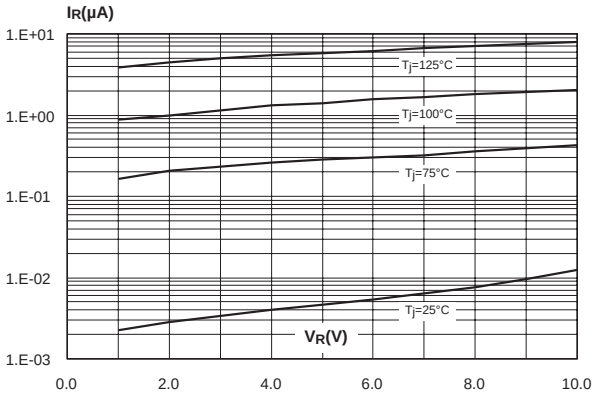


Fig. 2: Relative variation of reverse leakage current versus junction temperature (typical values).

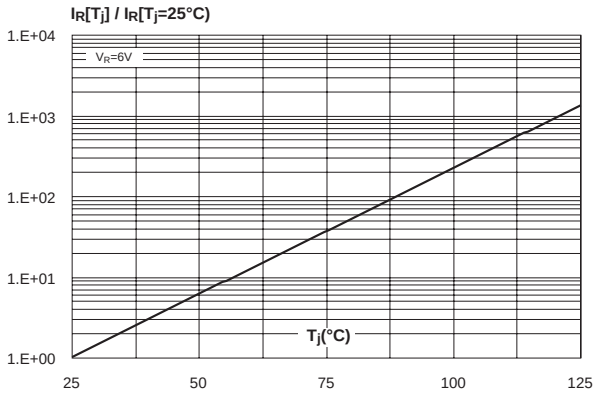


Fig. 3: Junction capacitance versus reverse voltage applied (typical values).

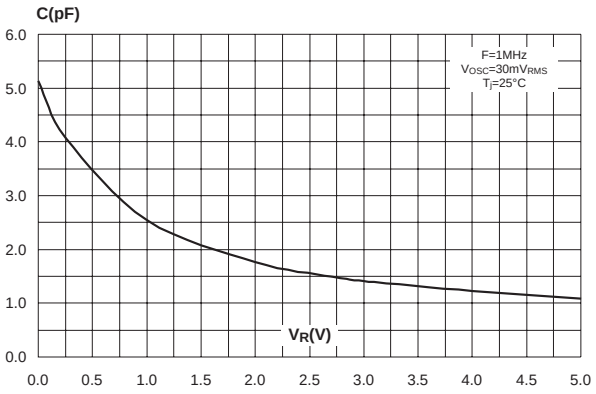


Fig. 4: Relative variation of junction capacitance versus junction temperature (typical values).

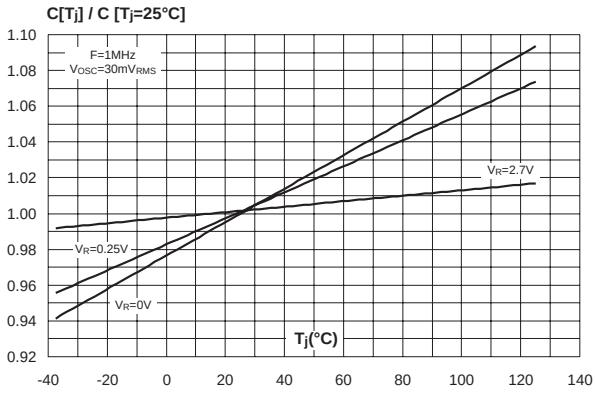


Fig. 5: Serie resistance versus reverse voltage applied (typical values).

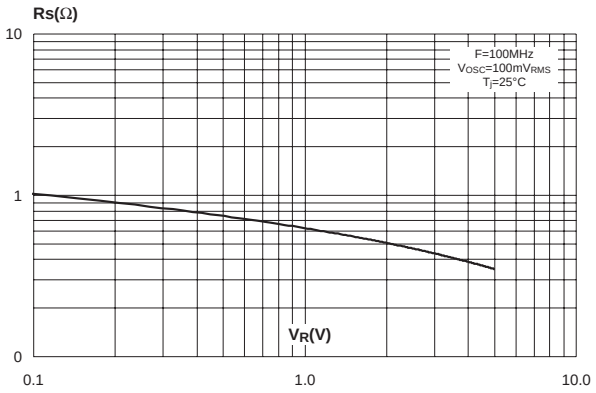


Fig. 6: Thermal resistance junction to ambient versus copper surface under each lead (printed circuit board, epoxy FR4, Cu=35µm).

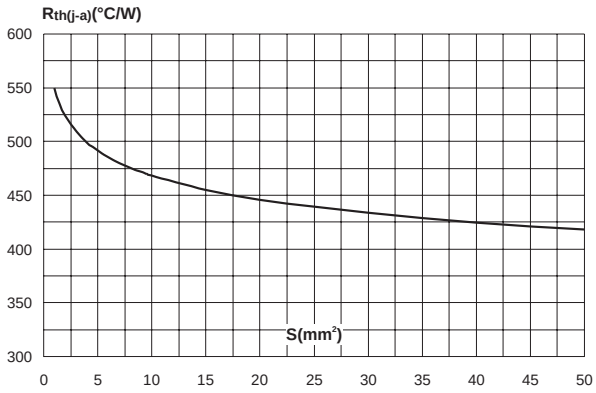
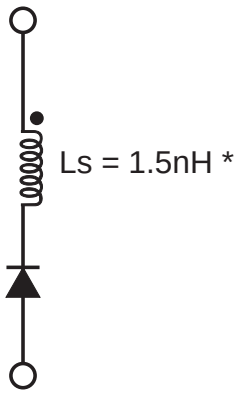


Fig. 7: PSpice parameters.

Diode parameters		
Parameters	**Value**	**Unit**
Is	1.892e-8	A
N	1.256	
Rs	0.62	Ω
Isr	8.090e-10	A
Cjo	5.178e-12	F
M	0.638	
Vj	0.487	V

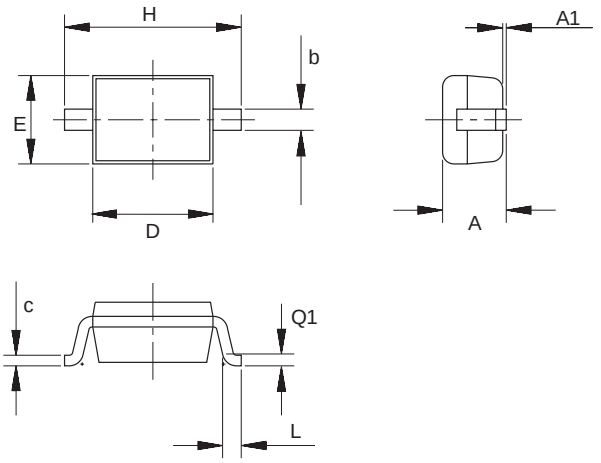
All others available parameters are set to default.



* Ls depends on package; this value is for SOD-323.

PACKAGE MECHANICAL DATA

SOD-323



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A		1.17		0.046
A1	0	0.1	0	0.004
b	0.25	0.44	0.01	0.017
c	0.1	0.25	0.004	0.01
D	1.52	1.8	0.06	0.071
E	1.11	1.45	0.044	0.057
H	2.3	2.7	0.09	0.106
L	0.1	0.46	0.004	0.02
Q1	0.1	0.41	0.004	0.016

MARKING

Type	Marking	Package	Weight	Base qty	Delivery mode
STVD901J	47	SOD-323	0.005g	3000	Tape & reel