



STVD901J

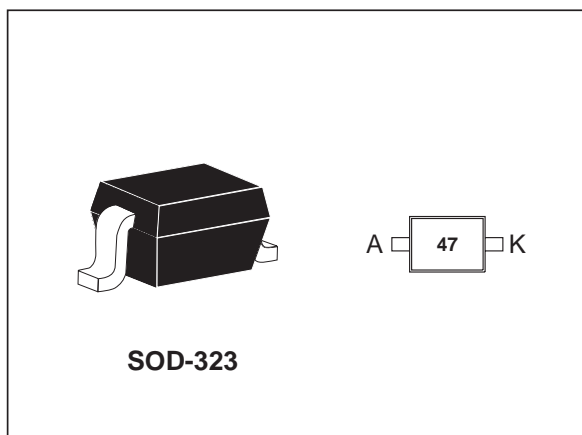
VARICAP

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.



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 ($T_j = 25^\circ\text{C}$ otherwise specified)

Symbol	Parameter	Tests Conditions	Min.	Typ.	Max.	Unit
I_R	Continuous reverse current	$V_R = 6\text{V}$			10	nA

THERMAL RESISTANCE

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

ELECTRICAL CHARACTERISTICS

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

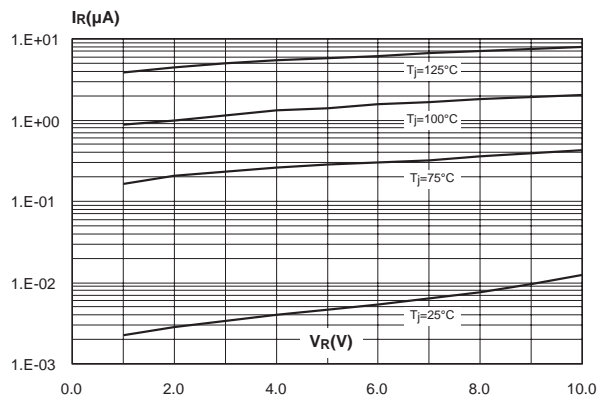
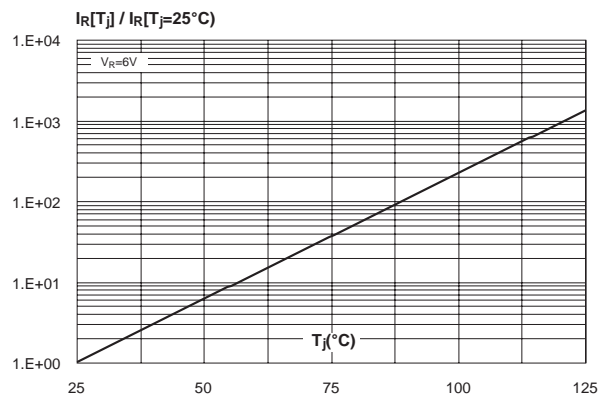
Fig. 1: Reverse leakage current versus reverse voltage applied (typical values).**Fig. 2:** Relative variation of reverse leakage current versus junction temperature (typical values).

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

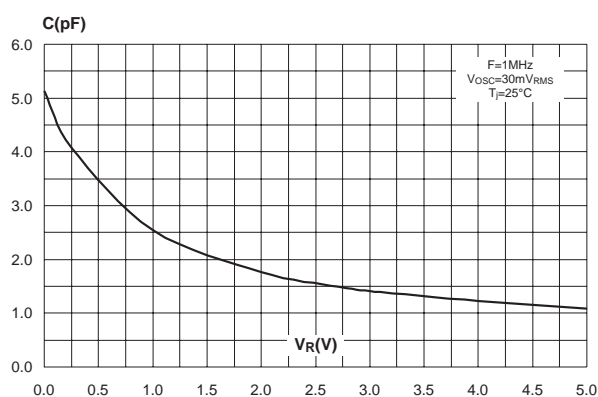


Fig. 5: Serie resistance versus reverse voltage applied (typical values).

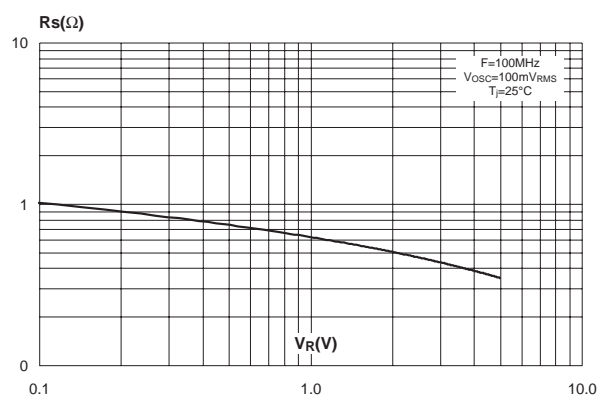


Fig. 7: PSpice parameters.

Diode parameters		
Parameters	Value	Unit
I_s	$1.892\text{e-}8$	A
N	1.256	
R_s	0.62	Ω
I_{sr}	$8.090\text{e-}10$	A
C_{jo}	$5.178\text{e-}12$	F
M	0.638	
V_j	0.487	V

All others available parameters are set to default.

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

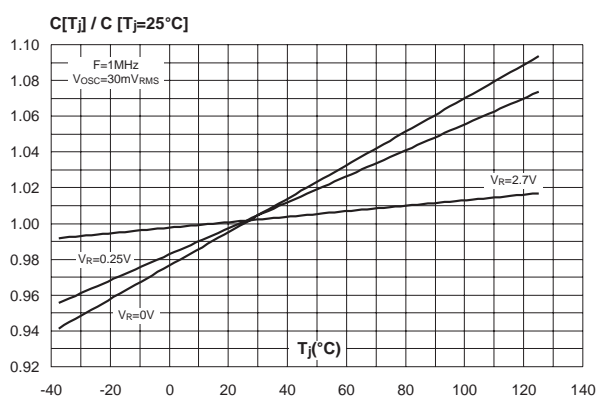
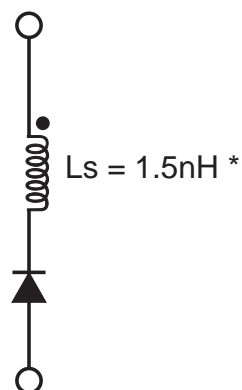
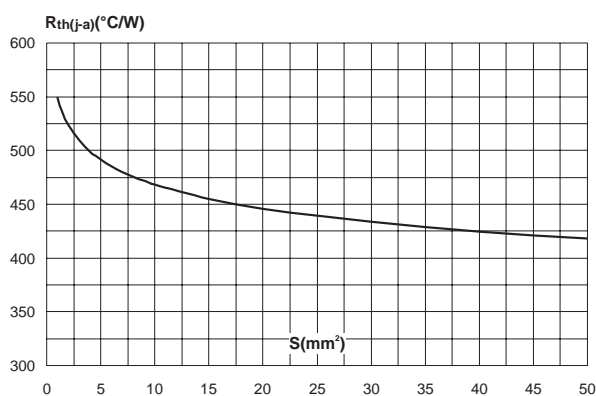


Fig. 6: Thermal resistance junction to ambient versus copper surface under each lead (printed circuit board, epoxy FR4, $\text{Cu}=35\mu\text{m}$).



* L_s 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

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