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# ZC930, ZMV930, ZV931 series

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## SILICON 12V HYPERABRUPT VARACTOR DIODES

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### Device Description

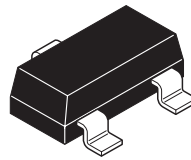
A range of silicon varactor diodes for use in frequency control and filtering. Featuring closely controlled CV characteristics and high Q. Low reverse current ensures very low phase noise performance. Available in single or dual common cathode format in a wide range of miniature surface mount packages.

### Features

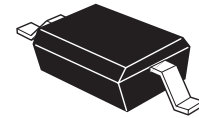
- Close tolerance C-V characteristics
- Octave tuning from 0 to 6V
- Low  $I_R$  (typically 200pA)
- Excellent phase noise performance
- High Q
- Range of miniature surface mount packages

### Applications

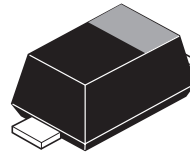
- VCXO and TCXO
- Wireless communications
- Pagers
- Mobile radio



SOT23



SOD323



SOD523

PINOUT



# ZC930, ZMV930, ZV931 series

## TUNING CHARACTERISTICS at $T_{amb} = 25^{\circ}\text{C}$

PART	Capacitance $V_R=1\text{V}$	Capacitance $V_R=2.5\text{V}$		Capacitance $V_R=4\text{V}$	Minimum Q $V_R=4\text{V}$ $f=50\text{MHz}$
	MIN. pF	MIN. pF	MAX. pF	MAX. pF	
930	8.70	4.30	5.50	2.90	200
931	13.50	6.50	7.80	4.00	300
932	17.00	8.50	10.50	5.50	200
933	42.00	18.00	27.00	12.00	150
933A	42.00	20.25	24.75	12.00	150
934	95.00	40.00	65.00	25.00	80

## ABSOLUTE MAXIMUM RATINGS

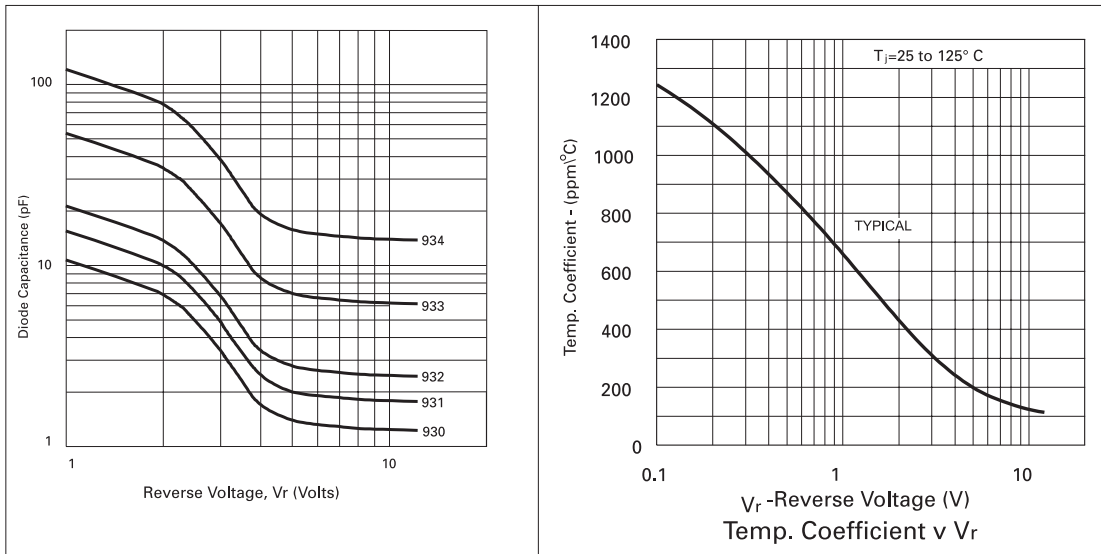
PARAMETER	SYMBOL	MAX.	UNIT
Reverse voltage	$V_R$	12	V
Forward current	$I_F$	100	mA
Power dissipation at $T_{amb} = 25^{\circ}\text{C}$ SOT23	$P_{tot}$	330	mW
Power dissipation at $T_{amb} = 25^{\circ}\text{C}$ SOD323	$P_{tot}$	330	mW
Power dissipation at $T_{amb} = 25^{\circ}\text{C}$ SOD523	$P_{tot}$	250	mW

## ELECTRICAL CHARACTERISTICS at $T_{amb} = 25^{\circ}\text{C}$

PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Reverse breakdown voltage	$I_R = 10\mu\text{A}$	12			V
Reverse voltage leakage	$V_R = 8\text{V}$		0.2	100	nA
Temperature coefficient of capacitance	$V_R = 3\text{V}, f = 1\text{MHz}$		300	400	ppCm/ $^{\circ}\text{C}$

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## TYPICAL CHARACTERISTICS



# ZC930, ZMV930, ZV931 series

## ORDER CODES AND PART MARKING

SOT23		SOD323		SOD523	
ORDER CODE	PART MARK	ORDER CODE	PART MARK	ORDER CODE	PART MARK
ZC930TA	V15	ZMV930TA	AH	-	-
ZC931TA	V14	ZMV931TA	AJ	ZV931V2TA	91
ZC932TA	V13	ZMV932TA	AK	ZV932V2TA	92
ZC933TA	V17	ZMV933TA	AL	ZV933V2TA	93
ZC933ATA	A17	ZMV933ATA	AM	-	-
ZC934TA	V16	ZMV934TA	AN	-	-
ZC934ATA	A16	ZMV934ATA	AO	-	-

## SOD323 - PART MARK ORIENTATION



Partmarking shown is for example only

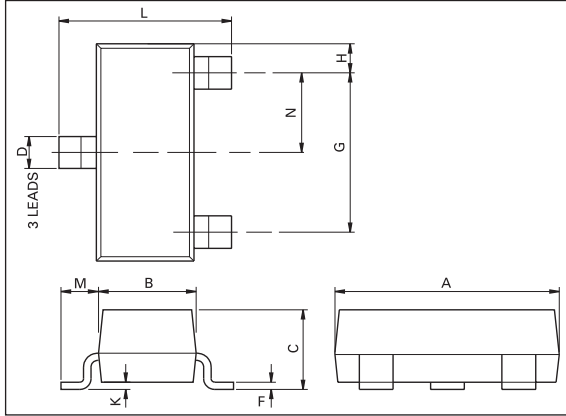
## TAPE AND REEL INFORMATION

The order codes are shown as TA which is for 7 inch reels. For 13 inch reels substitute TC in place of TA in the order code.

REEL CODE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
TA	7 inch (180mm)	8mm	3,000
TC	13 inch (330mm)	8mm	10,000

# ZC930, ZMV930, ZV931 series

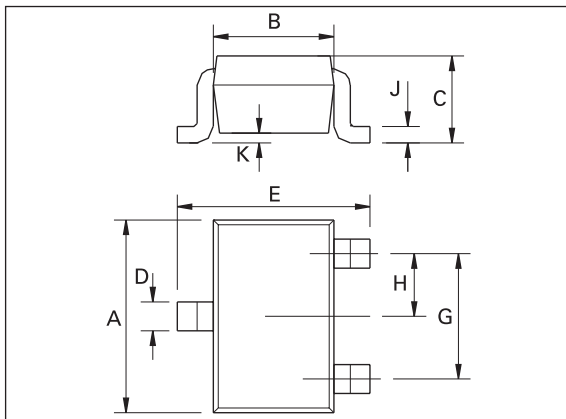
## SOT23 PACKAGE OUTLINE



## PACKAGE DIMENSIONS

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Max	Max
A	2.67	3.05	0.105	0.120	H	0.33	0.51	0.013	0.020
B	1.20	1.40	0.047	0.055	K	0.01	0.10	0.0004	0.004
C	—	1.10	—	0.043	L	2.10	2.50	0.083	0.0985
D	0.37	0.53	0.015	0.021	M	0.45	0.64	0.018	0.025
F	0.085	0.15	0.0034	0.0059	N	0.95 NOM		0.0375 NOM	

## SOD323 PACKAGE OUTLINE

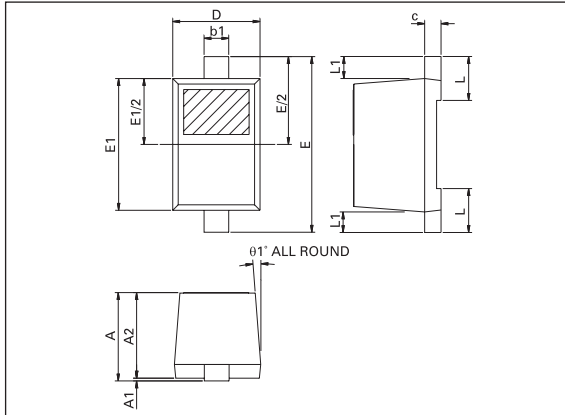


## PACKAGE DIMENSIONS

DIM	Millimetres		Inches	
	Min	Max	Min	Max
A	0.91	1.16	0.036	0.046
B	0.0	0.1	0.0	0.004
D	0.33	0.4	0.013	0.016
E	0.12	0.2	0.005	0.008
F	1.52	1.77	0.060	0.070
G	1.11	1.37	0.044	0.054
H	2.46	2.71	0.097	0.107

# ZC930, ZMV930, ZV931 series

## SOD523 PACKAGE OUTLINE



## PACKAGE DIMENSIONS

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
A	–	0.800	–	0.0314	E	1.500	1.700	0.0590	0.0669
A1	0.000	0.100	0.000	0.0039	E1	1.100	1.300	0.0433	0.0511
A2	0.600	0.800	0.0236	0.0314	L	0.200	0.400	0.0078	0.0157
b1	0.160	0.300	0.0062	0.0118	L1	0.170	0.230	0.0066	0.0090
c	0.080	0.220	0.0031	0.0086	θ1°	4°	10°	4°	10°

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