

ZC930, ZMV930, ZV931 series

SILICON 12V HYPERABRUPT VARACTOR DIODES

Device Description

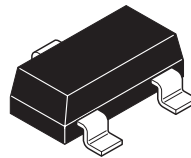
A range of silicon varactor diodes for use in frequency control and filtering. Featuring closely controlled CV characteristics and high Q. Low reverse current ensures very low phase noise performance. Available in single or dual common cathode format in a wide range of miniature surface mount packages.

Features

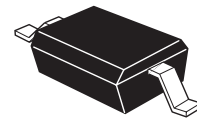
- Close tolerance C-V characteristics
- Octave tuning from 0 to 6V
- Low I_R (typically 200pA)
- Excellent phase noise performance
- High Q
- Range of miniature surface mount packages

Applications

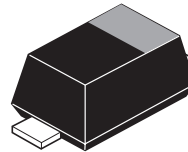
- VCXO and TCXO
- Wireless communications
- Pagers
- Mobile radio



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

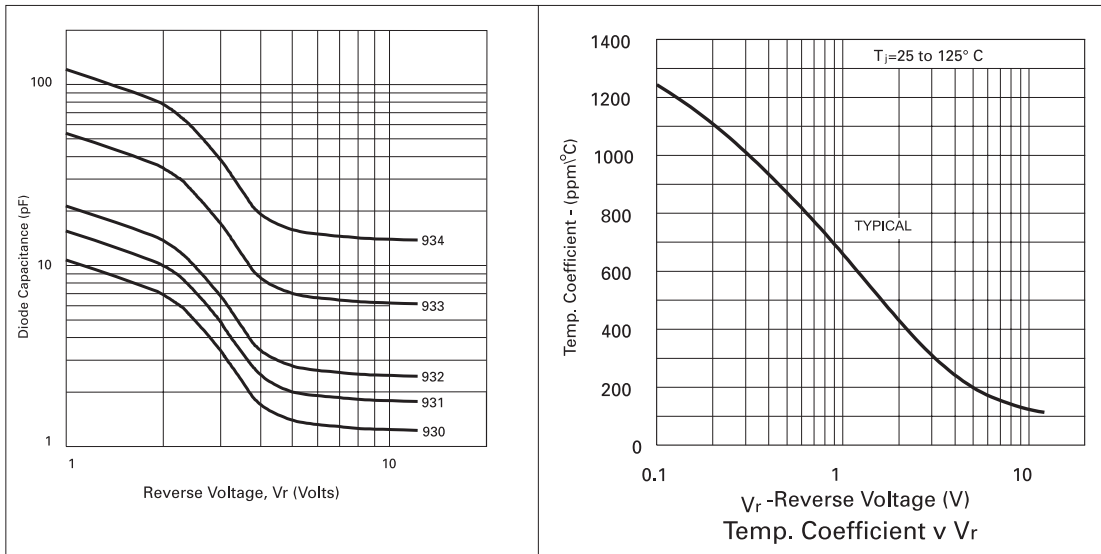
PARAMETER	SYMBOL	MAX.	UNIT
Reverse voltage	V_R	12	V
Forward current	I_F	100	mA
Power dissipation at $T_{amb} = 25^{\circ}\text{C}$ SOT23	P_{tot}	330	mW
Power dissipation at $T_{amb} = 25^{\circ}\text{C}$ SOD323	P_{tot}	330	mW
Power dissipation at $T_{amb} = 25^{\circ}\text{C}$ SOD523	P_{tot}	250	mW

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/ $^{\circ}\text{C}$

ZC930, ZMV930, ZV931 series

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

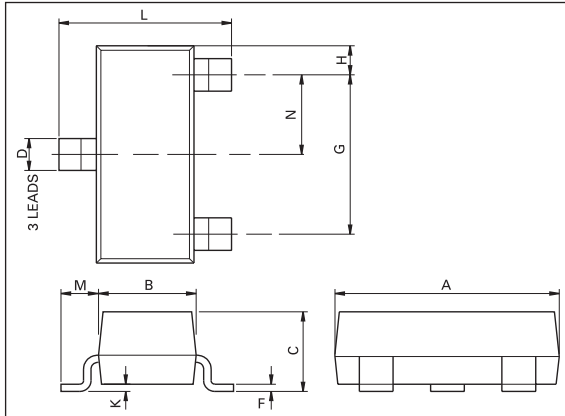
TAPE AND REEL INFORMATION

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

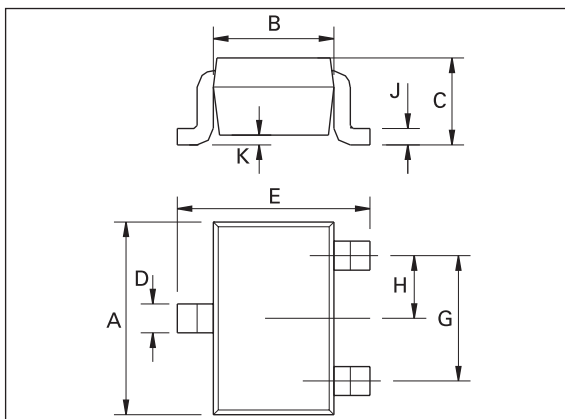
SOT23 PACKAGE OUTLINE



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

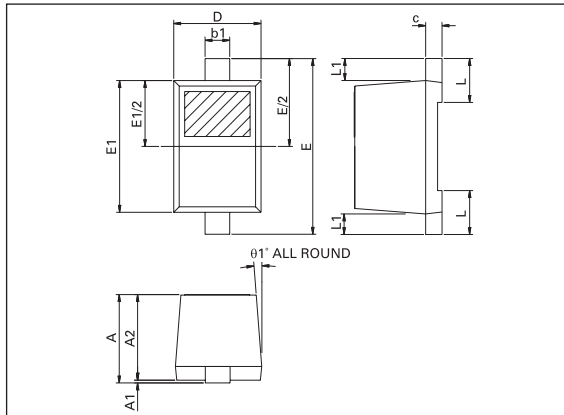


PACKAGE DIMENSIONS

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°

© Zetex Semiconductors plc 2004

Europe	Americas	Asia Pacific	Corporate Headquarters
Zetex GmbH Streitfeldstraße 19 D-81673 München Germany	Zetex Inc 700 Veterans Memorial Hwy Hauppauge, NY 11788 USA	Zetex (Asia) Ltd 3701-04 Metroplaza Tower 1 Hing Fong Road, Kwai Fong Hong Kong	Zetex Semiconductors plc Lansdowne Road, Chadderton Oldham, OL9 9TY United Kingdom
Telephone: (49) 89 45 49 49 0 Fax: (49) 89 45 49 49 49 europa.sales@zetex.com	Telephone: (1) 631 360 2222 Fax: (1) 631 360 8222 usa.sales@zetex.com	Telephone: (852) 26100 611 Fax: (852) 24250 494 asia.sales@zetex.com	Telephone (44) 161 622 4444 Fax: (44) 161 622 4446 hq@zetex.com

These offices are supported by agents and distributors in major countries world-wide.

This publication is issued to provide outline information only which (unless agreed by the Company in writing) may not be used, applied or reproduced for any purpose or form part of any order or contract or be regarded as a representation relating to the products or services concerned. The Company reserves the right to alter without notice the specification, design, price or conditions of supply of any product or service.

For the latest product information, log on to www.zetex.com



ISSUE 7 - SEPTEMBER 2004