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## SILICON 25V HYPERABRUPT VARACTOR DIODES

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ZC829, ZDC833, ZMV829, ZMDC830, ZV831 Series

### Device description

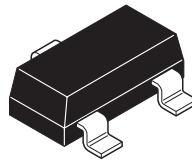
A range of silicon varactor diodes for use in frequency control and filtering. Featuring closely controlled CV characteristics and high Q. Low reverse current ensures very low phase noise performance. Available in single or dual common cathode format in a wide range of miniature surface mount packages.

### Features

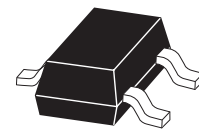
- Close tolerance C-V characteristics
- High tuning ratio
- Low I<sub>R</sub> (typically 200pA)
- Excellent phase noise performance
- High Q
- Range of miniature surface mount packages

### Applications

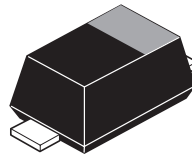
- VCXO and TCXO
- Wireless communications
- Pagers
- Mobile radio



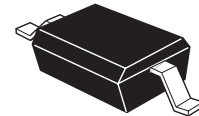
SOT23



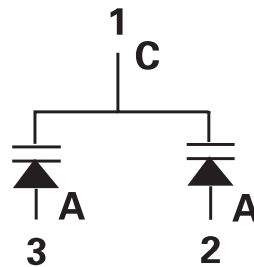
SOT323



SOD523



SOD323



\*Where steeper CV slopes are required there is the 12V hyperabrupt range.  
ZC930, ZMV930, ZV930, ZV931 Series

# 830 SERIES

## TUNING CHARACTERISTICS at Tamb = 25 °C

PART	Capacitance (pF) V <sub>R</sub> =2V, f=1MHz			Min Q V <sub>R</sub> =3V f=50MHz	Capacitance Ratio C <sub>2</sub> / C <sub>20</sub> at f=1MHz	
	MIN.	NOM.	MAX.		MIN.	MAX.
829A	7.38	8.2	9.02	250	4.3	5.8
829B	7.79	8.2	8.61	250	4.3	5.8
830A	9.0	10.0	11.0	300	4.5	6.0
830B	9.5	10.0	10.5	300	4.5	6.0
831A	13.5	15.0	16.5	300	4.5	6.0
831B	14.25	15.0	15.75	300	4.5	6.0
832A	19.8	22.0	24.2	200	5.0	6.5
832B	20.9	22.0	23.1	200	5.0	6.5
833A	29.7	33.0	36.3	200	5.0	6.5
833B	31.35	33.0	34.65	200	5.0	6.5
834A	42.3	47.0	51.7	200	5.0	6.5
834B	44.65	47.0	49.35	200	5.0	6.5
835A	61.2	68.0	74.8	100	5.0	6.5
835B	64.6	68.0	71.4	100	5.0	6.5
836A	90.0	100.0	110.0	100	5.0	6.5

## ABSOLUTE MAXIMUM RATINGS

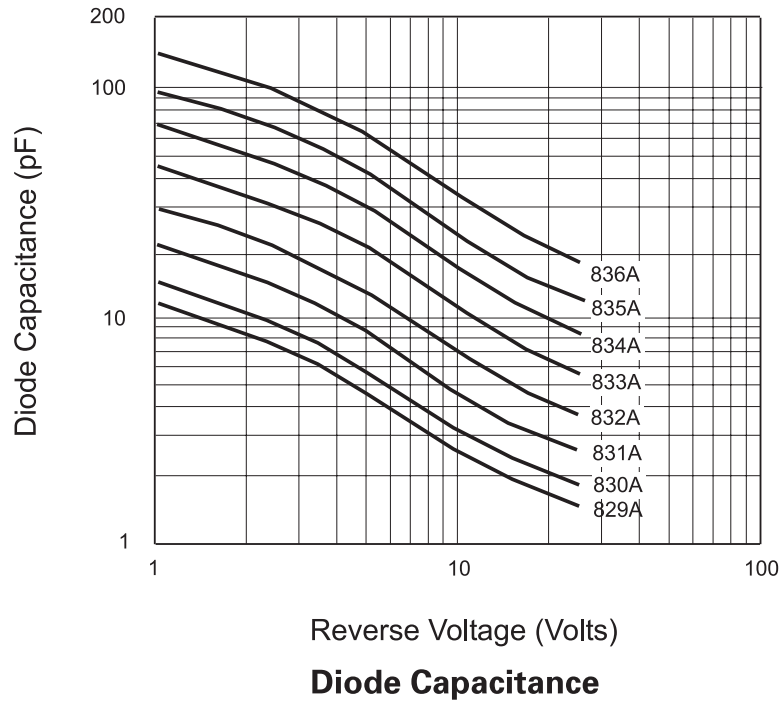
PARAMETER	SYMBOL	MAX	UNIT
Forward current	I <sub>F</sub>	200	mA
Power dissipation at T <sub>amb</sub> = 25°C SOT23	P <sub>tot</sub>	330	mW
Power dissipation at T <sub>amb</sub> = 25°C SOD323	P <sub>tot</sub>	330	mW
Power dissipation at T <sub>amb</sub> = 25°C SOD523	P <sub>tot</sub>	250	mW
Operating and storage temperature range		-55 to +150	°C

## ELECTRICAL CHARACTERISTICS at Tamb = 25 °C

PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Reverse breakdown voltage	I <sub>R</sub> = 10uA	25			V
Reverse voltage leakage	V <sub>R</sub> = 20V		0.2	20	nA
Temperature coefficient of capacitance	V <sub>R</sub> = 3V, f = 1MHz		300	400	ppCm/°C

# 830 SERIES

## TYPICAL CHARACTERISTICS



# 830 SERIES

## ORDER CODES AND PART MARKING

SOT23		SOD323		SOD523		SOT23		SOT323	
ORDER CODE	PART MARK	ORDER CODE	PART MARK	ORDER CODE	PART MARK	ORDER CODE	PART MARK	ORDER CODE	PART MARK
ZC829ATA	J9A	ZMV829ATA	AA						
ZC829BTA	J9B	ZMV829BTA	CA						
ZC830ATA	J1A	ZMV830ATA	AB						
ZC830BTA	J1B	ZMV830BTA	CB						
ZC831ATA	J3A	ZMV831ATA	AC						
ZC831BTA	J3B	ZMV831BTA	CC	ZV831BV2TA	81			ZMDC831BTA	CC
ZC832ATA	J4A	ZMV832ATA	AD						
ZC832BTA	J4B	ZMV832BTA	CD	ZV832BV2TA	82			ZMDC832BTA	CD
ZC833ATA	J2A	ZMV833ATA	AE				ZDC833ATA	C2A	
ZC833BTA	J2B	ZMV833BTA	CE						
ZC834ATA	J5A	ZMV834ATA	AF				ZDC834ATA	C5A	
ZC834BTA	J5B	ZMV834BTA	CF						
ZC835ATA	J6A	ZMV835ATA	AG						
ZC835BTA	J6B	ZMV835BTA	CG						

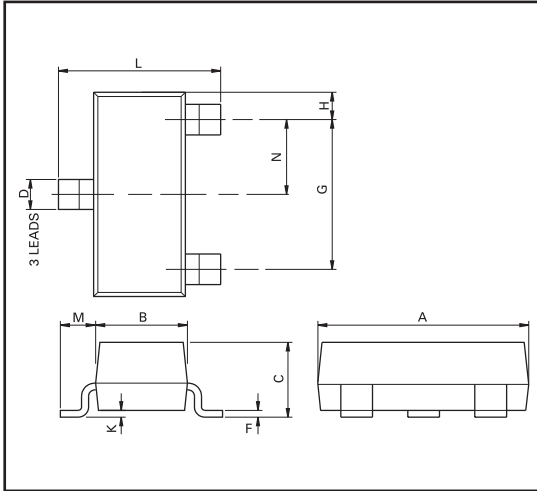
### TAPE AND REEL INFORMATION

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	3000
TC	13 inch (330mm)	8mm	10000

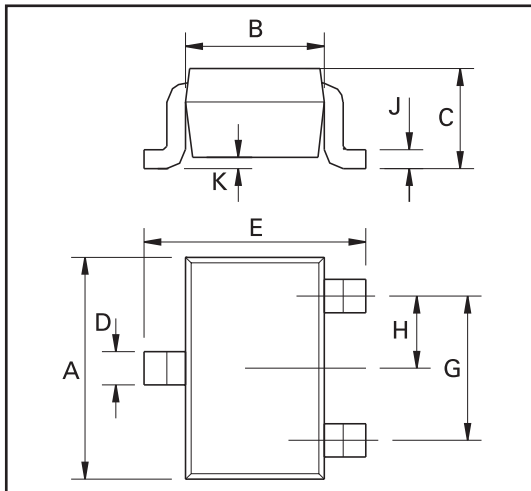
# 830 SERIES

## SOT23 PACKAGE DIMENSIONS



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	2.67	3.05	0.105	0.120
B	1.20	1.40	0.047	0.055
C	-	1.10	-	0.043
D	0.37	0.53	0.0145	0.021
F	0.085	0.15	0.0033	0.0059
G	NOM 1.9		NOM 0.075	
K	0.01	0.10	0.0004	0.004
L	2.10	2.50	0.0825	0.0985

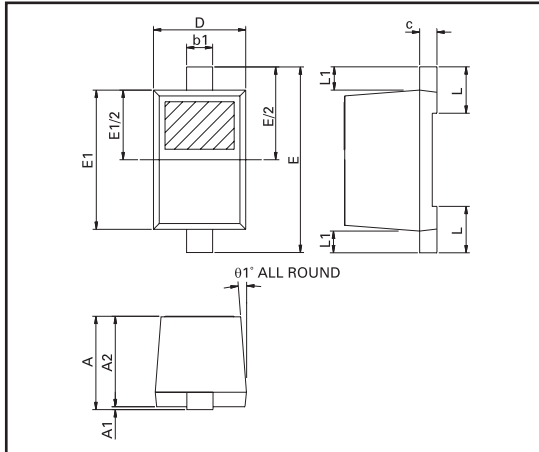
## SOT323 PACKAGE DIMENSIONS



DIM	Millimeters		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	0.127	0.2	0.005	0.008
F	1.52	1.77	0.060	0.070
G	1.11	1.37	0.044	0.054

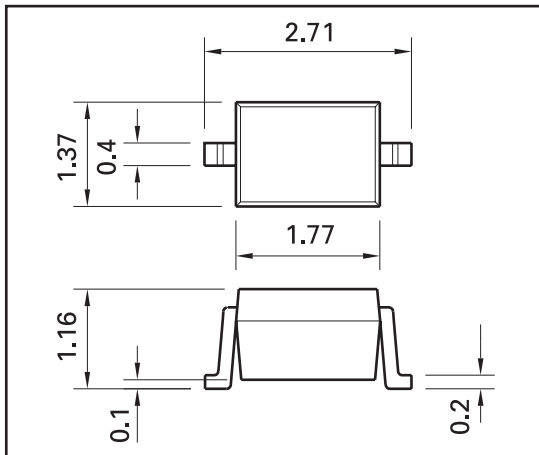
# 830 SERIES

## SOD523 PACKAGE DIMENSIONS



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	-	0.800	-	0.0314
A1	0.000	0.100	0.000	0.0039
A2	0.600	0.800	0.0236	0.0314
b1	0.160	0.300	0.0062	0.0118
c	0.080	0.220	0.0031	0.0086
D	0.700	0.900	0.0275	0.0354
E	1.500	1.700	0.0590	0.0669
E1	1.100	1.300	0.0433	0.0511
L	0.200	0.400	0.0078	0.0157
L1	0.170	0.230	0.0066	0.0090
θ1°	4°	10°	4°	10°

## SOD323 PACKAGE DIMENSIONS



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	1.8	2.2	0.071	0.087
B	1.15	1.35	0.045	0.053
C	0.8	1.0	0.031	0.039
D	0.2	0.4	0.008	0.016
F	0.1	0.25	0.004	0.01
G	1.2	1.4	0.047	0.055

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