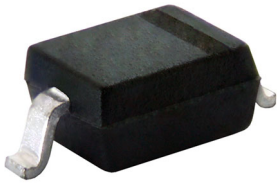
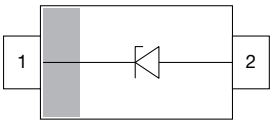
Small Signal Zener Diodes





MARKING (example only)

XYZ = type code (see table below)
bar = pin 1

LINKS TO ADDITIONAL RESOURCES

3D Models | Marking | Parametric Search | Order Samples

FEATURES

- Silicon planar Zener diodes
- The Zener voltages are graded according to the international E24 standard
- Standard Zener voltage tolerance is ± 5 %; replace “C” with “B” for ± 2 % tolerance
- AEC-Q101 qualified available
- ESD capability according to AEC-Q101:
  Human body model > 8 kV
  Machine model > 800 V
- Base P/N-G3 - Vishay Green, commercial grade
- Base P/N-HG3_A - Vishay Green, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE Available

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V_Z range nom.	2.2 to 75	V
Test current I_{ZT}	2; 5	mA
V_Z specification	Pulse current	
Circuit configuration	Single	

ORDERING INFORMATION					
DEVICE NAME	ORDERING CODE	ZENER TOLERANCE	AEC-Q101 QUALIFIED	TAPED UNITS	MINIMUM ORDER QUANTITY
BZX384 series	BZX384C2V2-G3-08 to BZX384C75-G3-08	5 %	No	3000 (8 mm tape on 7" reel)	15 000
	BZX384B2V2-G3-08 to BZX384B75-G3-08	2 %	No		
	BZX384C2V2-HG3_A08 to BZX384C75-HG3_A08	5 %	Yes		
	BZX384B2V2-HG3_A08 to BZX384B75-HG3_A08	2 %	Yes		
	BZX384C2V2-G3-18 to BZX384C75-G3-18	5 %	No	10 000 (8 mm tape on 13" reel)	10 000
	BZX384B2V2-G3-18 to BZX384B75-G3-18	2 %	No		
	BZX384C2V2-HG3_A18 to BZX384C75-HG3_A18	5 %	Yes		
	BZX384B2V2-HG3_A18 to BZX384B75-HG3_A18	2 %	Yes		

PACKAGE				
PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
SOD-323	4 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Power dissipation		P_{tot}	200	mW
Thermal resistance junction to lead		R_{thJL}	625	K/W
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-65 to +150	°C
Operating temperature range		T_{op}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

PART NUMBER	MARKING CODE	ZENER VOLTAGE RANGE (1)			TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE		PEAK PULSE CURRENT (2)	REVERSE CLAMPING VOLTAGE AT I_{PPM}	ESD IMMUNITY (3)	TEMPERATURE COEFFICIENT OF ZENER VOLTAGE	
		V_Z at I_{ZT1}			I_{ZT1}	I_{ZT2}	I_R at V_R		Z_Z at I_{ZT1}	Z_{ZK} at I_{ZT2}	I_{PPM}	V_C	V_{ESD}	α_{VZ} at I_{ZT1}	
		V			mA		µA	V	Ω		A	V	kV	10^{-4}/°C	
		MIN.	NOM.	MAX.			MAX.		MAX.	MAX.		MAX.	MAX.	MIN.	MAX.
BZX384C2V2	E1	2.09	2.2	2.31	5	1	100	1	120	600	11.8	5.91	≥ 30	-9	-4
BZX384C2V4	E2	2.28	2.4	2.52	5	1	50	1	100	600	11.6	6.02	≥ 30	-9	-4
BZX384C2V7	E3	2.57	2.7	2.84	5	1	20	1	100	600	11.2	6.22	≥ 30	-9	-3
BZX384C3V0	E4	2.85	3	3.15	5	1	10	1	95	600	10.9	6.4	≥ 30	-9	-3
BZX384C3V3	E5	3.14	3.3	3.47	5	1	5	1	95	600	10.7	6.54	≥ 30	-8	-3
BZX384C3V6	E6	3.42	3.6	3.78	5	1	5	1	90	600	10.6	6.6	≥ 30	-8	-3
BZX384C3V9	E7	3.71	3.9	4.1	5	1	3	1	90	600	10.4	6.73	≥ 30	-7	-3
BZX384C4V3	E8	4.09	4.3	4.52	5	1	3	1	90	600	10.1	6.93	≥ 30	-6	-1
BZX384C4V7	E9	4.47	4.7	4.94	5	1	3	2	80	500	12.3	8.14	≥ 30	-5	2
BZX384C5V1	E0	4.85	5.1	5.36	5	1	2	2	60	480	12.1	9.87	≥ 30	-3	4
BZX384C5V6	H1	5.32	5.6	5.88	5	1	1	2	40	400	10.5	10.6	≥ 30	-2	6
BZX384C6V2	H2	5.89	6.2	6.51	5	1	3	4	10	150	10.3	9.66	≥ 30	-1	7
BZX384C6V8	H3	6.46	6.8	7.14	5	1	2	4	15	80	9.4	10.6	≥ 30	2	7
BZX384C7V5	H4	7.13	7.5	7.88	5	1	1	5	15	80	8.6	11.54	≥ 30	3	7
BZX384C8V2	H5	7.79	8.2	8.61	5	1	0.7	5	15	80	7.9	12.6	≥ 30	4	7
BZX384C9V1	H6	8.65	9.1	9.56	5	1	0.5	6	15	100	7.4	13.55	≥ 30	5	8
BZX384C10	H7	9.5	10	10.5	5	1	0.2	7	20	150	6.75	14.8	≥ 30	5	8
BZX384C11	H8	10.45	11	11.55	5	1	0.1	8	20	150	6.1	16.4	≥ 30	5	9
BZX384C12	H9	11.4	12	12.6	5	1	0.1	8	25	150	5.43	18.4	≥ 30	6	9
BZX384C13	H0	12.4	13	13.65	5	1	0.1	8	30	170	5.15	19.4	≥ 30	7	9
BZX384C15	N1	14.25	15	15.6	5	1	0.05	10.5	30	200	4.5	22	≥ 30	7	9
BZX384C16	N2	15.3	16	16.8	5	1	0.05	11.2	40	200	3.96	25.2	≥ 30	8	9.5
BZX384C18	N3	17.1	18	18.9	5	1	0.05	12.6	45	225	3.69	27.1	≥ 30	8	9.5
BZX384C20	N4	19	20	21	5	1	0.05	14	55	225	3.18	31.4	≥ 30	8	10
BZX384C22	N5	20.9	22	23.1	5	1	0.05	15.4	55	250	2.8	35.6	25	8	10
BZX384C24	N6	22.8	24	25.2	5	1	0.05	16.8	70	250	2.61	38.3	25	8	10
BZX384C27	N7	25.65	27	28.35	2	0.5	0.05	18.9	80	300	2.3	43.5	20	8	10
BZX384C30	N8	28.5	30	31.5	2	0.5	0.05	21	80	300	2.2	46.3	20	8	10
BZX384C33	N9	31.35	33	34.65	2	0.5	0.05	23.1	80	325	1.88	53.1	15	8	10
BZX384C36	N0	34.2	36	37.8	2	0.5	0.05	25.2	90	350	1.74	57.4	15	8	10
BZX384C39	P1	37.05	39	40.95	2	0.5	0.05	27.3	130	350	1.49	67.1	14	10	12
BZX384C43	P2	40.85	43	45.15	2	0.5	0.05	30.1	150	375	1.41	70.9	14	10	12
BZX384C47	P3	44.65	47	49.35	2	0.5	0.05	32.9	170	375	1.21	82.6	14	10	12
BZX384C51	P4	48.45	51	53.55	2	0.5	0.05	35.7	180	400	1.16	86.2	14	10	12
BZX384C56	P5	53.2	56	58.8	2	0.5	0.05	39.2	200	425	1.00	100	12	9	11
BZX384C62	P6	58.9	62	65.1	2	0.5	0.05	43.4	215	450	0.96	105	12	9	12
BZX384C68	P7	64.6	68	71.4	2	0.5	0.05	47.6	240	475	0.83	120	9	10	12
BZX384C75	P8	71.25	75	78.75	2	0.5	0.05	52.5	255	500	0.81	123	9	10	12

Notes

(1) Pulse test t_P = 5 ms

(2) Pulse test: t_p = 8/20 µs according to IEC 61000-4-5

(3) Contact and air discharge according to IEC 61000-4-2

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

PART NUMBER	MARKING CODE	ZENER VOLTAGE RANGE (1)			TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE		PEAK PULSE CURRENT (2)	REVERSE CLAMPING VOLTAGE AT I_{PPM}	ESD IMMUNITY (3)	TEMPERATURE COEFFICIENT OF ZENER VOLTAGE	
		V_Z at I_{ZT1}			I_{ZT1}	I_{ZT2}	I_R at V_R		Z_Z at I_{ZT1}	Z_{ZK} at I_{ZT2}	I_{PPM}	V_C	V_{ESD}	α_{VZ} at I_{ZT1}	
		V			mA		µA	V	Ω		A	V	kV	10^{-4}/°C	
		MIN.	NOM.	MAX.			MAX.		MAX.	MAX.		MAX.	MAX.	MIN.	MAX.
BZX384B2V2	P9	2.16	2.2	2.24	5	1	100	1	120	600	11.8	5.91	≥ 30	-9	-4
BZX384B2V4	P0	2.35	2.4	2.45	5	1	50	1	100	600	11.6	6.02	≥ 30	-9	-4
BZX384B2V7	B1	2.65	2.7	2.75	5	1	20	1	100	600	11.2	6.22	≥ 30	-9	-3
BZX384B3V0	B2	2.94	3	3.06	5	1	10	1	95	600	10.9	6.4	≥ 30	-9	-3
BZX384B3V3	B3	3.23	3.3	3.37	5	1	5	1	95	600	10.7	6.54	≥ 30	-8	-3
BZX384B3V6	B4	3.53	3.6	3.67	5	1	5	1	90	600	10.6	6.6	≥ 30	-8	-3
BZX384B3V9	B5	3.82	3.9	3.98	5	1	3	1	90	600	10.4	6.73	≥ 30	-7	-3
BZX384B4V3	B8	4.21	4.3	4.39	5	1	3	1	90	600	10.1	6.93	≥ 30	-6	-1
BZX384B4V7	B9	4.61	4.7	4.79	5	1	3	2	80	500	12.3	8.14	≥ 30	-5	2
BZX384B5V1	B0	5	5.1	5.2	5	1	2	2	60	480	12.1	9.87	≥ 30	-3	4
BZX384B5V6	K1	5.49	5.6	5.71	5	1	1	2	40	400	10.5	10.6	≥ 30	-2	6
BZX384B6V2	K2	6.08	6.2	6.32	5	1	3	4	10	150	10.3	9.66	≥ 30	-1	7
BZX384B6V8	K3	6.66	6.8	6.94	5	1	2	4	15	80	9.4	10.6	≥ 30	2	7
BZX384B7V5	K4	7.35	7.5	7.65	5	1	1	5	15	80	8.6	11.54	≥ 30	3	7
BZX384B8V2	K5	8.04	8.2	8.36	5	1	0.7	5	15	80	7.9	12.6	≥ 30	4	7
BZX384B9V1	K6	8.92	9.1	9.28	5	1	0.5	6	15	100	7.4	13.55	≥ 30	5	8
BZX384B10	K7	9.8	10	10.2	5	1	0.2	7	20	150	6.75	14.8	≥ 30	5	8
BZX384B11	K8	10.78	11	11.22	5	1	0.1	8	20	150	6.1	16.4	≥ 30	5	9
BZX384B12	K9	11.76	12	12.24	5	1	0.1	8	25	150	5.43	18.4	≥ 30	6	9
BZX384B13	K0	12.74	13	13.26	5	1	0.1	8	30	170	5.15	19.4	≥ 30	7	9
BZX384B15	2C	14.7	15	15.3	5	1	0.05	10.5	30	200	4.5	22	≥ 30	7	9
BZX384B16	3C	15.68	16	16.32	5	1	0.05	11.2	40	200	3.96	25.2	≥ 30	8	9.5
BZX384B18	4C	17.64	18	18.36	5	1	0.05	12.6	45	225	3.69	27.1	≥ 30	8	9.5
BZX384B20	5C	19.6	20	20.4	5	1	0.05	14	55	225	3.18	31.4	≥ 30	8	10
BZX384B22	6C	21.56	22	22.44	5	1	0.05	15.4	55	250	2.8	35.6	25	8	10
BZX384B24	7C	23.52	24	24.48	5	1	0.05	16.8	70	250	2.61	38.3	25	8	10
BZX384B27	8C	26.46	27	27.54	2	0.5	0.05	18.9	80	300	2.3	43.5	20	8	10
BZX384B30	9C	29.4	30	30.6	2	0.5	0.05	21	80	300	2.2	46.3	20	8	10
BZX384B33	0C	32.34	33	33.66	2	0.5	0.05	23.1	80	325	1.88	53.1	15	8	10
BZX384B36	2B	35.28	36	36.72	2	0.5	0.05	25.2	90	350	1.74	57.4	15	8	10
BZX384B39	3B	38.22	39	39.78	2	0.5	0.05	27.3	130	350	1.49	67.1	14	10	12
BZX384B43	4B	42.14	43	43.86	2	0.5	0.05	30.1	150	375	1.41	70.9	14	10	12
BZX384B47	5B	46.06	47	47.94	2	0.5	0.05	32.9	170	375	1.21	82.6	14	10	12
BZX384B51	6B	49.98	51	52.02	2	0.5	0.05	35.7	180	400	1.16	86.2	14	10	12
BZX384B56	7B	54.88	56	57.12	2	0.5	0.05	39.2	200	425	1.00	100	12	9	11
BZX384B62	8B	60.76	62	63.24	2	0.5	0.05	43.4	215	450	0.96	105	12	9	12
BZX384B68	9B	66.64	68	69.36	2	0.5	0.05	47.6	240	475	0.83	120	9	10	12
BZX384B75	0B	73.5	75	76.5	2	0.5	0.05	52.5	255	500	0.81	123	9	10	12

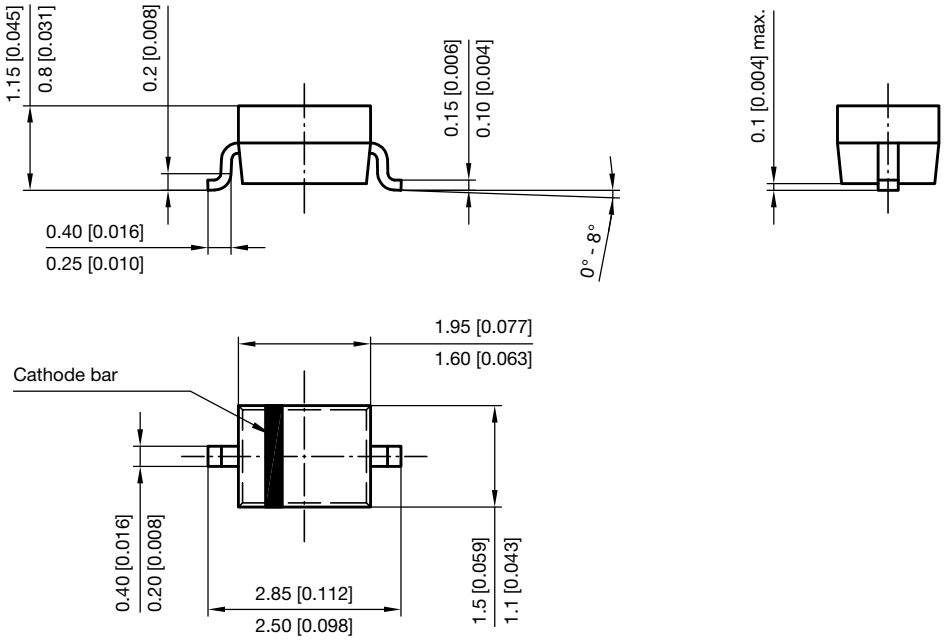
Notes

(1) Pulse test t_P = 5 ms

(2) Pulse test: t_p = 8/20 µs according to IEC 61000-4-5

(3) Contact and air discharge according to IEC 61000-4-2

PACKAGE DIMENSIONS in millimeters (inches): **SOD-323**



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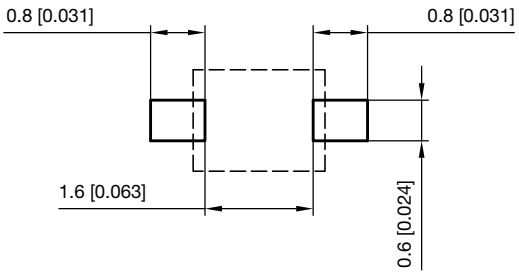

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