



Solid State Devices, Inc.

14701 Firestone Blvd * La Mirada, Ca 90638
Phone: (562) 404-4474 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

SZN6309 thru SZN6355 Series

0.5 WATT 2.4 – 200 VOLTS ZENER DIODES

DESIGNER'S DATA SHEET

Part Number/Ordering Information ^{1/}

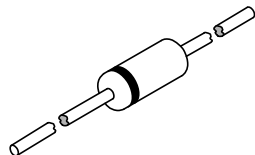
SZN

- Screening ^{2/}**
 - = Not Screened
 - TX = TX Level
 - TXV = TXV
 - S = S Level
- Package Type**
 - = Axial Leaded
 - SMS = Surface Mount Square Tab
- Tolerance**
 - = 5%
 - C = 2 % special order
 - D = 1% special order
- Voltage/Family**
 - 6309 thru 6355

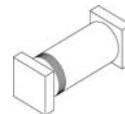
- FEATURES:**
- Hermetically Sealed in Glass
 - Rated at 0.5 W
 - Category III Metallurgical Bond
 - Available in Axial and Square Tab Surface Mount (SMS) version
 - Available to TX, TXV, and Space Levels ^{2/}
 - Zener Voltage 5%, 2% or 1% Tolerance
 - Replacement for 1N6309 thru 1N6333

Maximum Ratings	Symbol	Value	Units
Nominal Zener Voltage	V_Z	2.4 - 200	V
Maximum Zener Current	I_{ZM}	2.1 - 177	mA
Forward Surge Current (8.3 msec Pulse)	I_{FSM}	0.045 – 2.50	A
Continuous Power	P_D	0.5	W
Operating and Storage Temp.	Top Tstg	-65 to +175	°C
Thermal Resistance, Junction to Lead L=3/8" (Axial)	$R_{\theta JL}$	250	°C/W
Thermal Resistance, Junction to End Cap (SMS)	$R_{\theta JE}$	150	°C/W

AXIAL ()



SQUARE TAB (SMS)



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SZN6309 thru SZN6355 Series**Electrical Characteristics @ 25°C**

PART NUMBER	V _{Z2}	V _{Z1}	I _{Z1}	Z _{ZT}	Z _{ZK}	I _{ZM}	V _{Z(reg)} ^{5/}	I _{ZSM}	V _R	I _{R1}	I _{R2}	N _D	α _{VZ}
	@ I _{Z1} 3/ 4/	@ 250 μA	Test Current	@ I _{Z1}	@ 250 μA	Max DC current	@ 10 to 50% of I _{ZM}	Peak Surge (square)	Test Voltage	@ V _R	@ V _R T _A = +150°C	@ 250 μA 1-3 kHz	@ I _{Z1} T ₁ = +25°C T ₂ = +125°C
	Nom	Min	-	Max	Max	-	Max	Rating	-	Max	Max	Max	Max
	V	V	mA	Ω	Ω	mA	V	A	V	μA	μA	μV√Hz	%/°C
SZN6309	2.4	1.1	20	30	1200	177	1.50	2.50	1.0	100	200	1	-.085
SZN6310	2.7	1.2	20	30	1300	157	1.50	2.20	1.0	60	150	1	-.080
SZN6311	3.0	1.3	20	29	1400	141	1.50	2.00	1.0	30	100	1	-.075
SZN6312	3.3	1.5	20	27	1400	128	1.60	1.80	1.0	5	20	1	-.070
SZN6313	3.6	1.8	20	25	1400	117	1.60	1.65	1.0	3	12	1	-.065
SZN6314	3.9	2.0	20	23	1700	108	1.60	1.50	1.0	2	12	1	-.060
SZN6315	4.3	2.4	20	20	1700	99	0.90	1.40	1.0	2	12	1	-.045/+0.020
SZN6316	4.7	2.8	20	17	1500	90	0.70	1.27	1.5	5	12	1	-.028/+0.032
SZN6317	5.1	3.3	20	14	1300	83	0.50	1.17	2.0	5	12	1	-.020/+0.035
SZN6318	5.6	4.3	20	8	1200	76	0.40	1.10	2.5	5	10	2	+.050
SZN6319	6.2	5.2	20	3	800	68	0.30	0.97	3.5	5	10	5	+.060
SZN6320	6.8	6.0	20	3	700	63	0.35	1.23	4.0	2	50	5	+.062
SZN6321	7.5	6.6	20	4	700	57	0.40	1.16	5.0	2	30	5	+.068
SZN6322	8.2	7.5	20	5	700	52	0.40	1.07	6.0	1	10	20	+.077
SZN6323	9.1	8.4	20	6	700	47	0.55	0.95	7.0	1.00	10	40	+.078
SZN6324	10.0	9.1	20	6	800	43	0.55	0.85	8.0	1.00	10	80	+.079
SZN6325	11.0	10.0	20	7	800	39	0.55	0.81	8.5	1.00	10	100	+.082
SZN6326	12.0	11.0	20	7	800	35	0.60	0.77	9.0	1.00	10	100	+.083
SZN6327	13.0	11.9	9.5	8	800	33	0.60	0.71	9.9	0.05	10	100	+.083
SZN6328	15.0	13.8	8.5	10	800	28	0.70	0.62	11.0	0.05	10	100	+.084
SZN6329	16.0	14.7	7.8	12	800	27	0.75	0.58	12.0	0.05	10	100	+.084
SZN6330	18.0	16.6	7.0	14	800	24	0.85	0.52	14.0	0.05	10	100	+.085
SZN6331	20.0	18.5	6.2	18	800	21	0.95	0.47	15.0	0.05	10	100	+.086
SZN6332	22.0	20.4	5.6	20	800	19	1.05	0.43	17.0	0.05	10	100	+.087
SZN6333	24.0	22.3	5.2	24	800	18	1.15	0.39	18.0	0.05	10	100	+.088

NOTES:

- 1/ For Ordering Information, Price, and Availability- Contact Factory.
- 2/ Screening Based on MIL-PRF-19500. Screening Flows Available on Request.
- 3/ SZN6309D through SZN6355D are 1 percent voltage tolerance. SZN6309C through SZN6355C are 2 percent voltage tolerance. SZN6309 through SZN6355 are 5 percent voltage tolerance.
- 4/ All zener voltages are measured with an automated test set using a 35 msec test time. Longer or shorter test time will have a corresponding effect on the measured value due to heating effects.
- 5/ For SZN6309-SZN6319 the test currents shall be at 2 mA and 20 mA.

NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: Z00011F**DOC**



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Electrical Characteristics @ 25°C

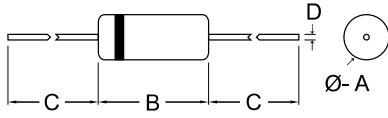
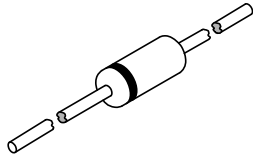
PART NUMBER	V _{Z2}	V _{Z1}	I _{Z1}	Z _{ZT}	Z _{ZK}	I _{ZM}	V _{Z(Reg)} ^{5/}	I _{ZSM}	V _R	I _{R1}	I _{R2}	N _D	α _{VZ}
	@ I _{Z1} 3/ 4/	@ 250 μA	Test Current	@ I _{Z1}	@ 250 μA	Max DC current	@ 10 to 50% of I _{ZM}	Peak Surge (square)	Test Voltage	@ V _R	@ V _R T _A = +150°C	@ 250 μA 1-3 kHz	@ I _{Z1} T ₁ = +25°C T ₂ = +125°C
	Nom	Min	-	Max	Max	-	Max	Rating	-	Max	Max	Max	Max
	V	V	mA	Ω	Ω	mA	V	A	V	μA	μA	μV/Hz	%/°C
SZN6334	27.0	25.2	4.6	27	800	16	1.30	0.35	21.0	0.05	10	100	+0.090
SZN6335	30.0	28.0	4.2	32	800	14	1.45	0.31	23.0	0.05	10	100	+0.091
SZN6336	33.0	30.9	3.8	40	1000	13	1.60	0.28	25.0	0.05	10	100	+0.092
SZN6337	36.0	33.7	3.4	50	1000	12.0	1.75	0.260	27.0	0.05	10	100	+0.093
SZN6338	39.0	36.6	3.2	55	1000	11.0	1.90	0.240	30	0.05	10	100	+0.094
SZN6339	43.0	40.4	3.0	65	1000	9.9	2.10	0.220	33	0.05	10	80	+0.095
SZN6340	47.0	44.2	2.7	75	1000	9.0	2.25	0.200	36	0.05	10	80	+0.095
SZN6341	51.0	48.0	2.5	85	1000	8.3	2.50	0.180	39	0.05	10	80	+0.096
SZN6342	56.0	52.7	2.2	100	1200	7.6	2.70	0.170	43	0.05	10	80	+0.097
SZN6343	32.0	58.4	2.0	125	1300	6.8	2.90	0.150	47	0.05	10	80	+0.099
SZN6344	68.0	64.1	1.8	155	1500	6.3	3.20	0.130	52	0.05	10	80	+0.101
SZN6345	75.0	70.8	1.7	180	1600	5.7	3.40	0.125	56	0.05	10	80	+0.103
SZN6346	82.0	77.4	1.5	220	1800	5.2	3.80	0.115	62	0.05	10	80	+0.105
SZN6347	91.0	86.0	1.4	270	2100	4.7	4.20	0.100	69	0.05	10	80	+0.108
SZN6348	100.0	94.5	1.3	340	2400	4.3	4.40	0.095	76	0.05	10	80	+0.110
SZN6349	110.0	104.0	1.1	500	2800	3.9	4.80	0.085	84	0.05	10	80	+0.110
SZN6350	120.0	113.0	1.0	600	3200	3.5	5.20	0.080	91	0.05	10	80	+0.110
SZN6351	130.0	122	0.95	850	4100	3.3	5.60	0.070	99	0.05	10	80	+0.110
SZN6352	150.0	141	0.85	1000	4500	2.8	7.00	0.065	114	0.05	10	80	+0.110
SZN6353	160.0	151	0.80	1200	5000	2.7	7.50	0.060	122	0.05	10	80	+0.110
SZN6354	180.0	170	0.68	1500	5600	2.4	9.00	0.050	137	0.05	10	80	+0.110
SZN6355	200.0	189	0.65	1800	6500	2.1	12.00	0.045	152	0.05	10	80	+0.110

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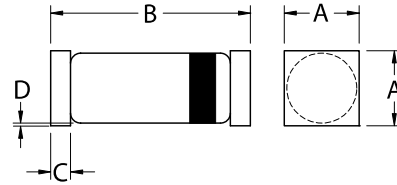
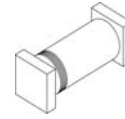
AXIAL (□)



DIM	MIN.	MAX
A	.055"	.090"
B	.090"	.200"
C	1.00"	—
D	.017"	.022"

SQUARE TAB (SMS)

All dimensions are prior to soldering



DIM	MIN.	MAX.
A	.070"	.085"
B	.175"	.215"
C	.022"	.028"
D	Body to Tab Clearance: .001"	