

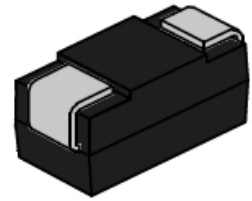


Zener Diodes with Surge Current Specification: SMBZSCxxAU

Rev.1.5

FEATURE

- ✧ Silicon power zener diodes.
- ✧ Low zener impedance.
- ✧ 3000mW rating on FR-4 or FR-5 board.
- ✧ Voltage range includes breakdown voltages from 12V to 200V with $\pm 5\%$ for SMBZSCxxAU series.
- ✧ Low profile surface-mount package.
- ✧ Zener and surge current specification.
- ✧ For use in stabilizing and clamping circuits with high power rating.
- ✧ AEC-Q101 qualified.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C.



SMB



Symbol

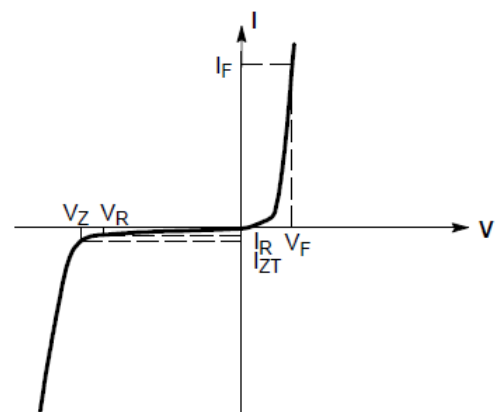
ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

Parameter	Symbol	Max Value	Unit
Total power dissipation @ 75°C	P_D	3000	mW
Thermal resistance junction to ambient (Note1)	$R_{\theta JA}$	226	°C/W
Junction temperature	T_J	150	°C
Storage temperature range	T_S	-55 to +150	°C
Operating temperature range	T_{op}	-55 to +150	°C
Peak pulse power dissipation at 10/1000μs waveform	P_{PP}	400	W

Note1: Device mounted on FR-4 PCB

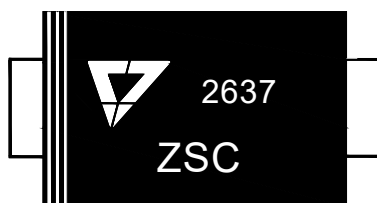
ELECTRICAL CHARACTERISTICS

Symbol	Parameter
V_Z	Reverse zener voltage at I_{zt}
I_{zt}	Reverse current
I_R	Reverse leakage current at V_R
V_R	Reverse voltage
I_F	Forward current
V_F	Forward voltage at I_F



Zener voltage regulator

MARKING



ZSC: Device Marking Code
2637: the 37th week, 2026

SMBZSC ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Maximum $V_F=1.2\text{V}$ at $I_F=200\text{mA}$

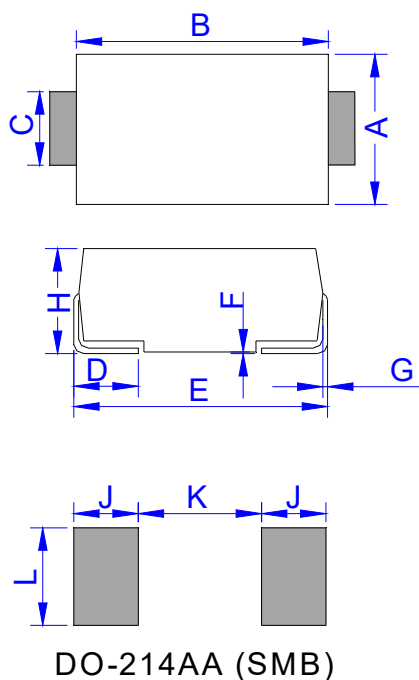
Type number	Zener voltage range at I_{zt}				Maximum zener impedance			Maximum reverse leakage current		Marking code
	Nom (Volts)	Min (Volts)	Max (Volts)	I_{zt} (mA)	Z_{zt} (Ω)	Z_{zk} (Ω)	I_{zk} (mA)	I_R (μA)	V_R (Volts)	
SMBZSC12AU	12	11.4	12.6	31.2	6.5	550	0.25	1	9.1	ZSC
SMBZSC13AU	13	12.4	13.7	28.8	7.0	550	0.25	1	9.9	ZSD
SMBZSC15AU	15	14.3	15.8	25.0	9.0	600	0.25	1	11.4	ZSE
SMBZSC16AU	16	15.2	16.8	23.4	10.0	600	0.25	1	12.2	ZSF
SMBZSC18AU	18	17.1	18.9	20.8	12.0	650	0.25	1	13.7	ZSG
SMBZSC20AU	20	19.0	21.0	18.7	14.0	650	0.25	1	15.2	ZSH
SMBZSC22AU	22	20.9	23.1	17.0	17.5	650	0.25	1	16.7	ZSI
SMBZSC24AU	24	22.8	25.2	15.6	19.0	700	0.25	1	18.2	ZSJ
SMBZSC27AU	27	25.7	28.4	13.9	23.0	700	0.25	1	20.6	ZSK
SMBZSC30AU	30	28.5	31.5	12.5	28.0	750	0.25	1	22.5	ZSL
SMBZSC33AU	33	31.4	34.7	11.4	33.0	800	0.25	1	25.1	ZSM
SMBZSC36AU	36	34.2	37.8	10.4	38.0	850	0.25	1	27.4	ZSN
SMBZSC39AU	39	37.1	41.0	9.6	45.0	900	0.25	1	29.7	ZSO
SMBZSC43AU	43	40.9	45.2	8.7	53.0	950	0.25	1	32.7	ZSP
SMBZSC47AU	47	44.7	49.4	8.0	67.0	1000	0.25	1	35.8	ZSQ
SMBZSC51AU	51	48.5	53.6	7.3	70.0	1100	0.25	1	38.8	ZSR
SMBZSC56AU	56	53.2	58.8	6.7	86.0	1300	0.25	1	42.6	ZSS
SMBZSC62AU	62	58.9	65.1	6.0	100	1500	0.25	1	47.1	ZST
SMBZSC68AU	68	64.6	71.4	5.5	120	1700	0.25	1	51.7	ZSU
SMBZSC75AU	75	71.3	78.8	5.0	140	2000	0.25	1	57.0	ZSV
SMBZSC82AU	82	77.9	86.1	4.6	160	2500	0.25	1	62.2	ZSW
SMBZSC91AU	91	86.5	95.6	4.1	200	3000	0.25	1	69.2	ZSX
SMBZSC100AU	100	95.0	105.0	3.7	250	3100	0.25	1	76.0	ZSY
SMBZSC110AU	110	105.0	116.0	3.4	300	4000	0.25	1	83.6	ZSZ
SMBZSC120AU	120	114.0	126.0	3.1	380	4500	0.25	1	91.2	ZVA
SMBZSC130AU	130	124.0	137.0	2.9	450	5000	0.25	1	98.8	ZVB
SMBZSC150AU	150	143.0	158.0	2.5	600	6000	0.25	1	114.0	ZVC
SMBZSC160AU	160	152.0	168.0	2.3	700	6500	0.25	1	122.0	ZVD

SMBZSC ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted, continued)Maximum $V_F=1.2\text{V}$ at $I_F=200\text{mA}$

Type number	Zener voltage range at I_{zt}				Maximum zener impedance			Maximum reverse leakage current		Marking code
	Nom (Volts)	Min (Volts)	Max (Volts)	I_{zt} (mA)	Z_{zt} (Ω)	Z_{zk} (Ω)	I_{zk} (mA)	I_R (μA)	V_R (Volts)	
SMBZSC180AU	180	171.0	189.0	2.1	900	7000	0.25	1	137.0	ZVE
SMBZSC200AU	200	190.0	210.0	1.9	1200	8000	0.25	1	152.0	ZVF

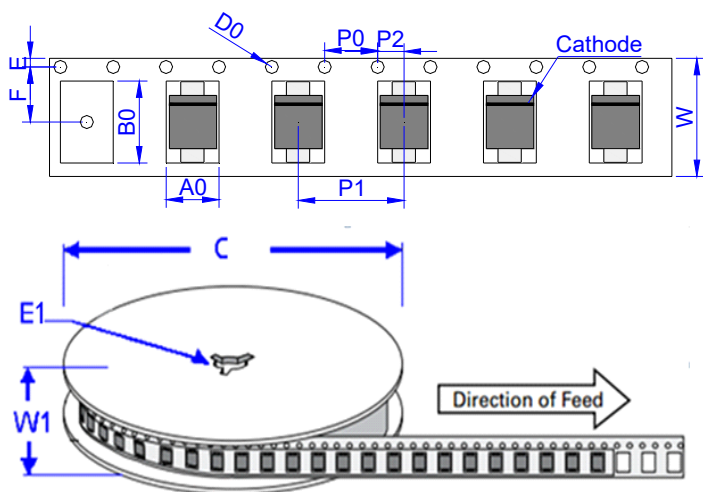
ORDERING INFORMATION

SMBZ	S	C	12	AU
Zener Diode Series			Voltage:12V	AEC-Q101 qualified
	$P_D:3000\text{mW}$	C:5% V_Z Voltage tolerance		

PACKAGE MECHANICAL DATA

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	3.30	3.94	0.130	0.155
B	4.30	4.80	0.169	0.189
C	1.90	2.20	0.075	0.087
D	0.95	1.52	0.037	0.060
E	5.20	5.60	0.205	0.220
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.10	2.40	0.083	0.094
J	2.20		0.087	
K		2.60		0.102
L	2.30		0.091	

TAPE AND REEL SPECIFICATION-SMB



Ref.	Dimensions	
	Millimeters	Inches
A0	3.76 ± 0.3	0.148 ± 0.012
B0	5.69 ± 0.3	0.224 ± 0.012
C	330.0	13.0
D0	1.55 ± 0.1	0.061 ± 0.004
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.3 ± 0.3	0.524 ± 0.012
F	5.5 ± 0.2	0.217 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	8.00 ± 0.2	0.3145 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	12.0 ± 0.2	0.472 ± 0.008
W1	15.7 ± 2.0	0.618 ± 0.079

PART No.	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
SMBZSCxxAU	0.098	3,000	48,000	13 inch reel pack

RATINGS AND CHARACTERISTICS CURVES (T_A=25°C, unless otherwise noted)

Fig.1 Power dissipation vs lead temperature

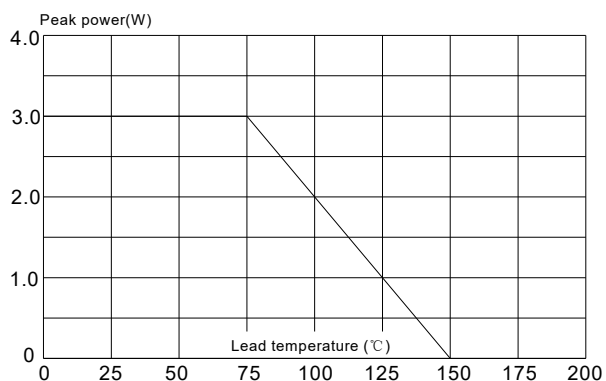


Fig.2 Zener breakdown characteristics

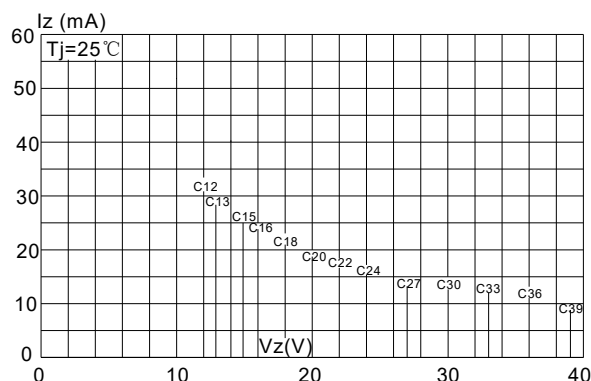


Fig.3 Zener breakdown characteristics

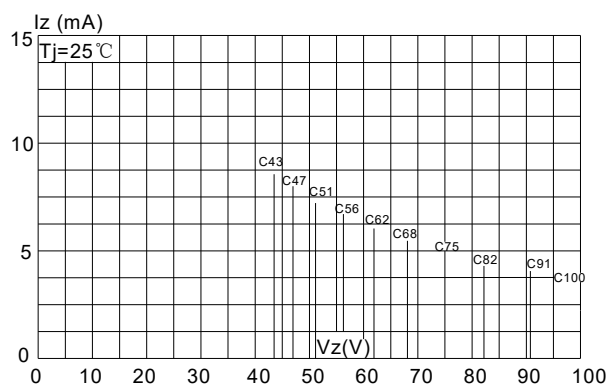
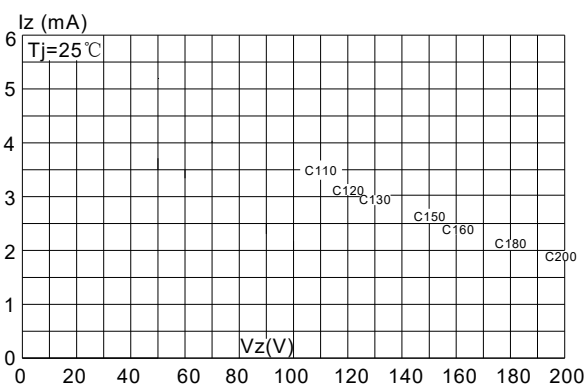


Fig.4 Zener breakdown characteristics



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