

Excel Semiconductor

The background of the page is a deep blue with subtle, diagonal, wavy lines that create a sense of motion or depth. In the bottom right corner, there is a white, triangular shape that appears to be a reflection or a light source, adding a modern, high-tech feel to the design.

CERTIFICATE



The Certification Body of TÜV Management Service GmbH

certifies that

Excel (Suzhou) Semiconductor Co., Ltd.

No. 6, Xinsu Road, Suzhou,
Jiangsu Province, P. R. China
Post Code: 215021

has established and applies
a Quality Management System for

Manufacture and Sales of Diode

An audit was performed, Report No. **7007 0851**

Proof has been furnished that the requirements
according to

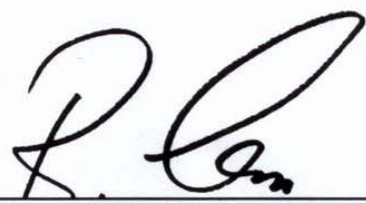
DIN EN ISO 9001 : 2000

are fulfilled. The certificate is valid until **2007-06-21**

Certificate Registration No. **12 100 22698 TMS**

Munich, 2004-06-22




Certification Body
of TÜV Management Service GmbH
Unternehmensgruppe TÜV Süddeutschland
Ridlerstraße 65
D-80339 München


Deutscher
Akkreditierungs
Rat
TGA-ZM-07-92-00



Part Index.....	II
Band Switching Diodes.....	1
DIAC.....	2
Rectifiers.....	3
Small Signal Schottky Barrier Diodes.....	4
Small Signal Switching Diodes.....	5
Surge Protector.....	6
Zener Diodes	
0.5W Zener Diodes/DO-35 Package.....	7
1.0W Zener Diodes/DO-41 Package.....	22
1.3 W Zener Diodes/DO-41 Package.....	23
0.5W Zener Diodes/SOD-80(LL-34, Mini MELF) Package.....	24
0.5W Zener Diodes/Quadro MELF Package.....	30
0.5W Zener Diodes/Micro MELF Package.....	32
1.0W Zener Diodes/LL-41(MELF) Package.....	34
Packaging Specifications.....	35
Package Outlines.....	38



Part Index

PART	PAGE	PART	PAGE	PART	PAGE	PART	PAGE	PART	PAGE
11A1	17	1N4682	9	1N4737A	22	1N5226C	11	1N5244C	11
11A2	17	1N4683	9	1N4738A	22	1N5227B	10	1N5245B	10
11A3	17	1N4684	9	1N4739A	22	1N5227C	11	1N5245C	11
11B1	17	1N4685	9	1N4740A	22	1N5228B	10	1N5246B	10
11B2	17	1N4686	9	1N4741A	22	1N5228C	11	1N5246C	11
11B3	17	1N4687	9	1N4742A	22	1N5229B	10	1N5247B	10
11C1	17	1N4688	9	1N4743A	22	1N5229C	11	1N5247C	11
11C2	17	1N4689	9	1N4744A	22	1N5230B	10	1N5248B	10
11C3	17	1N4690	9	1N4745A	22	1N5230C	11	1N5248C	11
12A1	17	1N4691	9	1N4746A	22	1N5231B	10	1N5249B	10
12A2	17	1N4692	9	1N4747A	22	1N5231C	11	1N5249C	11
12A3	17	1N4693	9	1N4748A	22	1N5232B	10	1N5250B	10
12B1	17	1N4694	9	1N4749A	22	1N5232C	11	1N5250C	11
12B2	17	1N4695	9	1N4750A	22	1N5233B	10	1N5251B	10
12B3	17	1N4696	9	1N4751A	22	1N5233C	11	1N5251C	11
12C1	17	1N4697	9	1N4752A	22	1N5234B	10	1N5252B	10
12C2	17	1N4698	9	1N4753A	22	1N5234C	11	1N5252C	11
12C3	17	1N4699	9	1N4754A	22	1N5235B	10	1N5253B	10
15-1	17	1N4700	9	1N4755A	22	1N5235C	11	1N5253C	11
15-2	17	1N4701	9	1N4756A	22	1N5236B	10	1N5254B	10
15-3	17	1N4702	9	1N4757A	22	1N5236C	11	1N5254C	11
16-1	17	1N4703	9	1N4758A	22	1N5237B	10	1N5255B	10
16-2	17	1N4704	9	1N4759A	22	1N5237C	11	1N5255C	11
16-3	17	1N4705	9	1N4760A	22	1N5238B	10	1N5256B	10
18-1	17	1N4707	9	1N4761A	22	1N5238C	11	1N5256C	11
18-2	17	1N4711	9	1N5221B	10	1N5239B	10	1N5257B	10
18-3	17	1N4713	9	1N5221C	11	1N5239C	11	1N5257C	11
1N4148	5	1N4728A	22	1N5222B	10	1N5240B	10	1N5258B	10
1N4150	5	1N4729A	22	1N5222C	11	1N5240C	11	1N5258C	11
1N4151	5	1N4730A	22	1N5223B	10	1N5241B	10	1N5259B	10
1N4154	5	1N4731A	22	1N5223C	11	1N5241C	11	1N5259C	11
1N4448	5	1N4732A	22	1N5224B	10	1N5242B	10	1N5260B	10
1N4678	9	1N4733A	22	1N5224C	11	1N5242C	11	1N5260C	11
1N4679	9	1N4734A	22	1N5225B	10	1N5243B	10	1N5261B	10
1N4680	9	1N4735A	22	1N5225C	11	1N5243C	11	1N5261C	11
1N4681	9	1N4736A	22	1N5226B	10	1N5244B	10	1N5262B	10

Excel Semiconductor



Part Index

PART	PAGE	PART	PAGE	PART	PAGE	PART	PAGE	PART	PAGE
1N5262C	11	1N6007B	12	1N967B	8	30-2	18	6A2	16
1N5263B	10	1N6008B	12	1N968B	8	30-3	18	6A3	16
1N5263C	11	1N6009B	12	1N969B	8	33-1	18	6B1	16
1N5264B	10	1N6010B	12	1N970B	8	33-2	18	6B2	16
1N5264C	11	1N6011B	12	1N971B	8	33-3	18	6B3	16
1N5265B	10	1N6012B	12	1N972B	8	36-1	18	6C1	16
1N5265C	11	1N6013B	12	1N973B	8	36-2	18	6C2	16
1N5266B	10	1N6014B	12	1N974B	8	36-3	18	6C3	16
1N5266C	11	1N6015B	12	1N975B	8	3A1	16	7A1	17
1N5267B	10	1N6016B	12	1N978B	8	3A2	16	7A2	17
1N5267C	11	1N60P	4	1N979B	8	3A3	16	7A3	17
1N5817-GS	3	1N746A	7	1N982B	8	3B1	16	7B1	17
1N5818-GS	3	1N747A	7	1SS133	5	3B2	16	7B2	17
1N5819-GS	3	1N748A	7	1SS244	5	3B3	16	7B3	17
1N5985B	12	1N749A	7	20-1	18	3C1	16	7C1	17
1N5987B	12	1N750A	7	20-2	18	3C2	16	7C2	17
1N5988B	12	1N751A	7	20-3	18	3C3	16	7C3	17
1N5989B	12	1N752A	7	22-1	18	4A1	16	9A1	17
1N5990B	12	1N753A	7	22-2	18	4A2	16	9A2	17
1N5991B	12	1N754A	7	22-3	18	4A3	16	9A3	17
1N5992B	12	1N755A	7	24-1	18	4B1	16	9B1	17
1N5993B	12	1N756A	7	24-2	18	4B2	16	9B2	17
1N5994B	12	1N757A	7	24-3	18	4B3	16	9B3	17
1N5995B	12	1N758A	7	27-1	18	4C1	16	9C1	17
1N5996B	12	1N759A	7	27-2	18	4C2	16	9C2	17
1N5997B	12	1N914	5	27-3	18	4C3	16	9C3	17
1N5998B	12	1N957B	8	2A1	16	5A1	16	BA282	1
1N5999B	12	1N958B	8	2A2	16	5A2	16	BA283	1
1N60	4	1N959B	8	2A3	16	5A3	16	BAS48	4
1N6000B	12	1N960B	8	2B1	16	5B1	16	BAS85	4
1N6001B	12	1N961B	8	2B2	16	5B2	16	BAT48	4
1N6002B	12	1N962B	8	2B3	16	5B3	16	BAT85	4
1N6003B	12	1N963B	8	2C1	16	5C1	16	BAV100	5
1N6004B	12	1N964B	8	2C2	16	5C2	16	BAV101	5
1N6005B	12	1N965B	8	2C3	16	5C3	16	BAV102	5
1N6006B	12	1N966B	8	30-1	18	6A1	16	BAV103	5

Excel Semiconductor

www.excel-semi.com
FaxBack +86-512-67606917

Rev. 3a, 1-Jun-2004



PART	PAGE	PART	PAGE	PART	PAGE	PART	PAGE	PART	PAGE
BAV17	5	BZM55B62	32	BZM55C56	33	BZX55B51	13	BZX55C47	14
BAV18	5	BZM55B68	32	BZM55C5V1	33	BZX55B56	13	BZX55C4V3	14
BAV19	5	BZM55B6V2	32	BZM55C5V6	33	BZX55B5V1	13	BZX55C4V7	14
BAV20	5	BZM55B6V8	32	BZM55C62	33	BZX55B5V6	13	BZX55C51	14
BAV21	5	BZM55B75	32	BZM55C68	33	BZX55B62	13	BZX55C56	14
BZM55B10	32	BZM55B7V5	32	BZM55C6V2	33	BZX55B68	13	BZX55C5V1	14
BZM55B11	32	BZM55B8V2	32	BZM55C6V8	33	BZX55B6V2	13	BZX55C5V6	14
BZM55B12	32	BZM55B9V1	32	BZM55C75	33	BZX55B6V8	13	BZX55C62	14
BZM55B13	32	BZM55C10	33	BZM55C7V5	33	BZX55B75	13	BZX55C68	14
BZM55B15	32	BZM55C11	33	BZM55C8V2	33	BZX55B7V5	13	BZX55C6V2	14
BZM55B16	32	BZM55C12	33	BZM55C9V1	33	BZX55B8V2	13	BZX55C6V8	14
BZM55B18	32	BZM55C13	33	BZX55B10	13	BZX55B9V1	13	BZX55C75	14
BZM55B20	32	BZM55C15	33	BZX55B11	13	BZX55C10	14	BZX55C7V5	14
BZM55B22	32	BZM55C16	33	BZX55B12	13	BZX55C11	14	BZX55C8V2	14
BZM55B24	32	BZM55C18	33	BZX55B13	13	BZX55C12	14	BZX55C9V1	14
BZM55B27	32	BZM55C20	33	BZX55B15	13	BZX55C13	14	BZX79C10	15
BZM55B2V0	32	BZM55C22	33	BZX55B16	13	BZX55C15	14	BZX79C11	15
BZM55B2V2	32	BZM55C24	33	BZX55B18	13	BZX55C16	14	BZX79C12	15
BZM55B2V4	32	BZM55C27	33	BZX55B20	13	BZX55C18	14	BZX79C13	15
BZM55B2V7	32	BZM55C2V0	33	BZX55B22	13	BZX55C20	14	BZX79C15	15
BZM55B30	32	BZM55C2V2	33	BZX55B24	13	BZX55C22	14	BZX79C16	15
BZM55B33	32	BZM55C2V4	33	BZX55B27	13	BZX55C24	14	BZX79C18	15
BZM55B36	32	BZM55C2V7	33	BZX55B2V4	13	BZX55C27	14	BZX79C20	15
BZM55B39	32	BZM55C30	33	BZX55B2V7	13	BZX55C2V0	14	BZX79C22	15
BZM55B3V0	32	BZM55C33	33	BZX55B30	13	BZX55C2V2	14	BZX79C24	15
BZM55B3V3	32	BZM55C36	33	BZX55B33	13	BZX55C2V4	14	BZX79C27	15
BZM55B3V6	32	BZM55C39	33	BZX55B36	13	BZX55C2V7	14	BZX79C2V4	15
BZM55B3V9	32	BZM55C3V0	33	BZX55B39	13	BZX55C30	14	BZX79C2V7	15
BZM55B43	32	BZM55C3V3	33	BZX55B3V0	13	BZX55C33	14	BZX79C30	15
BZM55B47	32	BZM55C3V6	33	BZX55B3V3	13	BZX55C36	14	BZX79C33	15
BZM55B4V3	32	BZM55C3V9	33	BZX55B3V6	13	BZX55C39	14	BZX79C36	15
BZM55B4V7	32	BZM55C43	33	BZX55B3V9	13	BZX55C3V0	14	BZX79C39	15
BZM55B51	32	BZM55C47	33	BZX55B43	13	BZX55C3V3	14	BZX79C3V0	15
BZM55B56	32	BZM55C4V3	33	BZX55B47	13	BZX55C3V6	14	BZX79C3V3	15
BZM55B5V1	32	BZM55C4V7	33	BZX55B4V3	13	BZX55C3V9	14	BZX79C3V6	15
BZM55B5V6	32	BZM55C51	33	BZX55B4V7	13	BZX55C43	14	BZX79C3V9	15



Part Index

PART	PAGE	PART	PAGE	PART	PAGE	PART	PAGE	PART	PAGE
BZX79C43	15	BZX85C43	23	DL4746A	34	LL5223B	24	LL5259B	24
BZX79C47	15	BZX85C47	23	DL4747A	34	LL5224B	24	LL5260B	24
BZX79C4V3	15	BZX85C4V3	23	DL4748A	34	LL5225B	24	LL5261B	24
BZX79C4V7	15	BZX85C4V7	23	DL4749A	34	LL5226B	24	LL5262B	24
BZX79C51	15	BZX85C51	23	DL4750A	34	LL5227B	24	LL5263B	24
BZX79C56	15	BZX85C56	23	DL4751A	34	LL5228B	24	LL5264B	24
BZX79C5V1	15	BZX85C5V1	23	DL4752A	34	LL5229B	24	LL5265B	24
BZX79C5V6	15	BZX85C5V6	23	DL4753A	34	LL5230B	24	LL5266B	24
BZX79C62	15	BZX85C62	23	DL4754A	34	LL5231B	24	LL5267B	24
BZX79C68	15	BZX85C68	23	DL4755A	34	LL5232B	24	LL55B10	25
BZX79C6V2	15	BZX85C6V2	23	DL4756A	34	LL5233B	24	LL55B11	25
BZX79C6V8	15	BZX85C6V8	23	DL4757A	34	LL5234B	24	LL55B12	25
BZX79C75	15	BZX85C75	23	DL4758A	34	LL5235B	24	LL55B13	25
BZX79C7V5	15	BZX85C7V5	23	DL4759A	34	LL5236B	24	LL55B15	25
BZX79C8V2	15	BZX85C8V2	23	DL4760A	34	LL5237B	24	LL55B16	25
BZX79C9V1	15	BZX85C9V1	23	DL4761A	34	LL5238B	24	LL55B18	25
BZX85C10	23	DB3	2	DL5817	3	LL5239B	24	LL55B20	25
BZX85C11	23	DB4	2	DL5818	3	LL5240B	24	LL55B22	25
BZX85C12	23	DL4728A	34	DL5819	3	LL5241B	24	LL55B24	25
BZX85C13	23	DL4729A	34	ESPD-201M-B	6	LL5242B	24	LL55B27	25
BZX85C15	23	DL4730A	34	ESPD-201M-D	6	LL5243B	24	LL55B2V0	25
BZX85C16	23	DL4731A	34	ESPD-201N-B	6	LL5244B	24	LL55B2V2	25
BZX85C18	23	DL4732A	34	ESPD-201N-D	6	LL5245B	24	LL55B2V4	25
BZX85C20	23	DL4733A	34	ESPD-301M-B	6	LL5246B	24	LL55B2V7	25
BZX85C22	23	DL4734A	34	ESPD-301M-D	6	LL5247B	24	LL55B30	25
BZX85C24	23	DL4735A	34	ESPD-301N-B	6	LL5248B	24	LL55B33	25
BZX85C27	23	DL4736A	34	ESPD-301N-D	6	LL5249B	24	LL55B36	25
BZX85C2V7	23	DL4737A	34	ISS265	1	LL5250B	24	LL55B39	25
BZX85C30	23	DL4738A	34	LL103A	4	LL5251B	24	LL55B3V0	25
BZX85C33	23	DL4739A	34	LL103B	4	LL5252B	24	LL55B3V3	25
BZX85C36	23	DL4740A	34	LL103C	4	LL5253B	24	LL55B3V6	25
BZX85C39	23	DL4741A	34	LL4148	5	LL5254B	24	LL55B3V9	25
BZX85C3V0	23	DL4742A	34	LL4150	5	LL5255B	24	LL55B43	25
BZX85C3V3	23	DL4743A	34	LL4448	5	LL5256B	24	LL55B47	25
BZX85C3V6	23	DL4744A	34	LL5221B	24	LL5257B	24	LL55B4V3	25
BZX85C3V9	23	DL4745A	34	LL5222B	24	LL5258B	24	LL55B4V7	25

Excel Semiconductor



Part Index

PART	PAGE	PART	PAGE	PART	PAGE	PART	PAGE	PART	PAGE
LL55B51	25	LL55C47	26	LLZJ16B	28	LLZJ3.9B	27	LLZJ7.5B	27
LL55B56	25	LL55C4V3	26	LLZJ16C	28	LLZJ30A	28	LLZJ7.5C	27
LL55B5V1	25	LL55C4V7	26	LLZJ18A	28	LLZJ30B	28	LLZJ8.2A	27
LL55B5V6	25	LL55C51	26	LLZJ18B	28	LLZJ30C	28	LLZJ8.2B	27
LL55B62	25	LL55C56	26	LLZJ18C	28	LLZJ30D	28	LLZJ8.2C	27
LL55B68	25	LL55C5V1	26	LLZJ2.0A	27	LLZJ33A	29	LLZJ9.1A	27
LL55B6V2	25	LL55C5V6	26	LLZJ2.0B	27	LLZJ33B	29	LLZJ9.1B	27
LL55B6V8	25	LL55C62	26	LLZJ2.2A	27	LLZJ33C	29	LLZJ9.1C	27
LL55B75	25	LL55C68	26	LLZJ2.2B	27	LLZJ33D	29	LS4148	5
LL55B7V5	25	LL55C6V2	26	LLZJ2.4A	27	LLZJ36A	29	LS4448	5
LL55B8V2	25	LL55C6V8	26	LLZJ2.4B	27	LLZJ36B	29	MCL355	5
LL55B9V1	25	LL55C75	26	LLZJ2.7A	27	LLZJ36C	29	MCL4148	5
LL55C10	26	LL55C7V5	26	LLZJ2.7B	27	LLZJ36D	29	MCL4150	5
LL55C11	26	LL55C8V2	26	LLZJ20A	28	LLZJ39A	29	MCL4151	5
LL55C12	26	LL55C9V1	26	LLZJ20B	28	LLZJ39B	29	MCL4448	5
LL55C13	26	LL60	4	LLZJ20C	28	LLZJ39C	29	MCL85S	4
LL55C15	26	LL60P	4	LLZJ20D	28	LLZJ39D	29	MSU277	1
LL55C16	26	LLDB3	2	LLZJ22A	28	LLZJ4.3A	27	RLS245	5
LL55C18	26	LLDB4	2	LLZJ22B	28	LLZJ4.3B	27	SB441Q-40	4
LL55C20	26	LLZJ10A	28	LLZJ22C	28	LLZJ4.3C	27	SM4001	3
LL55C22	26	LLZJ10B	28	LLZJ22D	28	LLZJ4.7A	27	SM4002	3
LL55C24	26	LLZJ10C	28	LLZJ24A	28	LLZJ4.7B	27	SM4003	3
LL55C27	26	LLZJ10D	28	LLZJ24B	28	LLZJ4.7C	27	SM4004	3
LL55C2V0	26	LLZJ11A	28	LLZJ24C	28	LLZJ5.1A	27	SM4005	3
LL55C2V2	26	LLZJ11B	28	LLZJ24D	28	LLZJ5.1B	27	SM4006	3
LL55C2V4	26	LLZJ11C	28	LLZJ27A	28	LLZJ5.1C	27	SM4007	3
LL55C2V7	26	LLZJ12A	28	LLZJ27B	28	LLZJ5.6A	27	SOD103A	4
LL55C30	26	LLZJ12B	28	LLZJ27C	28	LLZJ5.6B	27	SOD103B	4
LL55C33	26	LLZJ12C	28	LLZJ27D	28	LLZJ5.6C	27	SOD103C	4
LL55C36	26	LLZJ13A	28	LLZJ3.0A	27	LLZJ6.2A	27	TZQ5221B	30
LL55C39	26	LLZJ13B	28	LLZJ3.0B	27	LLZJ6.2B	27	TZQ5222B	30
LL55C3V0	26	LLZJ13C	28	LLZJ3.3A	27	LLZJ6.2C	27	TZQ5223B	30
LL55C3V3	26	LLZJ15A	28	LLZJ3.3B	27	LLZJ6.8A	27	TZQ5224B	30
LL55C3V6	26	LLZJ15B	28	LLZJ3.6A	27	LLZJ6.8B	27	TZQ5225B	30
LL55C3V9	26	LLZJ15C	28	LLZJ3.6B	27	LLZJ6.8C	27	TZQ5226B	30
LL55C43	26	LLZJ16A	28	LLZJ3.9A	27	LLZJ7.5A	27	TZQ5227B	30

Excel Semiconductor



PART	PAGE	PART	PAGE	PART	PAGE	PART	PAGE	PART	PAGE
TZQ5228B	30	TZQ5264B	30	ZJ10B	20	ZJ22D	20	ZJ4.7A	19
TZQ5229B	30	TZQ5265B	30	ZJ10C	20	ZJ24A	20	ZJ4.7B	19
TZQ5230B	30	TZQ5266B	30	ZJ10D	20	ZJ24B	20	ZJ4.7C	19
TZQ5231B	30	TZQ5267B	30	ZJ11A	20	ZJ24C	20	ZJ5.1A	19
TZQ5232B	30	TZS4678	31	ZJ11B	20	ZJ24D	20	ZJ5.1B	19
TZQ5233B	30	TZS4679	31	ZJ11C	20	ZJ27A	20	ZJ5.1C	19
TZQ5234B	30	TZS4680	31	ZJ12A	20	ZJ27B	20	ZJ5.6A	19
TZQ5235B	30	TZS4681	31	ZJ12B	20	ZJ27C	20	ZJ5.6B	19
TZQ5236B	30	TZS4682	31	ZJ12C	20	ZJ27D	20	ZJ5.6C	19
TZQ5237B	30	TZS4683	31	ZJ13A	20	ZJ3.0A	19	ZJ6.2A	19
TZQ5238B	30	TZS4684	31	ZJ13B	20	ZJ3.0B	19	ZJ6.2B	19
TZQ5239B	30	TZS4685	31	ZJ13C	20	ZJ3.3A	19	ZJ6.2C	19
TZQ5240B	30	TZS4686	31	ZJ15A	20	ZJ3.3B	19	ZJ6.8A	19
TZQ5241B	30	TZS4687	31	ZJ15B	20	ZJ3.6A	19	ZJ6.8B	19
TZQ5242B	30	TZS4688	31	ZJ15C	20	ZJ3.6B	19	ZJ6.8C	19
TZQ5243B	30	TZS4689	31	ZJ16A	20	ZJ3.9A	19	ZJ7.5A	19
TZQ5244B	30	TZS4690	31	ZJ16B	20	ZJ3.9B	19	ZJ7.5B	19
TZQ5245B	30	TZS4691	31	ZJ16C	20	ZJ30A	20	ZJ7.5C	19
TZQ5246B	30	TZS4692	31	ZJ18A	20	ZJ30B	20	ZJ8.2A	19
TZQ5247B	30	TZS4693	31	ZJ18B	20	ZJ30C	20	ZJ8.2B	19
TZQ5248B	30	TZS4694	31	ZJ18C	20	ZJ30D	20	ZJ8.2C	19
TZQ5249B	30	TZS4695	31	ZJ2.0A	19	ZJ33A	21	ZJ9.1A	19
TZQ5250B	30	TZS4696	31	ZJ2.0B	19	ZJ33B	21	ZJ9.1B	19
TZQ5251B	30	TZS4697	31	ZJ2.2A	19	ZJ33C	21	ZJ9.1C	19
TZQ5252B	30	TZS4698	31	ZJ2.2B	19	ZJ33D	21		
TZQ5253B	30	TZS4699	31	ZJ2.4A	19	ZJ36A	21		
TZQ5254B	30	TZS4700	31	ZJ2.4B	19	ZJ36B	21		
TZQ5255B	30	TZS4701	31	ZJ2.7A	19	ZJ36C	21		
TZQ5256B	30	TZS4702	31	ZJ2.7B	19	ZJ36D	21		
TZQ5257B	30	TZS4703	31	ZJ20A	20	ZJ39A	21		
TZQ5258B	30	TZS4704	31	ZJ20B	20	ZJ39B	21		
TZQ5259B	30	TZS4705	31	ZJ20C	20	ZJ39C	21		
TZQ5260B	30	TZS4707	31	ZJ20D	20	ZJ39D	21		
TZQ5261B	30	TZS4711	31	ZJ22A	20	ZJ4.3A	19		
TZQ5262B	30	TZS4713	31	ZJ22B	20	ZJ4.3B	19		
TZQ5263B	30	ZJ10A	20	ZJ22C	20	ZJ4.3C	19		



Band Switching Diodes

DO-34 Package

Type	V_R	P_d	$V_F \text{ max @ } I_F$		$I_R \text{ max @ } V_R$		$r_f \text{ max}$
	V	mW	V	mA	nA	V	Ω
1SS265	35	150	1	10	100	20	0.6

DO-35 Package

Type	V_R	P_d	$V_F \text{ max @ } I_F$		$I_R \text{ max @ } V_R$		$r_f \text{ max}$
	V	mW	V	mA	nA	V	Ω
BA282	35	150	1	100	50	20	0.7
BA283	35	150	1	100	50	20	1.2

Micro MELF Package

Type	V_R	P_d	$V_F \text{ max @ } I_F$		$I_R \text{ max @ } V_R$		$r_f \text{ max}$
	V	mW	V	mA	nA	V	Ω
MSU277	35	150	1	10	50	25	0.7

Excel Semiconductor

**DO-35 Package**

Type	Breakover voltage $V_{BO}(V)$	Breakover voltage symmetry $ V_{BO1}-V_{BO2} (V)$	Dynamic breakover voltage $\Delta V (V)$	Breakover current $I_{BO} (\mu A)$
DB3	28~36	± 3	>5	<50
DB4	35~45	± 3	>5	<50

SOD-80(LL34, Mini MELF) Package

Type	Breakover voltage $V_{BO}(V)$	Breakover voltage symmetry $ V_{BO1}-V_{BO2} (V)$	Dynamic breakover voltage $\Delta V (V)$	Breakover current $I_{BO} (\mu A)$
LLDB3	28~36	± 3	>5	<50
LLDB4	35~45	± 3	>5	<50



DO-35 Package

Type	V_{RRM}	I_O	$V_F \text{ max @ } I_F$		$I_R \text{ max @ } V_R$		$V_{R(RMS)}$
	V		V	A	μA	V	V
1N5817-GS	20	1.0	0.45	1.0	1000	20	24
1N5818-GS	30	1.0	0.55	1.0	1000	30	36
1N5819-GS	40	1.0	0.60	1.0	1000	40	48

LL-41(MELF) Package

Type	V_{RRM}	I_O	$V_F \text{ max @ } I_F$		$I_R \text{ max @ } V_R$		$V_{R(RMS)}$
	V		V	A	μA	V	V
DL5817-G	20	1.0	0.45	1.0	1000	20	24
DL5818-G	30	1.0	0.55	1.0	1000	30	36
DL5819-G	40	1.0	0.60	1.0	1000	40	48
SM4001	50	1.0	1.1	1.0	5	50	---
SM4002	100	1.0	1.1	1.0	5	100	---
SM4003	200	1.0	1.1	1.0	5	200	---
SM4004	400	1.0	1.1	1.0	5	400	---
SM4005	600	1.0	1.1	1.0	5	600	---
SM4006	800	1.0	1.1	1.0	5	800	---
SM4007	1000	1.0	1.1	1.0	5	1000	---



Small Signal Schottky Barrier Diodes

DO-34 Package

Type	V_{RM}	I_{FRM}	$V_F \text{ max @ } I_F$		$I_R \text{ max @ } V_R$	
	V	A	V	mA	μA	V
SB441Q-40	40	1	0.55	100	100	40

DO-35 Package

Type	V_{RM}	I_{FRM}	$V_F \text{ max @ } I_F$		$I_R \text{ max @ } V_R$	
	V	A	V	mA	μA	V
1N60	40	0.15	1	30	0.5	15
1N60P	45	0.5	1	200	1	15
BAT48	40	1	0.75	200	5	20
BAT85	30	0.6	0.8	100	2	25
SD103A	40	1	0.37	20	5	30
SD103B	30	1	0.37	20	5	20
SD103C	20	1	0.37	20	5	10

SOD-80(LL-34, Mini MELF) Package

Type	V_{RM}	I_{FRM}	$V_F \text{ max @ } I_F$		$I_R \text{ max @ } V_R$	
	V	A	V	mA	μA	V
LL60	40	0.15	1	30	0.5	15
LL60P	45	0.5	1	200	1	15
BAS48	40	1	0.75	200	5	20
BAS85	30	0.6	0.8	100	2	25
LL103A	40	1	0.37	20	5	30
LL103B	30	1	0.37	20	5	20
LL103C	20	1	0.37	20	5	10

Micro MELF Package

Type	V_{RM}	I_{FRM}	$V_F \text{ max @ } I_F$		$I_R \text{ max @ } V_R$	
	V	A	V	mA	μA	V
MCL85S	30	0.6	0.8	100	2	25

Excel Semiconductor



Small Signal Switching Diodes

DO-34 Package

Type	V _R max	P _d max	V _F max @ I _F	I _R max @ V _R	T _{rr} max
	V	mW	V	μ A	ns
1SS133	80	300	1.2	0.5	4
1SS244	220	300	1.5	10	75

DO-35 Package

Type	V _R max	P _d max	V _F max @ I _F	I _R max @ V _R	T _{rr} max
	V	mW	V	μ A	ns
1N914	75	500	1	5	4
1N4148	75	500	1	5	4
1N4150	50	500	1	0.1	4
1N4151	50	500	1	0.05	2
1N4154	25	500	1	0.1	2
1N4448	75	500	1	5	4
BAV17	20	500	1	0.1	50
BAV18	50	500	1	0.1	50
BAV19	100	500	1	0.1	50
BAV20	150	500	1	0.1	50
BAV21	200	500	1	0.1	50

SOD-80(LL-34, Mini MELF) Package

Type	V _R max	P _d max	V _F max @ I _F	I _R max @ V _R	T _{rr} max
	V	mW	V	μ A	ns
LL4148	75	500	1	5	4
LL4150	50	500	1	0.1	4
LL4151	50	500	1	0.05	2
LL4448	75	500	1	5	4
BAV100	50	500	1	0.1	50
BAV101	100	500	1	0.1	50
BAV102	150	500	1	0.1	50
BAV103	200	500	1	0.1	50
RLS245	220	300	1.5	10	75

Quadro MELF Package

Type	V _R max	P _d max	V _F max @ I _F	I _R max @ V _R	T _{rr} max
	V	mW	V	μ A	ns
LS4148	75	500	1	5	4
LS4448	75	500	1	5	4

Micro MELF Package

Type	V _R max	P _d max	V _F max @ I _F	I _R max @ V _R	T _{rr} max
	V	mW	V	μ A	ns
MCL355	80	300	1.2	0.5	4
MCL4148	75	500	1	5	4
MCL4150	50	500	1	0.1	4
MCL4151	50	500	1	0.05	2
MCL4448	75	500	1	5	4

Excel Semiconductor



DO-41 Package

Part number	DC spark over voltage Vs(v)	Insulation resistance		Capacitance C(pF)
		IR (M Ω)	Applied voltage	
ESPD-201M-B	160~240	>100	DC 100V	<1
ESPD-201N-B	140~260	>100	DC 100V	<1
ESPD-301M-B	240~360	>100	DC 100V	<1
ESPD-301N-B	210~390	>100	DC 100V	<1

LL-41(MELF) Package

Part number	DC spark over voltage Vs(v)	Insulation resistance		Capacitance C(pF)
		IR (M Ω)	Applied voltage	
ESPD-201M-D	160~240	>100	DC 100V	<1
ESPD-201N-D	140~260	>100	DC 100V	<1
ESPD-301M-D	240~360	>100	DC 100V	<1
ESPD-301N-D	210~390	>100	DC 100V	<1



0.5W Zener Diodes/DO-35 Package

Type	$V_{Znom}^{1)}$	I_{ZT} for Z_{ZT}		I_R at V_R		$I_{ZM}^{2)}$
	V	mA	Ω	μA	V	mA
1N746A	3.3	20	28	10	1	110
1N747A	3.6	20	24	10	1	100
1N748A	3.9	20	23	10	1	95
1N749A	4.3	20	22	2	1	85
1N750A	4.7	20	19	2	1	75
1N751A	5.1	20	17	1	1	70
1N752A	5.6	20	11	1	1	65
1N753A	6.2	20	7	0.1	1	60
1N754A	6.8	20	5	0.1	1	55
1N755A	7.5	20	6	0.1	1	50
1N756A	8.2	20	8	0.1	1	45
1N757A	9.1	20	10	0.1	1	40
1N758A	10	20	17	0.1	1	35
1N759A	12	20	30	0.1	1	30

¹⁾ **Tolerance and voltage designation(V_Z):**

The type numbers shown have a standard tolerance of $\pm 5\%$ on the nominal zener voltage, C for $\pm 2\%$, D for $\pm 1\%$.

²⁾ **Maximum zener current ratings(I_{ZM}):**

Maximum zener current ratings are based on maximum zener voltage of the individual units and JEDEC 250 mW rating.



0.5W Zener Diodes/DO-35 Package

Type	$V_{Znom}^{1)}$	I_{ZT} for V_{ZT} and		Z_{ZT}	Z_{ZK} at I_{ZK}		I_R at	V_R	$I_{ZM}^{2)}$
	V	mA	$V^{1)}$	Ω	Ω	mA	μA	V	mA
1N957B	6.8	18.5	6.460~7.140	4.5	700	1.0	150	5.2	47
1N958B	7.5	16.5	7.125~7.875	5.5	700	0.5	75	5.7	42
1N959B	8.2	15	7.790~8.610	6.5	700	0.5	50	6.2	38
1N960B	9.1	14	8.645~9.555	7.5	700	0.5	25	6.9	35
1N961B	10	12.5	9.500~10.50	8.5	700	0.25	10	7.6	32
1N962B	11	11.5	10.45~11.55	9.5	700	0.25	5	8.4	28
1N963B	12	10.5	11.40~12.60	11.5	700	0.25	5	9.1	26
1N964B	13	9.5	12.35~13.65	13	700	0.25	5	9.9	24
1N965B	15	8.5	14.25~15.75	16	700	0.25	5	11.4	21
1N966B	16	7.8	15.20~16.80	17	700	0.25	5	12.2	19
1N967B	18	7.0	17.10~18.90	21	750	0.25	5	13.7	17
1N968B	20	6.2	19.00~21.00	25	750	0.25	5	15.2	15
1N969B	22	5.6	20.90~23.10	29	750	0.25	5	16.7	14
1N970B	24	5.2	22.80~25.20	33	750	0.25	5	18.2	13
1N971B	27	4.6	25.60~28.35	41	750	0.25	5	20.6	11
1N972B	30	4.2	28.50~31.50	49	1000	0.25	5	22.8	10
1N973B	33	3.8	31.35~34.65	58	1000	0.25	5	25.1	9.2
1N974B	36	3.4	34.20~37.80	70	1000	0.25	5	27.4	8.5
1N975B	39	3.2	37.05~40.95	80	1000	0.25	5	29.7	7.8
1N978B	51	2.5	48.45~53.55	125	1500	0.25	5	38.8	5.9
1N979B	56	2.2	53.20~58.80	150	2000	0.25	5	42.6	5.4
1N982B	75	1.7	71.25~78.75	270	2000	0.25	5	56	4.1

¹⁾ **Tolerance and voltage designation(V_Z):**

The type numbers shown have a standard tolerance of $\pm 5\%$ on the nominal zener voltage, C for $\pm 2\%$, D for $\pm 1\%$.

²⁾ **Maximum zener current ratings(I_{ZM}):**

Maximum zener current ratings are based on maximum zener voltage of the individual units and JEDEC 250 mW rating.



0.5W Zener Diodes/DO-35 Package

Type ¹⁾	Zener voltage V_Z @ $I_{ZT}=50 \mu A$			I_R at V_R ³⁾		I_{ZM} ²⁾	ΔV_Z ⁴⁾
	V_{Znom} ¹⁾	V_{ZMin}	V_{ZMax}	μA	V	mA	V
	V	V	V				
1N4678	1.8	1.71	1.89	7.5	1	120	0.7
1N4679	2	1.9	2.1	5	1	110	0.7
1N4680	2.2	2.09	2.31	4	1	100	0.75
1N4681	2.4	2.28	2.52	2	1	95	0.8
1N4682	2.7	2.565	2.835	1	1	90	0.85
1N4683	3	2.85	3.15	0.8	1	85	0.9
1N4684	3.3	3.135	3.465	7.5	1.5	80	0.95
1N4685	3.6	3.42	3.78	7.5	2	75	0.95
1N4686	3.9	3.705	4.095	5	2	70	0.97
1N4687	4.3	4.085	4.515	4	2	65	0.99
1N4688	4.7	4.465	4.935	10	3	60	0.99
1N4689	5.1	4.845	5.355	10	3	55	0.97
1N4690	5.6	5.32	5.88	10	4	50	0.96
1N4691	6.2	5.89	6.51	10	5	45	0.95
1N4692	6.8	6.46	7.14	10	5.1	35	0.9
1N4693	7.5	7.125	7.875	10	5.7	31.8	0.75
1N4694	8.2	7.79	8.61	1	6.2	29	0.5
1N4695	8.7	8.265	9.135	1	6.6	27.4	0.1
1N4696	9.1	8.645	9.555	1	6.9	26.2	0.08
1N4697	10	9.5	10.5	1	7.6	24.8	0.1
1N4698	11	10.45	11.55	0.05	8.4	21.6	0.11
1N4699	12	11.4	12.6	0.05	9.1	20.4	0.12
1N4700	13	12.35	13.65	0.05	9.8	19	0.13
1N4701	14	13.3	14.7	0.05	10.6	17.5	0.14
1N4702	15	14.25	15.75	0.05	11.4	16.3	0.15
1N4703	16	15.20	16.8	0.05	12.1	15.4	0.16
1N4704	17	16.15	17.85	0.05	12.9	14.5	0.17
1N4705	18	17.10	18.9	0.05	13.6	13.2	0.18
1N4707	20	19	21	0.01	15.2	11.9	0.2
1N4711	27	25.65	28.35	0.01	20.4	8.8	0.27
1N4713	30	28.5	31.5	0.01	22.8	7.9	0.3

¹⁾ **Tolerance and voltage designation(V_Z):**

The type numbers shown have a standard tolerance of $\pm 5\%$ on the nominal zener voltage, C for $\pm 2\%$, D for $\pm 1\%$.

²⁾ **Maximum zener current ratings(I_{ZM}):**

Maximum zener current ratings are based on maximum zener voltage of the individual units and JEDEC 250 mW rating.

³⁾ **Reverse leakage current(I_R):**

Reverse leakage currents are guaranteed and measured at V_R as shown on the table.

⁴⁾ **Maximum voltage change(ΔV_Z):**

Voltage change is equal to the difference between V_Z at $100 \mu A$ and V_Z at $10 \mu A$.

Excel Semiconductor



0.5W Zener Diodes($V_Z \pm 5\%$)/DO-35 Package

Type	V_{Znom} V	I_{ZT} mA	for r_{ZT} Ω	r_{ZK} at Ω	I_{ZK} mA	I_R at μA	V_R V	TK_{VZ} %/K
1N5221B	2.4	20	<30	<1200	0.25	<100	1.0	<-0.085
1N5222B	2.5	20	<30	<1250	0.25	<100	1.0	<-0.085
1N5223B	2.7	20	<30	<1300	0.25	<75	1.0	<-0.080
1N5224B	2.8	20	<30	<1400	0.25	<75	1.0	<-0.080
1N5225B	3.0	20	<29	<1600	0.25	<50	1.0	<-0.075
1N5226B	3.3	20	<28	<1600	0.25	<25	1.0	<-0.070
1N5227B	3.6	20	<24	<1700	0.25	<15	1.0	<-0.065
1N5228B	3.9	20	<23	<1900	0.25	<10	1.0	<-0.060
1N5229B	4.3	20	<22	<2000	0.25	<5	1.0	<+0.055
1N5230B	4.7	20	<19	<1900	0.25	<5	2.0	<+0.030
1N5231B	5.1	20	<17	<1600	0.25	<5	2.0	<+0.030
1N5232B	5.6	20	<11	<1600	0.25	<5	3.0	<+0.038
1N5233B	6.0	20	<7	<1600	0.25	<5	3.5	<+0.038
1N5234B	6.2	20	<7	<1000	0.25	<5	4.0	<+0.045
1N5235B	6.8	20	<5	<750	0.25	<3	5.0	<+0.050
1N5236B	7.5	20	<6	<500	0.25	<3	6.0	<+0.058
1N5237B	8.2	20	<8	<500	0.25	<3	6.5	<+0.062
1N5238B	8.7	20	<8	<600	0.25	<3	6.5	<+0.065
1N5239B	9.1	20	<10	<600	0.25	<3	7.0	<+0.068
1N5240B	10	20	<17	<600	0.25	<3	8.0	<+0.075
1N5241B	11	20	<22	<600	0.25	<2	8.4	<+0.076
1N5242B	12	20	<30	<600	0.25	<1	9.1	<+0.077
1N5243B	13	9.5	<13	<600	0.25	<0.5	9.9	<+0.079
1N5244B	14	9.0	<15	<600	0.25	<0.1	10	<+0.082
1N5245B	15	8.5	<16	<600	0.25	<0.1	11	<+0.082
1N5246B	16	7.8	<17	<600	0.25	<0.1	12	<+0.083
1N5247B	17	7.4	<19	<600	0.25	<0.1	13	<+0.084
1N5248B	18	7.0	<21	<600	0.25	<0.1	14	<+0.085
1N5249B	19	6.6	<23	<600	0.25	<0.1	15	<+0.086
1N5250B	20	6.2	<25	<600	0.25	<0.1	16	<+0.086
1N5251B	22	5.6	<29	<600	0.25	<0.1	17	<+0.087
1N5252B	24	5.2	<33	<600	0.25	<0.1	18	<+0.088
1N5253B	25	5.0	<35	<600	0.25	<0.1	19	<+0.089
1N5254B	27	4.6	<41	<600	0.25	<0.1	21	<+0.090
1N5255B	28	4.5	<44	<600	0.25	<0.1	21	<+0.091
1N5256B	30	4.2	<49	<600	0.25	<0.1	23	<+0.091
1N5257B	33	3.8	<58	<700	0.25	<0.1	25	<+0.092
1N5258B	36	3.4	<70	<700	0.25	<0.1	27	<+0.093
1N5259B	39	3.2	<80	<800	0.25	<0.1	30	<+0.094
1N5260B	43	3.0	<93	<900	0.25	<0.1	33	<+0.095
1N5261B	47	2.7	<105	<1000	0.25	<0.1	36	<+0.095
1N5262B	51	2.5	<125	<1100	0.25	<0.1	39	<+0.096
1N5263B	56	2.2	<150	<1300	0.25	<0.1	43	<+0.096
1N5264B	60	2.1	<170	<1400	0.25	<0.1	46	<+0.097
1N5265B	62	2.0	<185	<1400	0.25	<0.1	47	<+0.097
1N5266B	68	1.8	<230	<1600	0.25	<0.1	52	<+0.097
1N5267B	75	1.7	<270	<1700	0.25	<0.1	58	<+0.098

Excel Semiconductor



0.5W Zener Diodes($V_Z \pm 2\%$)/DO-35 Package

Type	V_{Znom} V	I_{ZT} mA	for r_{zT} Ω	r_{zK} at Ω	I_{ZK} mA	I_R at μA	V_R V	TK_{VZ} %/K
1N5221C	2.4	20	<30	<1200	0.25	<100	1.0	<-0.085
1N5222C	2.5	20	<30	<1250	0.25	<100	1.0	<-0.085
1N5223C	2.7	20	<30	<1300	0.25	<75	1.0	<-0.080
1N5224C	2.8	20	<30	<1400	0.25	<75	1.0	<-0.080
1N5225C	3.0	20	<29	<1600	0.25	<50	1.0	<-0.075
1N5226C	3.3	20	<28	<1600	0.25	<25	1.0	<-0.070
1N5227C	3.6	20	<24	<1700	0.25	<15	1.0	<-0.065
1N5228C	3.9	20	<23	<1900	0.25	<10	1.0	<-0.060
1N5229C	4.3	20	<22	<2000	0.25	<5	1.0	<+0.055
1N5230C	4.7	20	<19	<1900	0.25	<5	2.0	<+0.030
1N5231C	5.1	20	<17	<1600	0.25	<5	2.0	<+0.030
1N5232C	5.6	20	<11	<1600	0.25	<5	3.0	<+0.038
1N5233C	6.0	20	<7	<1600	0.25	<5	3.5	<+0.038
1N5234C	6.2	20	<7	<1000	0.25	<5	4.0	<+0.045
1N5235C	6.8	20	<5	<750	0.25	<3	5.0	<+0.050
1N5236C	7.5	20	<6	<500	0.25	<3	6.0	<+0.058
1N5237C	8.2	20	<8	<500	0.25	<3	6.5	<+0.062
1N5238C	8.7	20	<8	<600	0.25	<3	6.5	<+0.065
1N5239C	9.1	20	<10	<600	0.25	<3	7.0	<+0.068
1N5240C	10	20	<17	<600	0.25	<3	8.0	<+0.075
1N5241C	11	20	<22	<600	0.25	<2	8.4	<+0.076
1N5242C	12	20	<30	<600	0.25	<1	9.1	<+0.077
1N5243C	13	9.5	<13	<600	0.25	<0.5	9.9	<+0.079
1N5244C	14	9.0	<15	<600	0.25	<0.1	10	<+0.082
1N5245C	15	8.5	<16	<600	0.25	<0.1	11	<+0.082
1N5246C	16	7.8	<17	<600	0.25	<0.1	12	<+0.083
1N5247C	17	7.4	<19	<600	0.25	<0.1	13	<+0.084
1N5248C	18	7.0	<21	<600	0.25	<0.1	14	<+0.085
1N5249C	19	6.6	<23	<600	0.25	<0.1	15	<+0.086
1N5250C	20	6.2	<25	<600	0.25	<0.1	16	<+0.086
1N5251C	22	5.6	<29	<600	0.25	<0.1	17	<+0.087
1N5252C	24	5.2	<33	<600	0.25	<0.1	18	<+0.088
1N5253C	25	5.0	<35	<600	0.25	<0.1	19	<+0.089
1N5254C	27	4.6	<41	<600	0.25	<0.1	21	<+0.090
1N5255C	28	4.5	<44	<600	0.25	<0.1	21	<+0.091
1N5256C	30	4.2	<49	<600	0.25	<0.1	23	<+0.091
1N5257C	33	3.8	<58	<700	0.25	<0.1	25	<+0.092
1N5258C	36	3.4	<70	<700	0.25	<0.1	27	<+0.093
1N5259C	39	3.2	<80	<800	0.25	<0.1	30	<+0.094
1N5260C	43	3.0	<93	<900	0.25	<0.1	33	<+0.095
1N5261C	47	2.7	<105	<1000	0.25	<0.1	36	<+0.095
1N5262C	51	2.5	<125	<1100	0.25	<0.1	39	<+0.096
1N5263C	56	2.2	<150	<1300	0.25	<0.1	43	<+0.096
1N5264C	60	2.1	<170	<1400	0.25	<0.1	46	<+0.097
1N5265C	62	2.0	<185	<1400	0.25	<0.1	47	<+0.097
1N5266C	68	1.8	<230	<1600	0.25	<0.1	52	<+0.097
1N5267C	75	1.7	<270	<1700	0.25	<0.1	58	<+0.098

Excel Semiconductor



0.5W Zener Diodes/DO-35 Package

Type ¹⁾	V _{Znom}	I _{ZT}	for V _{ZT} and	Z _{ZT}	Z _{ZK} at	I _{ZK}	I _R at	V _R	I _{ZM} ²⁾
	V	mA	V ¹⁾	Ω	Ω	mA	μ A	V	mA
1N5985B	2.4	5	2.28~2.52	100	1800	0.25	100	1.0	208
1N5987B	3.0	5	2.85~3.15	95	2000	0.25	50	1.0	167
1N5988B	3.3	5	3.13~3.46	95	2200	0.25	25	1.0	152
1N5989B	3.6	5	3.42~3.78	90	2300	0.25	15	1.0	139
1N5990B	3.9	5	3.7~4.09	90	2400	0.25	10	1.0	128
1N5991B	4.3	5	4.08~4.51	88	2500	0.25	5	1.0	116
1N5992B	4.7	5	4.46~4.93	70	2200	0.25	3	1.5	106
1N5993B	5.1	5	4.84~5.35	50	2050	0.25	2	2.0	98
1N5994B	5.6	5	5.32~5.88	25	1800	0.25	2	3.0	89
1N5995B	6.2	5	5.89~6.51	10	1300	0.25	1	4.0	81
1N5996B	6.8	5	6.46~7.14	8.0	750	0.25	1	5.2	74
1N5997B	7.5	5	7.12~7.87	7.0	600	0.25	0.5	6.0	67
1N5998B	8.2	5	7.79~8.61	7.0	600	0.25	0.5	6.5	61
1N5999B	9.1	5	8.64~9.55	10	600	0.25	0.1	7.0	55
1N6000B	10	5	9.5~10.5	15	600	0.25	0.1	8.0	50
1N6001B	11	5	10.45~11.55	18	600	0.25	0.1	8.4	45
1N6002B	12	5	11.4~12.6	22	600	0.25	0.1	9.1	42
1N6003B	13	5	12.35~13.65	25	600	0.25	0.1	9.9	38
1N6004B	15	5	14.25~15.75	32	600	0.25	0.1	11	33
1N6005B	16	5	15.2~16.8	36	600	0.25	0.1	12	31
1N6006B	18	5	17.1~18.9	42	600	0.25	0.1	14	28
1N6007B	20	5	19~21	48	600	0.25	0.1	15	25
1N6008B	22	5	20.9~23.1	55	600	0.25	0.1	17	23
1N6009B	24	5	22.8~25.2	62	600	0.25	0.1	18	21
1N6010B	27	5	25.65~28.35	70	600	0.25	0.1	21	19
1N6011B	30	5	28.5~31.5	78	600	0.25	0.1	23	17
1N6012B	33	5	31.35~34.65	88	700	0.25	0.1	25	15
1N6013B	36	5	34.2~37.8	95	700	0.25	0.1	27	14
1N6014B	39	2	37.05~40.95	130	800	0.25	0.1	30	13
1N6015B	43	2	40.85~45.15	150	900	0.25	0.1	33	12
1N6016B	47	2	44.65~49.35	170	1000	0.25	0.1	36	11

¹⁾ **Tolerance and voltage designation(V_Z):**

Tolerance designation – Device tolerance of $\pm 5\%$ is indicated by a “B” suffix.

²⁾ **Maximum zener current ratings(I_{ZM}):**

This data was calculated using nominal voltages. The maximum current handling capability on a worst case basis is limited by the actual zener voltage at the operation point and the power derating curve.

Excel Semiconductor



0.5W Zener Diodes/DO-35 Package

Type	V _{Znom}	I _{ZT}	for V _{ZT} and	r _{ZT}	r _{ZK} at	I _{ZK}	I _R and	I _R at	V _R	TK _{VZ}
BZX55B	V	mA	V	Ω	Ω	mA	μA	μA ¹⁾	V	%/K
2V4	2.4	5	2.35~2.45	<85	<600	1	<50	<100	1	-0.09~-0.06
2V7	2.7	5	2.64~2.76	<85	<600	1	<10	<50	1	-0.09~-0.06
3V0	3.0	5	2.94~3.06	<85	<600	1	<4	<40	1	-0.08~-0.05
3V3	3.3	5	3.24~3.36	<85	<600	1	<2	<40	1	-0.08~-0.05
3V6	3.6	5	3.52~3.68	<85	<600	1	<2	<40	1	-0.08~-0.05
3V9	3.9	5	3.82~3.98	<85	<600	1	<2	<40	1	-0.08~-0.05
4V3	4.3	5	4.22~4.38	<75	<600	1	<1	<20	1	-0.06~-0.03
4V7	4.7	5	4.6~4.8	<60	<600	1	<0.5	<10	1	-0.05~+0.02
5V1	5.1	5	5.0~5.2	<35	<550	1	<0.1	<2	1	-0.02~+0.02
5V6	5.6	5	5.48~5.72	<25	<450	1	<0.1	<2	1	-0.05~+0.05
6V2	6.2	5	6.08~6.32	<10	<200	1	<0.1	<2	2	0.03~0.06
6V8	6.8	5	6.66~6.94	<8	<150	1	<0.1	<2	3	0.03~0.07
7V5	7.5	5	7.35~7.65	<7	<50	1	<0.1	<2	5	0.03~0.07
8V2	8.2	5	8.04~8.36	<7	<50	1	<0.1	<2	6.2	0.03~0.08
9V1	9.1	5	8.92~9.28	<10	<50	1	<0.1	<2	6.8	0.03~0.09
10	10	5	9.8~10.2	<15	<70	1	<0.1	<2	7.5	0.03~0.1
11	11	5	10.78~11.22	<20	<70	1	<0.1	<2	8.2	0.03~0.11
12	12	5	11.76~12.24	<20	<90	1	<0.1	<2	9.1	0.03~0.11
13	13	5	12.74~13.26	<26	<110	1	<0.1	<2	10	0.03~0.11
15	15	5	14.7~15.3	<30	<110	1	<0.1	<2	11	0.03~0.11
16	16	5	15.7~16.3	<40	<170	1	<0.1	<2	12	0.03~0.11
18	18	5	17.64~18.36	<50	<170	1	<0.1	<2	13	0.03~0.11
20	20	5	19.6~20.4	<55	<220	1	<0.1	<2	15	0.03~0.11
22	22	5	21.55~22.45	<55	<220	1	<0.1	<2	16	0.04~0.12
24	24	5	23.5~24.5	<80	<220	1	<0.1	<2	18	0.04~0.12
27	27	5	26.4~27.6	<80	<220	1	<0.1	<2	20	0.04~0.12
30	30	5	29.4~30.6	<80	<220	1	<0.1	<2	22	0.04~0.12
33	33	5	32.4~33.6	<80	<220	1	<0.1	<2	24	0.04~0.12
36	36	5	35.3~36.7	<80	<220	1	<0.1	<2	27	0.04~0.12
39	39	2.5	38.2~39.8	<90	<500	0.5	<0.1	<5	30	0.04~0.12
43	43	2.5	42.1~43.9	<90	<600	0.5	<0.1	<5	33	0.04~0.12
47	47	2.5	46.1~47.9	<110	<700	0.5	<0.1	<5	36	0.04~0.12
51	51	2.5	50~52	<125	<700	0.5	<0.1	<10	39	0.04~0.12
56	56	2.5	54.9~57.1	<135	<1000	0.5	<0.1	<10	43	0.04~0.12
62	62	2.5	60.8~63.2	<150	<1000	0.5	<0.1	<10	47	0.04~0.12
68	68	2.5	66.6~69.4	<200	<1000	0.5	<0.1	<10	51	0.04~0.12
75	75	2.5	73.5~76.5	<250	<1500	0.5	<0.1	<10	56	0.04~0.12

¹⁾ at T_J=150°C

Excel Semiconductor

www.excel-semi.com
FaxBack +86-512-67606917

Rev. 3a, 1-Jun-2004



0.5W Zener Diodes/DO-35 Package

Type	V _{Znom}	I _{ZT}	for V _{ZT} and	r _{ZT}	r _{ZK} at	I _{ZK}	I _R and	I _R at	V _R	TK _{VZ}
BZX55C	V	mA	V	Ω	Ω	mA	μA	μA ¹⁾	V	%/K
2V0	2.0	5	1.9~2.1	100	<600	1	<150	<300	1	-0.09~-0.06
2V2	2.2	5	2.09~2.31	100	<600	1	<150	<300	1	-0.09~-0.06
2V4	2.4	5	2.28~2.56	<85	<600	1	<50	<100	1	-0.09~-0.06
2V7	2.7	5	2.5~2.9	<85	<600	1	<10	<50	1	-0.09~-0.06
3V0	3.0	5	2.8~3.2	<85	<600	1	<4	<40	1	-0.08~-0.05
3V3	3.3	5	3.1~3.5	<85	<600	1	<2	<40	1	-0.08~-0.05
3V6	3.6	5	3.4~3.8	<85	<600	1	<2	<40	1	-0.08~-0.05
3V9	3.9	5	3.7~4.1	<85	<600	1	<2	<40	1	-0.08~-0.05
4V3	4.3	5	4.0~4.6	<75	<600	1	<1	<20	1	-0.06~-0.03
4V7	4.7	5	4.4~5.0	<60	<600	1	<0.5	<10	1	-0.05~+0.02
5V1	5.1	5	4.8~5.4	<35	<550	1	<0.1	<2	1	-0.02~+0.02
5V6	5.6	5	5.2~6.0	<25	<450	1	<0.1	<2	1	-0.05~+0.05
6V2	6.2	5	5.8~6.6	<10	<200	1	<0.1	<2	2	0.03~0.06
6V8	6.8	5	6.4~7.2	<8	<150	1	<0.1	<2	3	0.03~0.07
7V5	7.5	5	7.0~7.9	<7	<50	1	<0.1	<2	5	0.03~0.07
8V2	8.2	5	7.7~8.7	<7	<50	1	<0.1	<2	6.2	0.03~0.08
9V1	9.1	5	8.5~9.6	<10	<50	1	<0.1	<2	6.8	0.03~0.09
10	10	5	9.4~10.6	<15	<70	1	<0.1	<2	7.5	0.03~0.1
11	11	5	10.4~11.6	<20	<70	1	<0.1	<2	8.2	0.03~0.11
12	12	5	11.4~12.7	<20	<90	1	<0.1	<2	9.1	0.03~0.11
13	13	5	12.4~14.1	<26	<110	1	<0.1	<2	10	0.03~0.11
15	15	5	13.8~15.6	<30	<110	1	<0.1	<2	11	0.03~0.11
16	16	5	15.3~17.1	<40	<170	1	<0.1	<2	12	0.03~0.11
18	18	5	16.8~19.1	<50	<170	1	<0.1	<2	13	0.03~0.11
20	20	5	18.8~21.2	<55	<220	1	<0.1	<2	15	0.03~0.11
22	22	5	20.8~23.3	<55	<220	1	<0.1	<2	16	0.04~0.12
24	24	5	22.8~25.6	<80	<220	1	<0.1	<2	18	0.04~0.12
27	27	5	25.1~28.9	<80	<220	1	<0.1	<2	20	0.04~0.12
30	30	5	28~32	<80	<220	1	<0.1	<2	22	0.04~0.12
33	33	5	31~35	<80	<220	1	<0.1	<2	24	0.04~0.12
36	36	5	34~38	<80	<220	1	<0.1	<2	27	0.04~0.12
39	39	2.5	37~41	<90	<500	0.5	<0.1	<5	30	0.04~0.12
43	43	2.5	40~46	<90	<600	0.5	<0.1	<5	33	0.04~0.12
47	47	2.5	44~50	<110	<700	0.5	<0.1	<5	36	0.04~0.12
51	51	2.5	48~54	<125	<700	0.5	<0.1	<10	39	0.04~0.12
56	56	2.5	52~60	<135	<1000	0.5	<0.1	<10	43	0.04~0.12
62	62	2.5	58~66	<150	<1000	0.5	<0.1	<10	47	0.04~0.12
68	68	2.5	64~72	<200	<1000	0.5	<0.1	<10	51	0.04~0.12
75	75	2.5	70~79	<250	<1500	0.5	<0.1	<10	56	0.04~0.12

¹⁾ at T_J=150°C

Excel Semiconductor

www.excel-semi.com
FaxBack +86-512-67606917

Rev. 3a, 1-Jun-2004



0.5W Zener Diodes/DO-35 Package

Type	V _{Znom}	I _{ZT}	for V _{ZT} and	r _{ZT}	r _{ZJK} at	I _{ZK}	I _R and	I _R at	V _R	TK _{VZ}
BZX79C	V	mA	V	Ω	Ω	mA	μ A		V	%/K
2V4	2.4	5	2.2~2.6	<100	<600	1	<50		1	-0.09~-0.06
2V7	2.7	5	2.5~2.9	<100	<600	1	<20		1	-0.09~-0.06
3V0	3.0	5	2.8~3.2	<95	<600	1	<10		1	-0.08~-0.05
3V3	3.3	5	3.1~3.5	<95	<600	1	<5		1	-0.08~-0.05
3V6	3.6	5	3.4~3.8	<90	<600	1	<5		1	-0.08~-0.05
3V9	3.9	5	3.7~4.1	<90	<600	1	<3		1	-0.08~-0.05
4V3	4.3	5	4.0~4.6	<90	<600	1	<3		1	-0.06~-0.03
4V7	4.7	5	4.4~5.0	<80	<500	1	<3		1	-0.05~+0.02
5V1	5.1	5	4.8~5.4	<60	<480	1	<2		1	-0.02~+0.02
5V6	5.6	5	5.2~6.0	<40	<400	1	<1		1	-0.05~+0.05
6V2	6.2	5	5.8~6.6	<10	<150	1	<3		2	0.03~0.06
6V8	6.8	5	6.4~7.2	<15	<80	1	<2		3	0.03~0.07
7V5	7.5	5	7.0~7.9	<15	<80	1	<1		5	0.03~0.07
8V2	8.2	5	7.7~8.7	<15	<80	1	<0.7		6	0.03~0.08
9V1	9.1	5	8.5~9.6	<20	<100	1	<0.5		7	0.03~0.09
10	10	5	9.4~10.6	<20	<150	1	<0.2		7.5	0.03~0.1
11	11	5	10.4~11.6	<20	<150	1	<0.1		8.5	0.03~0.11
12	12	5	11.4~12.7	<25	<150	1	<0.1		9	0.03~0.11
13	13	5	12.4~14.1	<30	<170	1	<0.1		10	0.03~0.11
15	15	5	13.8~15.6	<30	<200	1	<0.05		11	0.03~0.11
16	16	5	15.3~17.1	<40	<200	1	<0.05		12	0.03~0.11
18	18	5	16.8~19.1	<45	<225	1	<0.05		13	0.03~0.11
20	20	5	18.8~21.2	<55	<225	1	<0.05		15	0.03~0.11
22	22	5	20.8~23.3	<55	<250	1	<0.05		16	0.04~0.12
24	24	5	22.8~25.6	<70	<250	1	<0.05		18	0.04~0.12
27	27	2	25.1~28.9	<80	<300 ²⁾	1	<0.05		20	0.04~0.12
30	30	2	28~32	<80	<300 ²⁾	1	<0.05		22	0.04~0.12
33	33	2	31~35	<80	<325 ²⁾	1	<0.05		24	0.04~0.12
36	36	2	34~38	<90	<350 ²⁾	1	<0.05		27	0.04~0.12
39	39	2	37~41	<130	<350 ²⁾	0.5	<0.05		28	0.04~0.12
43	43	2	40~46	<150	<375 ²⁾	0.5	<0.05		32	0.04~0.12
47	47	2	44~50	<170	<375 ²⁾	0.5	<0.05		35	0.04~0.12
51	51	2	48~54	<180	<400 ²⁾	0.5	<0.05		38	0.04~0.12
56	56	2	52~60	<200	<425 ²⁾	0.5	<0.05		39	0.04~0.12
62	62	2	58~66	<215	<450 ²⁾	0.5	<0.05		43	0.04~0.12
68	68	2	64~72	<240	<475 ²⁾	0.5	<0.05		48	0.04~0.12
75	75	2	70~79	<255	<500 ²⁾	0.5	<0.05		53	0.04~0.12

Excel Semiconductor



0.5W Zener Diodes/DO-35 Package

Type	Grade	Zener Voltage		Test Condition	Dynamic Resistance		Reverse Current	
		V_Z (V)			r_d (Ω)	Test Condition	I_R (μ A)	Test Condition
		Min	Max		I_Z (mA)	Max	I_Z (mA)	Max
2	A1	1.6	1.8	5	100	5	25	0.5
	A2	1.7	1.9					
	A3	1.8	2.0					
	B1	1.9	2.1	5	100	5	5	0.5
	B2	2.0	2.2					
	B3	2.1	2.3					
	C1	2.2	2.4					
	C2	2.3	2.5					
	C3	2.4	2.6					
3	A1	2.5	2.7	5	100	5	5	0.5
	A2	2.6	2.8					
	A3	2.7	2.9					
	B1	2.8	3.0					
	B2	2.9	3.1					
	B3	3.0	3.2					
	C1	3.1	3.3					
	C2	3.2	3.4					
	C3	3.3	3.5					
4	A1	3.4	3.6	5	100	5	5	1.0
	A2	3.5	3.7					
	A3	3.6	3.8					
	B1	3.7	3.9					
	B2	3.8	4.0					
	B3	3.9	4.1					
	C1	4.0	4.2					
	C2	4.1	4.3					
	C3	4.2	4.4					
5	A1	4.3	4.5	5	100	5	5	1.5
	A2	4.4	4.6					
	A3	4.5	4.7					
	B1	4.6	4.8					
	B2	4.7	4.9					
	B3	4.8	5.0					
	C1	4.9	5.1					
	C2	5.0	5.2					
	C3	5.1	5.3					
6	A1	5.2	5.5	5	40	5	5	2.0
	A2	5.3	5.6					
	A3	5.4	5.7					
	B1	5.5	5.8					
	B2	5.6	5.9					
	B3	5.7	6.0					
	C1	5.8	6.1					
	C2	6.0	6.3					
	C3	6.1	6.4					



0.5W Zener Diodes/DO-35 Package

Type	Grade	Zener Voltage		Test Condition	Dynamic Resistance		Reverse Current	
		V _Z (V)			r _d (Ω)	Test Condition	I _R (μ A)	Test Condition
		Min	Max		I _Z (mA)	Max	I _Z (mA)	Max
7	A1	6.3	6.6	5	15	5	1	3.5
	A2	6.4	6.7					
	A3	6.6	6.9					
	B1	6.7	7.0					
	B2	6.9	7.2					
	B3	7.0	7.3					
	C1	7.2	7.6					
	C2	7.3	7.7					
C3	7.5	7.9						
9	A1	7.7	8.1	5	20	5	1	5.0
	A2	7.9	8.3					
	A3	8.1	8.5					
	B1	8.3	8.7					
	B2	8.5	8.9					
	B3	8.7	9.1					
	C1	8.9	9.3					
	C2	9.1	9.5					
C3	9.3	9.7						
11	A1	9.5	9.9	5	25	5	1	7.5
	A2	9.7	10.1					
	A3	9.9	10.3					
	B1	10.2	10.6					
	B2	10.4	10.8					
	B3	10.7	11.1					
	C1	10.9	11.3					
	C2	11.1	11.6					
C3	11.4	11.9						
12	A1	11.6	12.1	5	35	5	1	9.5
	A2	11.9	12.4					
	A3	12.2	12.7					
	B1	12.4	12.9					
	B2	12.6	13.1					
	B3	12.9	13.4					
	C1	13.2	13.7					
	C2	13.5	14.0					
C3	13.8	14.3						
15	1	14.1	14.7	5	40	5	1	11.0
	2	14.5	15.1					
	3	14.9	15.5					
16	1	15.3	15.9	5	45	5	1	12.0
	2	15.7	16.5					
	3	16.3	17.1					
18	1	16.9	17.7	5	55	5	1	13.0
	2	17.5	18.3					
	3	18.1	19.0					

Excel Semiconductor



0.5W Zener Diodes/DO-35 Package

Type	Grade	Zener Voltage		Test Condition	Dynamic Resistance		Reverse Current	
		V_Z (V)			r_d (Ω)	Test Condition	I_R (μ A)	Test Condition
		Min	Max		I_Z (mA)	Max	I_Z (mA)	Max
20	1	18.8	19.7	2	60	2	1	15.0
	2	19.5	20.4					
	3	20.2	21.1					
22	1	20.9	21.9	2	65	2	1	17.0
	2	21.6	22.6					
	3	22.3	23.3					
24	1	22.9	24.0	2	70	2	1	19.0
	2	23.6	24.7					
	3	24.3	25.5					
27	1	25.2	26.6	2	80	2	1	21.0
	2	26.2	27.6					
	3	27.2	28.6					
30	1	28.2	29.6	2	100	2	1	23.0
	2	29.2	30.6					
	3	30.2	31.6					
33	1	31.2	32.6	2	120	2	1	25.0
	2	32.2	33.6					
	3	33.2	34.6					
36	1	34.2	35.7	2	140	2	1	27.0
	2	35.3	36.8					
	3	36.4	38.0					



0.5W Zener Diodes/DO-35 Package

Type	Zener voltage				Operating resistance		Rising operating resistance		Reverse current	
	Rank	V _z (V)			Z _{zt} (Ω)		Z _{zk} (Ω)		I _R (μA)	
		Min.	Max.	I _z (mA)	Max.	I _z (mA)	Max.	I _z (mA)	Max.	V _R (V)
ZJ 2.0	A	1.88	2.10	5	100	5	1000	0.5	120	0.5
	B	2.02	2.20							
ZJ 2.2	A	2.12	2.30	5	100	5	1000	0.5	100	0.7
	B	2.22	2.41							
ZJ 2.4	A	2.33	2.52	5	100	5	1000	0.5	120	1.0
	B	2.43	2.63							
ZJ 2.7	A	2.54	2.75	5	110	5	1000	0.5	100	1.0
	B	2.69	2.91							
ZJ 3.0	A	2.85	3.07	5	120	5	1000	0.5	50	1.0
	B	3.01	3.22							
ZJ 3.3	A	3.16	3.38	5	120	5	1000	0.5	20	1.0
	B	3.32	3.53							
ZJ 3.6	A	3.46	3.69	5	100	5	1000	1	10	1.0
	B	3.60	3.84							
ZJ 3.9	A	3.74	4.01	5	100	5	1000	1	5	1.0
	B	3.89	4.16							
ZJ 4.3	A	4.04	4.29	5	100	5	1000	1	5	1.0
	B	4.17	4.43							
	C	4.30	4.57							
ZJ 4.7	A	4.44	4.68	5	90	5	900	1	5	1.0
	B	4.55	4.80							
	C	4.68	4.93							
ZJ 5.1	A	4.81	5.07	5	80	5	800	1	5	1.5
	B	4.94	5.20							
	C	5.09	5.37							
ZJ 5.6	A	5.28	5.55	5	60	5	500	1	5	2.5
	B	5.45	5.73							
	C	5.61	5.91							
ZJ 6.2	A	5.78	6.09	5	60	5	300	1	5	3.0
	B	5.96	6.27							
	C	6.12	6.44							
ZJ 6.8	A	6.29	6.63	5	20	5	150	0.5	2	3.5
	B	6.49	6.83							
	C	6.66	7.01							
ZJ 7.5	A	6.85	7.22	5	20	5	120	0.5	0.5	4.0
	B	7.07	7.45							
	C	7.29	7.67							
ZJ 8.2	A	7.53	7.92	5	20	5	120	0.5	0.5	5.0
	B	7.78	8.19							
	C	8.03	8.45							
ZJ 9.1	A	8.29	8.73	5	25	5	120	0.5	0.5	6.0
	B	8.57	9.01							
	C	8.83	9.30							



0.5W Zener Diodes/DO-35 Package

Type	Zener voltage				Operating resistance		Rising operating resistance		Reverse current	
	Rank	V _z (V)			Z _{zt} (Ω)		Z _{zk} (Ω)		I _R (μA)	
		Min.	Max.	I _z (mA)	Max.	I _z (mA)	Max.	I _z (mA)	Max.	V _R (V)
ZJ 10	A	9.12	9.59	5	30	5	120	0.5	0.2	7.0
	B	9.41	9.90							
	C	9.70	10.20							
	D	9.94	10.44							
ZJ 11	A	10.18	10.71	5	30	5	120	0.5	0.2	8.0
	B	10.50	11.05							
	C	10.82	11.38							
ZJ 12	A	11.13	11.71	5	30	5	110	0.5	0.2	9.0
	B	11.44	12.03							
	C	11.74	12.35							
ZJ 13	A	12.11	12.75	5	35	5	110	0.5	0.2	10
	B	12.55	13.21							
	C	12.99	13.66							
ZJ 15	A	13.44	14.13	5	40	5	110	0.5	0.2	11
	B	13.89	14.62							
	C	14.35	15.09							
ZJ 16	A	14.80	15.57	5	40	5	150	0.5	0.2	12
	B	15.25	16.04							
	C	15.69	16.51							
ZJ 18	A	16.22	17.06	5	45	5	150	0.5	0.2	13
	B	16.82	17.70							
	C	17.42	18.33							
ZJ 20	A	18.20	18.96	5	55	5	200	0.5	0.2	15
	B	18.63	19.59							
	C	19.23	20.22							
	D	19.72	20.72							
ZJ 22	A	20.15	21.20	5	30	5	200	0.5	0.2	17
	B	20.64	21.71							
	C	21.08	22.17							
	D	21.52	22.63							
ZJ 24	A	22.05	23.18	5	35	5	200	0.5	0.2	19
	B	22.61	23.77							
	C	23.12	24.13							
	D	23.63	24.85							
ZJ 27	A	24.26	25.52	5	45	5	250	0.5	0.2	21
	B	24.97	26.26							
	C	25.63	26.95							
	D	26.29	27.64							
ZJ 30	A	26.99	28.39	5	55	5	250	0.5	0.2	23
	B	27.70	29.13							
	C	28.36	29.82							
	D	29.02	30.51							



0.5W Zener Diodes/DO-35 Package

Type	Zener voltage				Operating resistance		Rising operating resistance		Reverse current	
	Rank	V _z (V)			Z _{zt} (Ω)		Z _{zk} (Ω)		I _R (μA)	
		Min.	Max.	I _z (mA)	Max.	I _z (mA)	Max.	I _z (mA)	Max.	V _R (V)
ZJ 33	A	29.68	31.22	5	65	5	250	0.5	0.2	25
	B	30.32	31.88							
	C	30.90	32.50							
	D	31.49	33.11							
ZJ 36	A	32.14	33.79	5	75	5	250	0.5	0.2	27
	B	32.79	34.49							
	C	33.40	35.13							
	D	34.01	35.77							
ZJ 39	A	34.68	36.47	5	85	5	250	0.5	0.2	30
	B	35.36	37.19							
	C	36.00	37.85							
	D	36.63	38.52							



1W Zener Diodes/DO-41 Package

Type	V _{Znom}	I _{ZT} for	r _{ZT}	r _{ZK} at	I _{ZK}	I _R at	V _R
	V	mA	Ω	Ω	mA	μ A	V
1N4728A	3.3	76	<10	<400	1	<100	1
1N4729A	3.6	69	<10	<400	1	<100	1
1N4730A	3.9	64	<9	<400	1	<50	1
1N4731A	4.3	58	<9	<400	1	<10	1
1N4732A	4.7	53	<8	<500	1	<10	1
1N4733A	5.1	49	<7	<550	1	<10	1
1N4734A	5.6	45	<5	<600	1	<10	2
1N4735A	6.2	41	<2	<700	1	<10	3
1N4736A	6.8	37	<3.5	<700	1	<10	4
1N4737A	7.5	34	<4.0	<700	0.5	<10	5
1N4738A	8.2	31	<4.5	<700	0.5	<10	6
1N4739A	9.1	28	<5.0	<700	0.5	<10	7
1N4740A	10	25	<7	<700	0.25	<10	7.6
1N4741A	11	23	<8	<700	0.25	<5	8.4
1N4742A	12	21	<9	<700	0.25	<5	9.1
1N4743A	13	19	<10	<700	0.25	<5	9.9
1N4744A	15	17	<14	<700	0.25	<5	11.4
1N4745A	16	15.5	<16	<700	0.25	<5	12.2
1N4746A	18	14	<20	<750	0.25	<5	13.7
1N4747A	20	12.5	<22	<750	0.25	<5	15.2
1N4748A	22	11.5	<23	<750	0.25	<5	16.7
1N4749A	24	10.5	<25	<750	0.25	<5	18.2
1N4750A	27	9.5	<35	<750	0.25	<5	20.6
1N4751A	30	8.5	<40	<1000	0.25	<5	22.8
1N4752A	33	7.5	<45	<1000	0.25	<5	25.1
1N4753A	36	7.0	<50	<1000	0.25	<5	27.4
1N4754A	39	6.5	<60	<1000	0.25	<5	29.7
1N4755A	43	6.0	<70	<1500	0.25	<5	32.7
1N4756A	47	5.5	<80	<1500	0.25	<5	35.8
1N4757A	51	5.0	<95	<1500	0.25	<5	38.8
1N4758A	56	4.5	<110	<2000	0.25	<5	42.6
1N4759A	62	4.0	<125	<2000	0.25	<5	47.1
1N4760A	68	3.7	<150	<2000	0.25	<5	51.7
1N4761A	75	3.3	<175	<2000	0.25	<5	56



1.3W Zener Diodes/DO-41 Package

Type	V _{Znom}	I _{ZT}	for V _{ZT} and	r _{ZT}	r _{ZK} at	I _{ZK}	I _R at	V _R	TK _{VZ}
BZX85C	V	mA	V ¹⁾	Ω	Ω	mA	μ A	V	%/K
2V7	2.7	80	2.5~2.9	<20	<400	1	<150	1	-0.09~-0.06
3V0	3.0	80	2.8~3.2	<20	<400	1	<100	1	-0.08~-0.05
3V3	3.3	80	3.1~3.5	<20	<400	1	<40	1	-0.08~-0.05
3V6	3.6	60	3.4~3.8	<20	<500	1	<20	1	-0.08~-0.05
3V9	3.9	60	3.7~4.1	<15	<500	1	<10	1	-0.08~-0.05
4V3	4.3	50	4.0~4.6	<13	<500	1	<3	1	-0.06~-0.03
4V7	4.7	45	4.4~5.0	<13	<500	1	<3	1	-0.05~+0.02
5V1	5.1	45	4.8~5.4	<10	<500	1	<1	1	-0.02~+0.02
5V6	5.6	45	5.2~6.0	<7	<400	1	<1	1	-0.05~+0.05
6V2	6.2	35	5.8~6.6	<4	<300	1	<1	2	0.03~0.06
6V8	6.8	35	6.4~7.2	<3.5	<300	1	<1	3	0.03~0.07
7V5	7.5	35	7.0~7.9	<3	<200	0.5	<1	5	0.03~0.07
8V2	8.2	25	7.7~8.7	<5	<200	0.5	<1	6.2	0.03~0.08
9V1	9.1	25	8.5~9.6	<5	<200	0.5	<1	6.8	0.03~0.09
10	10	25	9.4~10.6	<7	<200	0.5	<0.5	7.5	0.03~0.1
11	11	20	10.4~11.6	<8	<300	0.5	<0.5	8.2	0.03~0.11
12	12	20	11.4~12.7	<9	<350	0.5	<0.5	9.1	0.03~0.11
13	13	20	12.4~14.1	<10	<400	0.5	<0.5	10	0.03~0.11
15	15	15	13.8~15.6	<15	<500	0.5	<0.5	11	0.03~0.11
16	16	15	15.3~17.1	<15	<500	0.5	<0.5	12	0.03~0.11
18	18	15	16.8~19.1	<20	<500	0.5	<0.5	13	0.03~0.11
20	20	10	18.8~21.2	<24	<600	0.5	<0.5	15	0.03~0.11
22	22	10	20.8~23.3	<25	<600	0.5	<0.5	16	0.04~0.12
24	24	10	22.8~25.6	<25	<600	0.5	<0.5	18	0.04~0.12
27	27	8	25.1~28.9	<30	<750	0.25	<0.5	20	0.04~0.12
30	30	8	28~32	<30	<1000	0.25	<0.5	22	0.04~0.12
33	33	8	31~35	<35	<1000	0.25	<0.5	24	0.04~0.12
36	36	8	34~38	<40	<1000	0.25	<0.5	27	0.04~0.12
39	39	6	37~41	<50	<1000	0.25	<0.5	30	0.04~0.12
43	43	6	40~46	<50	<1000	0.25	<0.5	33	0.04~0.12
47	47	4	44~50	<90	<1500	0.25	<0.5	36	0.04~0.12
51	51	4	48~54	<115	<1500	0.25	<0.5	39	0.04~0.12
56	56	4	52~60	<120	<2000	0.25	<0.5	43	0.04~0.12
62	62	4	58~66	<125	<2000	0.25	<0.5	47	0.04~0.12
68	68	4	64~72	<130	<2000	0.25	<0.5	51	0.04~0.12
75	75	4	70~79	<135	<2000	0.25	<0.5	56	0.04~0.12



0.5W Zener Diodes($V_Z \pm 5\%$)/SOD-80(LL-34, Mini MELF) Package

Type	V_{Znom} V	I_{ZT} mA	for r_{ZT} Ω	r_{ZK} at Ω	I_{ZK} mA	I_R at μA	V_R V	TK_{VZ} %/K
LL5221B	2.4	20	<30	<1200	0.25	<100	1.0	<-0.085
LL5222B	2.5	20	<30	<1250	0.25	<100	1.0	<-0.085
LL5223B	2.7	20	<30	<1300	0.25	<75	1.0	<-0.080
LL5224B	2.8	20	<30	<1400	0.25	<75	1.0	<-0.080
LL5225B	3.0	20	<29	<1600	0.25	<50	1.0	<-0.075
LL5226B	3.3	20	<28	<1600	0.25	<25	1.0	<-0.070
LL5227B	3.6	20	<24	<1700	0.25	<15	1.0	<-0.065
LL5228B	3.9	20	<23	<1900	0.25	<10	1.0	<-0.060
LL5229B	4.3	20	<22	<2000	0.25	<5	1.0	<+0.055
LL5230B	4.7	20	<19	<1900	0.25	<5	2.0	<+0.030
LL5231B	5.1	20	<17	<1600	0.25	<5	2.0	<+0.030
LL5232B	5.6	20	<11	<1600	0.25	<5	3.0	<+0.038
LL5233B	6.0	20	<7	<1600	0.25	<5	3.5	<+0.038
LL5234B	6.2	20	<7	<1000	0.25	<5	4.0	<+0.045
LL5235B	6.8	20	<5	<750	0.25	<3	5.0	<+0.050
LL5236B	7.5	20	<6	<500	0.25	<3	6.0	<+0.058
LL5237B	8.2	20	<8	<500	0.25	<3	6.5	<+0.062
LL5238B	8.7	20	<8	<600	0.25	<3	6.5	<+0.065
LL5239B	9.1	20	<10	<600	0.25	<3	7.0	<+0.068
LL5240B	10	20	<17	<600	0.25	<3	8.0	<+0.075
LL5241B	11	20	<22	<600	0.25	<2	8.4	<+0.076
LL5242B	12	20	<30	<600	0.25	<1	9.1	<+0.077
LL5243B	13	9.5	<13	<600	0.25	<0.5	9.9	<+0.079
LL5244B	14	9.0	<15	<600	0.25	<0.1	10	<+0.082
LL5245B	15	8.5	<16	<600	0.25	<0.1	11	<+0.082
LL5246B	16	7.8	<17	<600	0.25	<0.1	12	<+0.083
LL5247B	17	7.4	<19	<600	0.25	<0.1	13	<+0.084
LL5248B	18	7.0	<21	<600	0.25	<0.1	14	<+0.085
LL5249B	19	6.6	<23	<600	0.25	<0.1	15	<+0.086
LL5250B	20	6.2	<25	<600	0.25	<0.1	16	<+0.086
LL5251B	22	5.6	<29	<600	0.25	<0.1	17	<+0.087
LL5252B	24	5.2	<33	<600	0.25	<0.1	18	<+0.088
LL5253B	25	5.0	<35	<600	0.25	<0.1	19	<+0.089
LL5254B	27	4.6	<41	<600	0.25	<0.1	21	<+0.090
LL5255B	28	4.5	<44	<600	0.25	<0.1	21	<+0.091
LL5256B	30	4.2	<49	<600	0.25	<0.1	23	<+0.091
LL5257B	33	3.8	<58	<700	0.25	<0.1	25	<+0.092
LL5258B	36	3.4	<70	<700	0.25	<0.1	27	<+0.093
LL5259B	39	3.2	<80	<800	0.25	<0.1	30	<+0.094
LL5260B	43	3.0	<93	<900	0.25	<0.1	33	<+0.095
LL5261B	47	2.7	<105	<1000	0.25	<0.1	36	<+0.095
LL5262B	51	2.5	<125	<1100	0.25	<0.1	39	<+0.096
LL5263B	56	2.2	<150	<1300	0.25	<0.1	43	<+0.096
LL5264B	60	2.1	<170	<1400	0.25	<0.1	46	<+0.097
LL5265B	62	2.0	<185	<1400	0.25	<0.1	47	<+0.097
LL5266B	68	1.8	<230	<1600	0.25	<0.1	52	<+0.097
LL5267B	75	1.7	<270	<1700	0.25	<0.1	58	<+0.098



0.5W Zener Diodes/SOD-80(LL-34, Mini MELF) Package

Type	V _{Znom}	I _{ZT}	for V _{ZT} and	r _{ZT}	r _{ZK} at	I _{ZK}	I _R and	I _R at	V _R	TK _{VZ}
LL55B.	V	mA	V	Ω	Ω	mA	μA	μA ¹⁾	V	%/K
2V0	2.0	5	1.96~2.04	100	<600	1	<150	<300	1	-0.09~-0.06
2V2	2.2	5	2.15~2.25	100	<600	1	<150	<300	1	-0.09~-0.06
2V4	2.4	5	2.35~2.45	<85	<600	1	<50	<100	1	-0.09~-0.06
2V7	2.7	5	2.64~2.76	<85	<600	1	<10	<50	1	-0.09~-0.06
3V0	3.0	5	2.94~3.06	<85	<600	1	<4	<40	1	-0.08~-0.05
3V3	3.3	5	3.24~3.36	<85	<600	1	<2	<40	1	-0.08~-0.05
3V6	3.6	5	3.52~3.68	<85	<600	1	<2	<40	1	-0.08~-0.05
3V9	3.9	5	3.82~3.98	<85	<600	1	<2	<40	1	-0.08~-0.05
4V3	4.3	5	4.22~4.38	<75	<600	1	<1	<20	1	-0.06~-0.03
4V7	4.7	5	4.6~4.8	<60	<600	1	<0.5	<10	1	-0.05~+0.02
5V1	5.1	5	5.0~5.2	<35	<550	1	<0.1	<2	1	-0.02~+0.02
5V6	5.6	5	5.48~5.72	<25	<450	1	<0.1	<2	1	-0.05~+0.05
6V2	6.2	5	6.08~6.32	<10	<200	1	<0.1	<2	2	0.03~0.06
6V8	6.8	5	6.66~6.94	<8	<150	1	<0.1	<2	3	0.03~0.07
7V5	7.5	5	7.35~7.65	<7	<50	1	<0.1	<2	5	0.03~0.07
8V2	8.2	5	8.04~8.36	<7	<50	1	<0.1	<2	6.2	0.03~0.08
9V1	9.1	5	8.92~9.28	<10	<50	1	<0.1	<2	6.8	0.03~0.09
10	10	5	9.8~10.2	<15	<70	1	<0.1	<2	7.5	0.03~0.1
11	11	5	10.78~11.22	<20	<70	1	<0.1	<2	8.2	0.03~0.11
12	12	5	11.76~12.24	<20	<90	1	<0.1	<2	9.1	0.03~0.11
13	13	5	12.74~13.26	<26	<110	1	<0.1	<2	10	0.03~0.11
15	15	5	14.7~15.3	<30	<110	1	<0.1	<2	11	0.03~0.11
16	16	5	15.7~16.3	<40	<170	1	<0.1	<2	12	0.03~0.11
18	18	5	17.64~18.36	<50	<170	1	<0.1	<2	13	0.03~0.11
20	20	5	19.6~20.4	<55	<220	1	<0.1	<2	15	0.03~0.11
22	22	5	21.55~22.45	<55	<220	1	<0.1	<2	16	0.04~0.12
24	24	5	23.5~24.5	<80	<220	1	<0.1	<2	18	0.04~0.12
27	27	5	26.4~27.6	<80	<220	1	<0.1	<2	20	0.04~0.12
30	30	5	29.4~30.6	<80	<220	1	<0.1	<2	22	0.04~0.12
33	33	5	32.4~33.6	<80	<220	1	<0.1	<2	24	0.04~0.12
36	36	5	35.3~36.7	<80	<220	1	<0.1	<2	27	0.04~0.12
39	39	2.5	38.2~39.8	<90	<500	0.5	<0.1	<5	30	0.04~0.12
43	43	2.5	42.1~43.9	<90	<600	0.5	<0.1	<5	33	0.04~0.12
47	47	2.5	46.1~47.9	<110	<700	0.5	<0.1	<5	36	0.04~0.12
51	51	2.5	50~52	<125	<700	0.5	<0.1	<10	39	0.04~0.12
56	56	2.5	54.9~57.1	<135	<1000	0.5	<0.1	<10	43	0.04~0.12
62	62	2.5	60.8~63.2	<150	<1000	0.5	<0.1	<10	47	0.04~0.12
68	68	2.5	66.6~69.4	<200	<1000	0.5	<0.1	<10	51	0.04~0.12
75	75	2.5	73.5~76.5	<250	<1500	0.5	<0.1	<10	56	0.04~0.12

¹⁾ at T_J=150°C

Excel Semiconductor

www.excel-semi.com
FaxBack +86-512-67606917

Rev. 3a, 1-Jun-2004



0.5W Zener Diodes/SOD-80(LL-34, Mini MELF) Package

Type	V _{Znom}	I _{ZT}	for V _{ZT} and	r _{ZT}	r _{ZK} at	I _{ZK}	I _R and	I _R at	V _R	TK _{VZ}
LL55C.	V	mA	V	Ω	Ω	mA	μA	Ma ¹⁾	V	%/K
2V0	2.0	5	1.9~2.1	100	<600	1	<150	<300	1	-0.09~-0.06
2V2	2.2	5	2.09~2.31	100	<600	1	<150	<300	1	-0.09~-0.06
2V4	2.4	5	2.28~2.56	<85	<600	1	<50	<100	1	-0.09~-0.06
2V7	2.7	5	2.5~2.9	<85	<600	1	<10	<50	1	-0.09~-0.06
3V0	3.0	5	2.8~3.2	<85	<600	1	<4	<40	1	-0.08~-0.05
3V3	3.3	5	3.1~3.5	<85	<600	1	<2	<40	1	-0.08~-0.05
3V6	3.6	5	3.4~3.8	<85	<600	1	<2	<40	1	-0.08~-0.05
3V9	3.9	5	3.7~4.1	<85	<600	1	<2	<40	1	-0.08~-0.05
4V3	4.3	5	4.0~4.6	<75	<600	1	<1	<20	1	-0.06~-0.03
4V7	4.7	5	4.4~5.0	<60	<600	1	<0.5	<10	1	-0.05~+0.02
5V1	5.1	5	4.8~5.4	<35	<550	1	<0.1	<2	1	-0.02~+0.02
5V6	5.6	5	5.2~6.0	<25	<450	1	<0.1	<2	1	-0.05~+0.05
6V2	6.2	5	5.8~6.6	<10	<200	1	<0.1	<2	2	0.03~0.06
6V8	6.8	5	6.4~7.2	<8	<150	1	<0.1	<2	3	0.03~0.07
7V5	7.5	5	7.0~7.9	<7	<50	1	<0.1	<2	5	0.03~0.07
8V2	8.2	5	7.7~8.7	<7	<50	1	<0.1	<2	6.2	0.03~0.08
9V1	9.1	5	8.5~9.6	<10	<50	1	<0.1	<2	6.8	0.03~0.09
10	10	5	9.4~10.6	<15	<70	1	<0.1	<2	7.5	0.03~0.1
11	11	5	10.4~11.6	<20	<70	1	<0.1	<2	8.2	0.03~0.11
12	12	5	11.4~12.7	<20	<90	1	<0.1	<2	9.1	0.03~0.11
13	13	5	12.4~14.1	<26	<110	1	<0.1	<2	10	0.03~0.11
15	15	5	13.8~15.6	<30	<110	1	<0.1	<2	11	0.03~0.11
16	16	5	15.3~17.1	<40	<170	1	<0.1	<2	12	0.03~0.11
18	18	5	16.8~19.1	<50	<170	1	<0.1	<2	13	0.03~0.11
20	20	5	18.8~21.2	<55	<220	1	<0.1	<2	15	0.03~0.11
22	22	5	20.8~23.3	<55	<220	1	<0.1	<2	16	0.04~0.12
24	24	5	22.8~25.6	<80	<220	1	<0.1	<2	18	0.04~0.12
27	27	5	25.1~28.9	<80	<220	1	<0.1	<2	20	0.04~0.12
30	30	5	28~32	<80	<220	1	<0.1	<2	22	0.04~0.12
33	33	5	31~35	<80	<220	1	<0.1	<2	24	0.04~0.12
36	36	5	34~38	<80	<220	1	<0.1	<2	27	0.04~0.12
39	39	2.5	37~41	<90	<500	0.5	<0.1	<5	30	0.04~0.12
43	43	2.5	40~46	<90	<600	0.5	<0.1	<5	33	0.04~0.12
47	47	2.5	44~50	<110	<700	0.5	<0.1	<5	36	0.04~0.12
51	51	2.5	48~54	<125	<700	0.5	<0.1	<10	39	0.04~0.12
56	56	2.5	52~60	<135	<1000	0.5	<0.1	<10	43	0.04~0.12
62	62	2.5	58~66	<150	<1000	0.5	<0.1	<10	47	0.04~0.12
68	68	2.5	64~72	<200	<1000	0.5	<0.1	<10	51	0.04~0.12
75	75	2.5	70~79	<250	<1500	0.5	<0.1	<10	56	0.04~0.12

¹⁾ at T_J=150°C

Excel Semiconductor

www.excel-semi.com
FaxBack +86-512-67606917

Rev. 3a, 1-Jun-2004



0.5W Zener Diodes/SOD-80(LL-34, Mini MELF) Package

Type	Zener voltage				Operating resistance		Rising operating resistance		Reverse current	
	Rank	V _Z (V)			Z _{zt} (Ω)		Z _{zk} (Ω)		I _R (μA)	
		Min.	Max.	I _Z (mA)	Max.	I _Z (mA)	Max.	I _Z (mA)	Max.	V _R (V)
LLZJ 2.0	A	1.88	2.10	5	100	5	1000	0.5	120	0.5
	B	2.02	2.20							
LLZJ 2.2	A	2.12	2.30	5	100	5	1000	0.5	100	0.7
	B	2.22	2.41							
LLZJ 2.4	A	2.33	2.52	5	100	5	1000	0.5	120	1.0
	B	2.43	2.63							
LLZJ 2.7	A	2.54	2.75	5	110	5	1000	0.5	100	1.0
	B	2.69	2.91							
LLZJ 3.0	A	2.85	3.07	5	120	5	1000	0.5	50	1.0
	B	3.01	3.22							
LLZJ 3.3	A	3.16	3.38	5	120	5	1000	0.5	20	1.0
	B	3.32	3.53							
LLZJ 3.6	A	3.46	3.69	5	100	5	1000	1	10	1.0
	B	3.60	3.84							
LLZJ 3.9	A	3.74	4.01	5	100	5	1000	1	5	1.0
	B	3.89	4.16							
LLZJ 4.3	A	4.04	4.29	5	100	5	1000	1	5	1.0
	B	4.17	4.43							
	C	4.30	4.57							
LLZJ 4.7	A	4.44	4.68	5	90	5	900	1	5	1.0
	B	4.55	4.80							
	C	4.68	4.93							
LLZJ 5.1	A	4.81	5.07	5	80	5	800	1	5	1.5
	B	4.94	5.20							
	C	5.09	5.37							
LLZJ 5.6	A	5.28	5.55	5	60	5	500	1	5	2.5
	B	5.45	5.73							
	C	5.61	5.91							
LLZJ 6.2	A	5.78	6.09	5	60	5	300	1	5	3.0
	B	5.96	6.27							
	C	6.12	6.44							
LLZJ 6.8	A	6.29	6.63	5	20	5	150	0.5	2	3.5
	B	6.49	6.83							
	C	6.66	7.01							
LLZJ 7.5	A	6.85	7.22	5	20	5	120	0.5	0.5	4.0
	B	7.07	7.45							
	C	7.29	7.67							
LLZJ 8.2	A	7.53	7.92	5	20	5	120	0.5	0.5	5.0
	B	7.78	8.19							
	C	8.03	8.45							
LLZJ 9.1	A	8.29	8.73	5	25	5	120	0.5	0.5	6.0
	B	8.57	9.01							
	C	8.83	9.30							



0.5W Zener Diodes/SOD-80(LL-34, Mini MELF) Package

Type	Zener voltage				Operating resistance		Rising operating resistance		Reverse current	
	Rank	V _z (V)			Z _{zt} (Ω)		Z _{zk} (Ω)		I _R (μA)	
		Min.	Max.	I _z (mA)	Max.	I _z (mA)	Max.	I _z (mA)	Max.	V _R (V)
LLZJ 10	A	9.12	9.59	5	30	5	120	0.5	0.2	7.0
	B	9.41	9.90							
	C	9.70	10.20							
	D	9.94	10.44							
LLZJ 11	A	10.18	10.71	5	30	5	120	0.5	0.2	8.0
	B	10.50	11.05							
	C	10.82	11.38							
LLZJ 12	A	11.13	11.71	5	30	5	110	0.5	0.2	9.0
	B	11.44	12.03							
	C	11.74	12.35							
LLZJ 13	A	12.11	12.75	5	35	5	110	0.5	0.2	10
	B	12.55	13.21							
	C	12.99	13.66							
LLZJ 15	A	13.44	14.13	5	40	5	110	0.5	0.2	11
	B	13.89	14.62							
	C	14.35	15.09							
LLZJ 16	A	14.80	15.57	5	40	5	150	0.5	0.2	12
	B	15.25	16.04							
	C	15.69	16.51							
LLZJ 18	A	16.22	17.06	5	45	5	150	0.5	0.2	13
	B	16.82	17.70							
	C	17.42	18.33							
LLZJ 20	A	18.20	18.96	5	55	5	200	0.5	0.2	15
	B	18.63	19.59							
	C	19.23	20.22							
	D	19.72	20.72							
LLZJ 22	A	20.15	21.20	5	30	5	200	0.5	0.2	17
	B	20.64	21.71							
	C	21.08	22.17							
	D	21.52	22.63							
LLZJ 24	A	22.05	23.18	5	35	5	200	0.5	0.2	19
	B	22.61	23.77							
	C	23.12	24.13							
	D	23.63	24.85							
LLZJ 27	A	24.26	25.52	5	45	5	250	0.5	0.2	21
	B	24.97	26.26							
	C	25.63	26.95							
	D	26.29	27.64							
LLZJ 30	A	26.99	28.39	5	55	5	250	0.5	0.2	23
	B	27.70	29.13							
	C	28.36	29.82							
	D	29.02	30.51							



0.5W Zener Diodes/SOD-80(LL-34, Mini MELF) Package

Type	Zener voltage				Operating resistance		Rising operating resistance		Reverse current	
	Rank	V _z (V)			Z _{zt} (Ω)		Z _{zk} (Ω)		I _R (μA)	
		Min.	Max.	I _z (mA)	Max.	I _z (mA)	Max.	I _z (mA)	Max.	V _R (V)
LLZJ 33	A	29.68	31.22	5	65	5	250	0.5	0.2	25
	B	30.32	31.88							
	C	30.90	32.50							
	D	31.49	33.11							
LLZJ 36	A	32.14	33.79	5	75	5	250	0.5	0.2	27
	B	32.79	34.49							
	C	33.40	35.13							
	D	34.01	35.77							
LLZJ 39	A	34.68	36.47	5	85	5	250	0.5	0.2	30
	B	35.36	37.19							
	C	36.00	37.85							
	D	36.63	38.52							



0.5W Zener Diodes($V_Z \pm 5\%$)/Quadro MELF Package

Type	V_{Znom} V	I_{ZT} mA	for r_{zT} Ω	r_{zK} at Ω	I_{ZK} mA	I_R at μA	V_R V	TK_{VZ} %/K
TZQ5221B	2.4	20	<30	<1200	0.25	<100	1.0	<-0.085
TZQ5222B	2.5	20	<30	<1250	0.25	<100	1.0	<-0.085
TZQ5223B	2.7	20	<30	<1300	0.25	<75	1.0	<-0.080
TZQ5224B	2.8	20	<30	<1400	0.25	<75	1.0	<-0.080
TZQ5225B	3.0	20	<29	<1600	0.25	<50	1.0	<-0.075
TZQ5226B	3.3	20	<28	<1600	0.25	<25	1.0	<-0.070
TZQ5227B	3.6	20	<24	<1700	0.25	<15	1.0	<-0.065
TZQ5228B	3.9	20	<23	<1900	0.25	<10	1.0	<-0.060
TZQ5229B	4.3	20	<22	<2000	0.25	<5	1.0	<+0.055
TZQ5230B	4.7	20	<19	<1900	0.25	<5	2.0	<+0.030
TZQ5231B	5.1	20	<17	<1600	0.25	<5	2.0	<+0.030
TZQ5232B	5.6	20	<11	<1600	0.25	<5	3.0	<+0.038
TZQ5233B	6.0	20	<7	<1600	0.25	<5	3.5	<+0.038
TZQ5234B	6.2	20	<7	<1000	0.25	<5	4.0	<+0.045
TZQ5235B	6.8	20	<5	<750	0.25	<3	5.0	<+0.050
TZQ5236B	7.5	20	<6	<500	0.25	<3	6.0	<+0.058
TZQ5237B	8.2	20	<8	<500	0.25	<3	6.5	<+0.062
TZQ5238B	8.7	20	<8	<600	0.25	<3	6.5	<+0.065
TZQ5239B	9.1	20	<10	<600	0.25	<3	7.0	<+0.068
TZQ5240B	10	20	<17	<600	0.25	<3	8.0	<+0.075
TZQ5241B	11	20	<22	<600	0.25	<2	8.4	<+0.076
TZQ5242B	12	20	<30	<600	0.25	<1	9.1	<+0.077
TZQ5243B	13	9.5	<13	<600	0.25	<0.5	9.9	<+0.079
TZQ5244B	14	9.0	<15	<600	0.25	<0.1	10	<+0.082
TZQ5245B	15	8.5	<16	<600	0.25	<0.1	11	<+0.082
TZQ5246B	16	7.8	<17	<600	0.25	<0.1	12	<+0.083
TZQ5247B	17	7.4	<19	<600	0.25	<0.1	13	<+0.084
TZQ5248B	18	7.0	<21	<600	0.25	<0.1	14	<+0.085
TZQ5249B	19	6.6	<23	<600	0.25	<0.1	15	<+0.086
TZQ5250B	20	6.2	<25	<600	0.25	<0.1	16	<+0.086
TZQ5251B	22	5.6	<29	<600	0.25	<0.1	17	<+0.087
TZQ5252B	24	5.2	<33	<600	0.25	<0.1	18	<+0.088
TZQ5253B	25	5.0	<35	<600	0.25	<0.1	19	<+0.089
TZQ5254B	27	4.6	<41	<600	0.25	<0.1	21	<+0.090
TZQ5255B	28	4.5	<44	<600	0.25	<0.1	21	<+0.091
TZQ5256B	30	4.2	<49	<600	0.25	<0.1	23	<+0.091
TZQ5257B	33	3.8	<58	<700	0.25	<0.1	25	<+0.092
TZQ5258B	36	3.4	<70	<700	0.25	<0.1	27	<+0.093
TZQ5259B	39	3.2	<80	<800	0.25	<0.1	30	<+0.094
TZQ5260B	43	3.0	<93	<900	0.25	<0.1	33	<+0.095
TZQ5261B	47	2.7	<105	<1000	0.25	<0.1	36	<+0.095
TZQ5262B	51	2.5	<125	<1100	0.25	<0.1	39	<+0.096
TZQ5263B	56	2.2	<150	<1300	0.25	<0.1	43	<+0.096
TZQ5264B	60	2.1	<170	<1400	0.25	<0.1	46	<+0.097
TZQ5265B	62	2.0	<185	<1400	0.25	<0.1	47	<+0.097
TZQ5266B	68	1.8	<230	<1600	0.25	<0.1	52	<+0.097
TZQ5267B	75	1.7	<270	<1700	0.25	<0.1	58	<+0.098

Excel Semiconductor



0.5W Zener Diodes/ Quadro MELF Package

Type ¹⁾	Zener voltage V_Z @ $I_{ZT}=50 \mu A$			I_R at V_R ³⁾		I_{ZM} ²⁾	ΔV_Z ⁴⁾
	V_{Znom} ¹⁾	V_{ZMin}	V_{ZMax}	μA	V	mA	V
	V	V	V				
TZS4678	1.8	1.71	1.89	7.5	1	120	0.7
TZS4679	2	1.9	2.1	5	1	110	0.7
TZS4680	2.2	2.09	2.31	4	1	100	0.75
TZS4681	2.4	2.28	2.52	2	1	95	0.8
TZS4682	2.7	2.565	2.835	1	1	90	0.85
TZS4683	3	2.85	3.15	0.8	1	85	0.9
TZS4684	3.3	3.135	3.465	7.5	1.5	80	0.95
TZS4685	3.6	3.42	3.78	7.5	2	75	0.95
TZS4686	3.9	3.705	4.095	5	2	70	0.97
TZS4687	4.3	4.085	4.515	4	2	65	0.99
TZS4688	4.7	4.465	4.935	10	3	60	0.99
TZS4689	5.1	4.845	5.355	10	3	55	0.97
TZS4690	5.6	5.32	5.88	10	4	50	0.96
TZS4691	6.2	5.89	6.51	10	5	45	0.95
TZS4692	6.8	6.46	7.14	10	5.1	35	0.9
TZS4693	7.5	7.125	7.875	10	5.7	31.8	0.75
TZS4694	8.2	7.79	8.61	1	6.2	29	0.5
TZS4695	8.7	8.265	9.135	1	6.6	27.4	0.1
TZS4696	9.1	8.645	9.555	1	6.9	26.2	0.08
TZS4697	10	9.5	10.5	1	7.6	24.8	0.1
TZS4698	11	10.45	11.55	0.05	8.4	21.6	0.11
TZS4699	12	11.4	12.6	0.05	9.1	20.4	0.12
TZS4700	13	12.35	13.65	0.05	9.8	19	0.13
TZS4701	14	13.3	14.7	0.05	10.6	17.5	0.14
TZS4702	15	14.25	15.75	0.05	11.4	16.3	0.15
TZS4703	16	15.20	16.8	0.05	12.1	15.4	0.16
TZS4704	17	16.15	17.85	0.05	12.9	14.5	0.17
TZS4705	18	17.10	18.9	0.05	13.6	13.2	0.18
TZS4707	20	19	21	0.01	15.2	11.9	0.2
TZS4711	27	25.65	28.35	0.01	20.4	8.8	0.27
TZS4713	30	28.5	31.5	0.01	22.8	7.9	0.3

¹⁾ **Tolerance and voltage designation(V_Z):**

The type numbers shown have a standard tolerance of $\pm 5\%$ on the nominal zener voltage, C for $\pm 2\%$, D for $\pm 1\%$.

²⁾ **Maximum zener current ratings(I_{ZM}):**

Maximum zener current ratings are based on maximum zener voltage of the individual units and JEDEC 250 mW rating.

³⁾ **Reverse leakage current(I_R):**

Reverse leakage currents are guaranteed and measured at V_R as shown on the table.

⁴⁾ **Maximum voltage change(ΔV_Z):**

Voltage change is equal to the difference between V_Z at $100 \mu A$ and V_Z at $10 \mu A$.

Excel Semiconductor



0.5W Zener Diodes/Micro MELF Package

Type	V _{Znom}	I _{ZT}	for V _{ZT} and	r _{ZT}	r _{ZK} at	I _{ZK}	I _R and	I _R at	V _R	TK _{VZ}
BZM55B.	V	mA	V	Ω	Ω	mA	μA	μA ¹⁾	V	%/K
2V0	2.0	5	1.96~2.04	100	<600	1	<150	<300	1	-0.09~-0.06
2V2	2.2	5	2.15~2.25	100	<600	1	<150	<300	1	-0.09~-0.06
2V4	2.4	5	2.35~2.45	<85	<600	1	<50	<100	1	-0.09~-0.06
2V7	2.7	5	2.64~2.76	<85	<600	1	<10	<50	1	-0.09~-0.06
3V0	3.0	5	2.94~3.06	<85	<600	1	<4	<40	1	-0.08~-0.05
3V3	3.3	5	3.24~3.36	<85	<600	1	<2	<40	1	-0.08~-0.05
3V6	3.6	5	3.52~3.68	<85	<600	1	<2	<40	1	-0.08~-0.05
3V9	3.9	5	3.82~3.98	<85	<600	1	<2	<40	1	-0.08~-0.05
4V3	4.3	5	4.22~4.38	<75	<600	1	<1	<20	1	-0.06~-0.03
4V7	4.7	5	4.6~4.8	<60	<600	1	<0.5	<10	1	-0.05~+0.02
5V1	5.1	5	5.0~5.2	<35	<550	1	<0.1	<2	1	-0.02~+0.02
5V6	5.6	5	5.48~5.72	<25	<450	1	<0.1	<2	1	-0.05~+0.05
6V2	6.2	5	6.08~6.32	<10	<200	1	<0.1	<2	2	0.03~0.06
6V8	6.8	5	6.66~6.94	<8	<150	1	<0.1	<2	3	0.03~0.07
7V5	7.5	5	7.35~7.65	<7	<50	1	<0.1	<2	5	0.03~0.07
8V2	8.2	5	8.04~8.36	<7	<50	1	<0.1	<2	6.2	0.03~0.08
9V1	9.1	5	8.92~9.28	<10	<50	1	<0.1	<2	6.8	0.03~0.09
10	10	5	9.8~10.2	<15	<70	1	<0.1	<2	7.5	0.03~0.1
11	11	5	10.78~11.22	<20	<70	1	<0.1	<2	8.2	0.03~0.11
12	12	5	11.76~12.24	<20	<90	1	<0.1	<2	9.1	0.03~0.11
13	13	5	12.74~13.26	<26	<110	1	<0.1	<2	10	0.03~0.11
15	15	5	14.7~15.3	<30	<110	1	<0.1	<2	11	0.03~0.11
16	16	5	15.7~16.3	<40	<170	1	<0.1	<2	12	0.03~0.11
18	18	5	17.64~18.36	<50	<170	1	<0.1	<2	13	0.03~0.11
20	20	5	19.6~20.4	<55	<220	1	<0.1	<2	15	0.03~0.11
22	22	5	21.55~22.45	<55	<220	1	<0.1	<2	16	0.04~0.12
24	24	5	23.5~24.5	<80	<220	1	<0.1	<2	18	0.04~0.12
27	27	5	26.4~27.6	<80	<220	1	<0.1	<2	20	0.04~0.12
30	30	5	29.4~30.6	<80	<220	1	<0.1	<2	22	0.04~0.12
33	33	5	32.4~33.6	<80	<220	1	<0.1	<2	24	0.04~0.12
36	36	5	35.3~36.7	<80	<220	1	<0.1	<2	27	0.04~0.12
39	39	2.5	38.2~39.8	<90	<500	0.5	<0.1	<5	30	0.04~0.12
43	43	2.5	42.1~43.9	<90	<600	0.5	<0.1	<5	33	0.04~0.12
47	47	2.5	46.1~47.9	<110	<700	0.5	<0.1	<5	36	0.04~0.12
51	51	2.5	50~52	<125	<700	0.5	<0.1	<10	39	0.04~0.12
56	56	2.5	54.9~57.1	<135	<1000	0.5	<0.1	<10	43	0.04~0.12
62	62	2.5	60.8~63.2	<150	<1000	0.5	<0.1	<10	47	0.04~0.12
68	68	2.5	66.6~69.4	<200	<1000	0.5	<0.1	<10	51	0.04~0.12
75	75	2.5	73.5~76.5	<250	<1500	0.5	<0.1	<10	56	0.04~0.12

¹⁾ at T_J=150°C

Excel Semiconductor

www.excel-semi.com
FaxBack +86-512-67606917

Rev. 3a, 1-Jun-2004



0.5W Zener Diodes/Micro MELF Package

Type	V _{Znom}	I _{ZT}	for V _{ZT} and	r _{ZT}	r _{ZK} at	I _{ZK}	I _R and	I _R at	V _R	TK _{VZ}
BZM55C.	V	mA	V	Ω	Ω	mA	μA	μA ¹⁾	V	%/K
2V0	2.0	5	1.9~2.1	100	<600	1	<150	<300	1	-0.09~-0.06
2V2	2.2	5	2.09~2.31	100	<600	1	<150	<300	1	-0.09~-0.06
2V4	2.4	5	2.28~2.56	<85	<600	1	<50	<100	1	-0.09~-0.06
2V7	2.7	5	2.5~2.9	<85	<600	1	<10	<50	1	-0.09~-0.06
3V0	3.0	5	2.8~3.2	<85	<600	1	<4	<40	1	-0.08~-0.05
3V3	3.3	5	3.1~3.5	<85	<600	1	<2	<40	1	-0.08~-0.05
3V6	3.6	5	3.4~3.8	<85	<600	1	<2	<40	1	-0.08~-0.05
3V9	3.9	5	3.7~4.1	<85	<600	1	<2	<40	1	-0.08~-0.05
4V3	4.3	5	4.0~4.6	<75	<600	1	<1	<20	1	-0.06~-0.03
4V7	4.7	5	4.4~5.0	<60	<600	1	<0.5	<10	1	-0.05~+0.02
5V1	5.1	5	4.8~5.4	<35	<550	1	<0.1	<2	1	-0.02~+0.02
5V6	5.6	5	5.2~6.0	<25	<450	1	<0.1	<2	1	-0.05~+0.05
6V2	6.2	5	5.8~6.6	<10	<200	1	<0.1	<2	2	0.03~0.06
6V8	6.8	5	6.4~7.2	<8	<150	1	<0.1	<2	3	0.03~0.07
7V5	7.5	5	7.0~7.9	<7	<50	1	<0.1	<2	5	0.03~0.07
8V2	8.2	5	7.7~8.7	<7	<50	1	<0.1	<2	6.2	0.03~0.08
9V1	9.1	5	8.5~9.6	<10	<50	1	<0.1	<2	6.8	0.03~0.09
10	10	5	9.4~10.6	<15	<70	1	<0.1	<2	7.5	0.03~0.1
11	11	5	10.4~11.6	<20	<70	1	<0.1	<2	8.2	0.03~0.11
12	12	5	11.4~12.7	<20	<90	1	<0.1	<2	9.1	0.03~0.11
13	13	5	12.4~14.1	<26	<110	1	<0.1	<2	10	0.03~0.11
15	15	5	13.8~15.6	<30	<110	1	<0.1	<2	11	0.03~0.11
16	16	5	15.3~17.1	<40	<170	1	<0.1	<2	12	0.03~0.11
18	18	5	16.8~19.1	<50	<170	1	<0.1	<2	13	0.03~0.11
20	20	5	18.8~21.2	<55	<220	1	<0.1	<2	15	0.03~0.11
22	22	5	20.8~23.3	<55	<220	1	<0.1	<2	16	0.04~0.12
24	24	5	22.8~25.6	<80	<220	1	<0.1	<2	18	0.04~0.12
27	27	5	25.1~28.9	<80	<220	1	<0.1	<2	20	0.04~0.12
30	30	5	28~32	<80	<220	1	<0.1	<2	22	0.04~0.12
33	33	5	31~35	<80	<220	1	<0.1	<2	24	0.04~0.12
36	36	5	34~38	<80	<220	1	<0.1	<2	27	0.04~0.12
39	39	2.5	37~41	<90	<500	0.5	<0.1	<5	30	0.04~0.12
43	43	2.5	40~46	<90	<600	0.5	<0.1	<5	33	0.04~0.12
47	47	2.5	44~50	<110	<700	0.5	<0.1	<5	36	0.04~0.12
51	51	2.5	48~54	<125	<700	0.5	<0.1	<10	39	0.04~0.12
56	56	2.5	52~60	<135	<1000	0.5	<0.1	<10	43	0.04~0.12
62	62	2.5	58~66	<150	<1000	0.5	<0.1	<10	47	0.04~0.12
68	68	2.5	64~72	<200	<1000	0.5	<0.1	<10	51	0.04~0.12
75	75	2.5	70~79	<250	<1500	0.5	<0.1	<10	56	0.04~0.12

¹⁾ at T_J=150°C

Excel Semiconductor

www.excel-semi.com
FaxBack +86-512-67606917

Rev. 3a, 1-Jun-2004



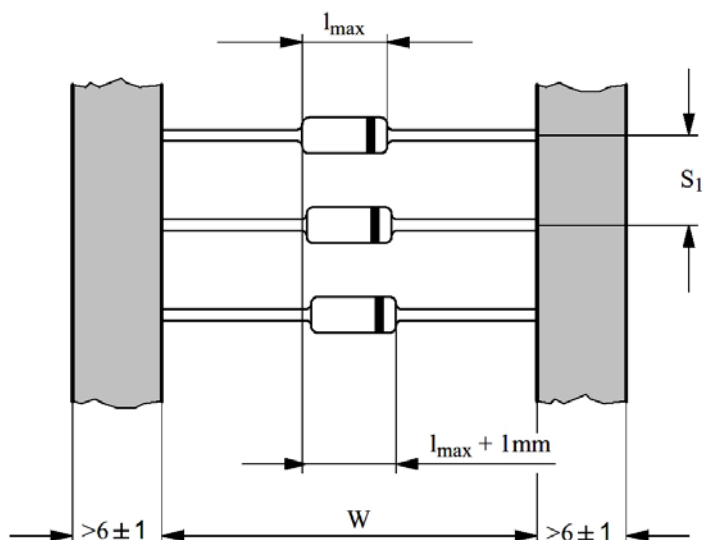
1W Zener Diodes/LL-41(MELF) Package

Type	V _{Znom}	I _{ZT} for	r _{ZT}	r _{ZK} at	I _{ZK}	I _R at	V _R
	V	mA	Ω	Ω	mA	μ A	V
DL4728A	3.3	76	<10	<400	1	<100	1
DL4729A	3.6	69	<10	<400	1	<100	1
DL4730A	3.9	64	<9	<400	1	<50	1
DL4731A	4.3	58	<9	<400	1	<10	1
DL4732A	4.7	53	<8	<500	1	<10	1
DL4733A	5.1	49	<7	<550	1	<10	1
DL4734A	5.6	45	<5	<600	1	<10	2
DL4735A	6.2	41	<2	<700	1	<10	3
DL4736A	6.8	37	<3.5	<700	1	<10	4
DL4737A	7.5	34	<4.0	<700	0.5	<10	5
DL4738A	8.2	31	<4.5	<700	0.5	<10	6
DL4739A	9.1	28	<5.0	<700	0.5	<10	7
DL4740A	10	25	<7	<700	0.25	<10	7.6
DL4741A	11	23	<8	<700	0.25	<5	8.4
DL4742A	12	21	<9	<700	0.25	<5	9.1
DL4743A	13	19	<10	<700	0.25	<5	9.9
DL4744A	15	17	<14	<700	0.25	<5	11.4
DL4745A	16	15.5	<16	<700	0.25	<5	12.2
DL4746A	18	14	<20	<750	0.25	<5	13.7
DL4747A	20	12.5	<22	<750	0.25	<5	15.2
DL4748A	22	11.5	<23	<750	0.25	<5	16.7
DL4749A	24	10.5	<25	<750	0.25	<5	18.2
DL4750A	27	9.5	<35	<750	0.25	<5	20.6
DL4751A	30	8.5	<40	<1000	0.25	<5	22.8
DL4752A	33	7.5	<45	<1000	0.25	<5	25.1
DL4753A	36	7.0	<50	<1000	0.25	<5	27.4
DL4754A	39	6.5	<60	<1000	0.25	<5	29.7
DL4755A	43	6.0	<70	<1500	0.25	<5	32.7
DL4756A	47	5.5	<80	<1500	0.25	<5	35.8
DL4757A	51	5.0	<95	<1500	0.25	<5	38.8
DL4758A	56	4.5	<110	<2000	0.25	<5	42.6
DL4759A	62	4.0	<125	<2000	0.25	<5	47.1
DL4760A	68	3.7	<150	<2000	0.25	<5	51.7
DL4761A	75	3.3	<175	<2000	0.25	<5	56



Axial lead Components

Diodes and rectifiers with axial leads are normally delivered in taped form according to IEC 286-1(see below). The cathode side is designated by a colored tape. Taped devices are normally delivered in ammo-boxes (Ammo pack). Delivery on reels is available on request. For details please contact factory.



S1 = 5 ± 0.5 mm for devices with diameter $d < 4.5$ mm
 = 10 ± 0.5 mm for devices with diameter $d > 4.5$ mm
 W = 53 ± 2 mm for normal taped form
 = 26 ± 1.5 mm for GPS version
 Allowable deviation above 10 taped steps ± 2 mm.

Taping Pack

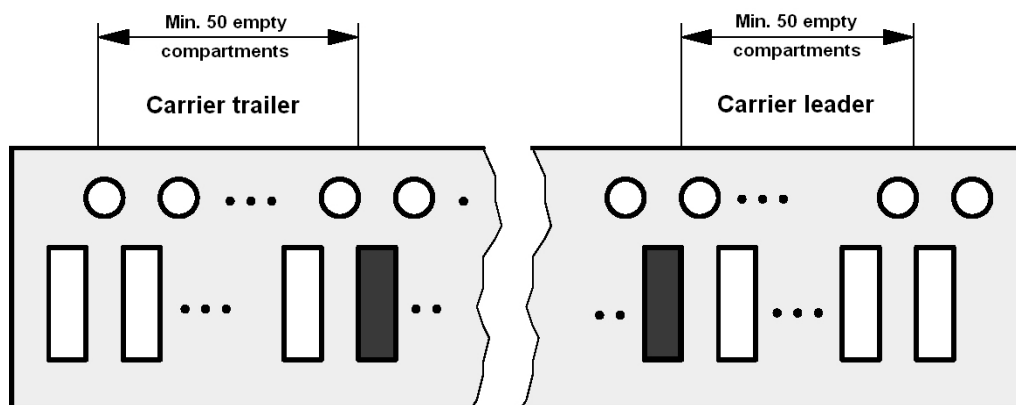
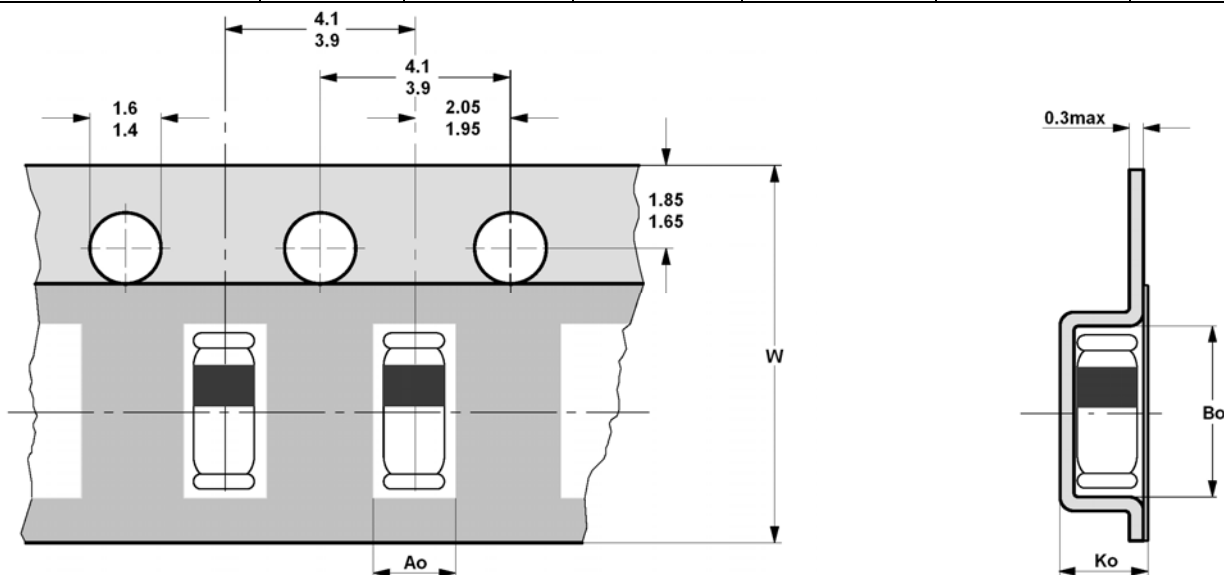
Package	Box size in mm	Box (EA)	Carton size in mm	Carton (EA)	N.W (Kg)	G.W (Kg)
DO-34	78×85×250	5,000	410×265×385	100,000	16	17
DO-35	78×85×250	5,000	410×265×385	100,000	17	18
DO-41	78×85×250	2,500	410×265×385	50,000	19	20



Surface-mounted Devices (SMDs)

SMDs are normally delivered taped on blister tape and reeled according to IEC 286-3. The mounting side of the component is oriented to the bottom side of the tape. For components with two terminations, the cathode side is oriented to the sprocket hole. For quantities per reel, see below.

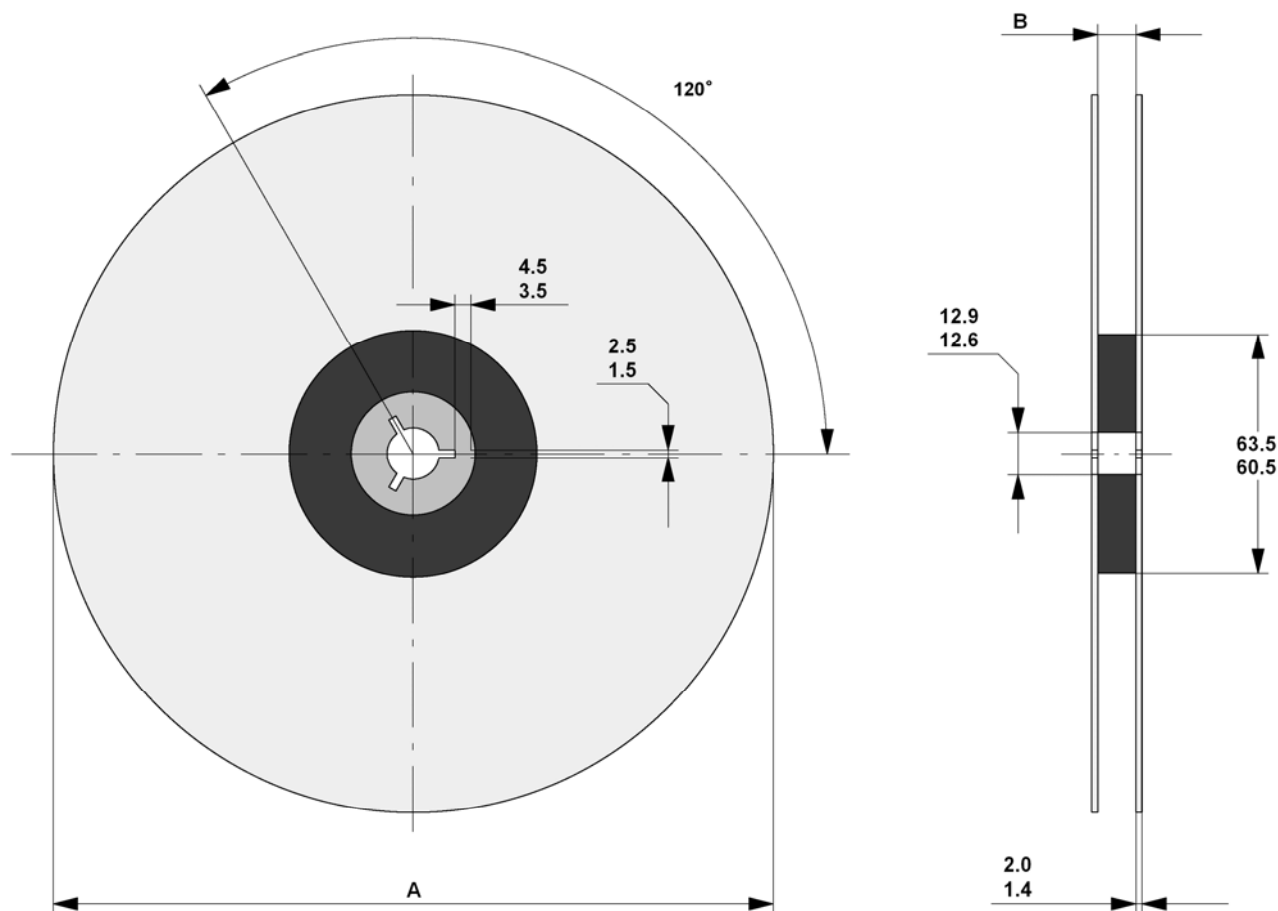
Case type	Quantity	Reel Size in mm (Diameter)	W Tape Width in mm	Ao in mm	Bo in mm	Ko in mm
Micro MELF	2500	180	8	1.5max	2.3max	1.5max
SOD80 (Mini MELF)	2500	180	8	1.7max	4.0max	1.7max
Quadro MELF	2500	180	8	1.7max	4.0max	1.7max
MELF (LL-41)	5000	330	12	3.2max	5.5max	3.2max



Excel Semiconductor



Packaging Specifications



A: 180±2 mm or 330±2 mm

B: 8.4 to 10.4 mm or 12.4 to 14.4 mm

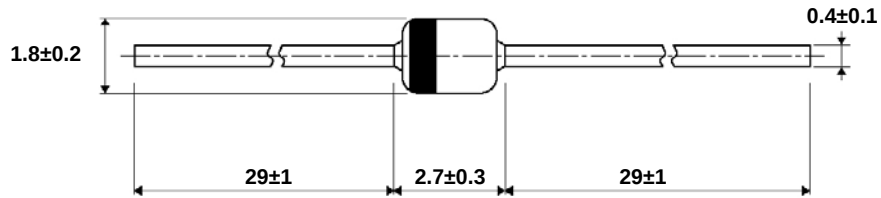
Taping Pack

Package	Box size in mm	Box (EA)	Carton size in mm	Carton (EA)	N.W (Kg)	G.W (Kg)
Micro MELF	125×185×185	25,000	380×260×190	100,000	6.5	7.5
SOD80 (Mini MELF)	125×185×185	25,000	380×260×190	100,000	6.5	7.5
Quadro MELF	125×185×185	25,000	380×260×190	100,000	6.5	7.5
MELF(LL-41)	46×332×41	10,000	465×346×353	100,000	21	22

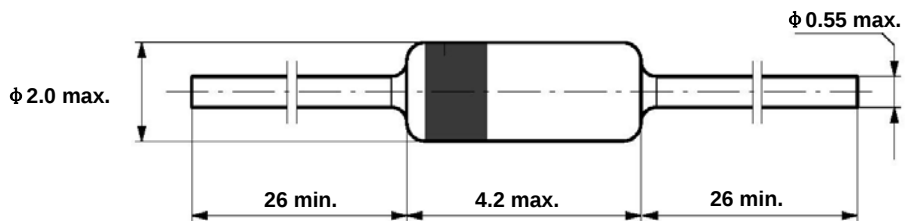
Excel Semiconductor

www.excel-semi.com
FaxBack +86-512-67606917

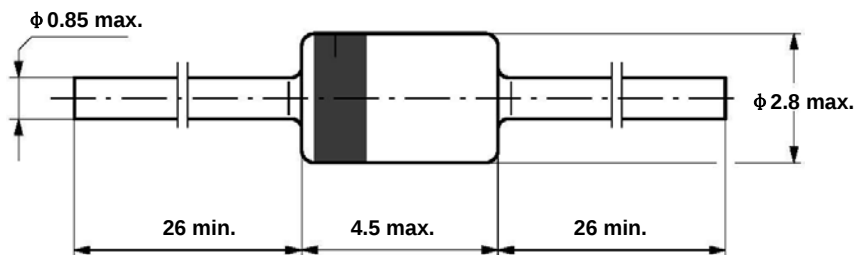
Rev. 3a, 1-Jun-2004



Standard Glass Case
JEDEC DO 34

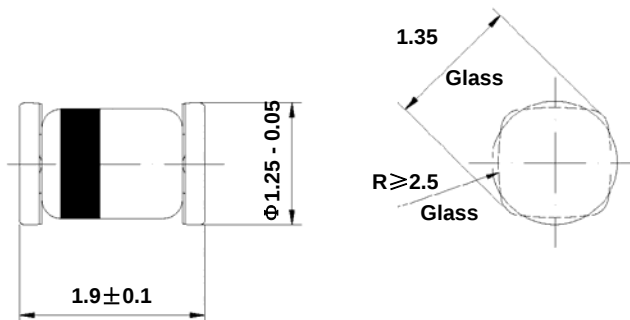


Standard Glass Case
JEDEC DO 35

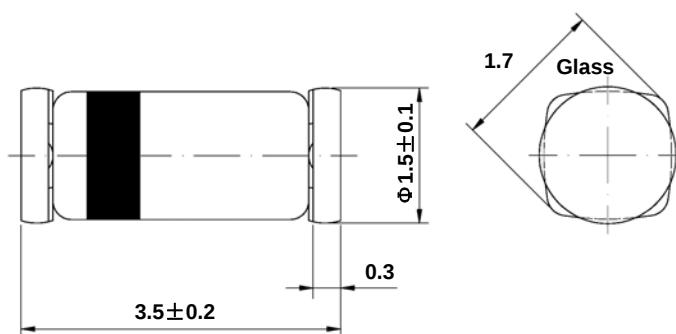


Standard Glass Case
JEDEC DO 41

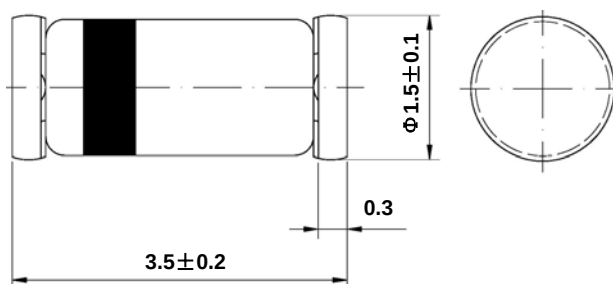
Excel Semiconductor



**Glass Case
Micro Melf**

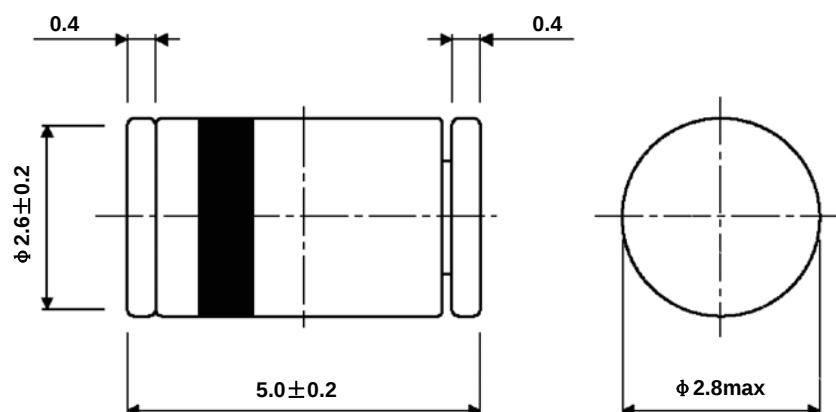


**Glass Case
Quadro MELF
Similar to JEDEC DO 213 AA**



**Glass Case
Mini Melf / SOD 80
JEDEC DO 213 AA**

Excel Semiconductor



Standard Glass Case
JEDEC LL 41

Excel Semiconductor

Excel (Suzhou) Semiconductor Co.,Ltd.

No.8 Yangming Road, Suzhou, China
Tel : (86-512) 67606910 67606911 67606912
Fax: (86-512) 67606917
E-mail: excel@excel-semi.com
www.excel-semi.com