FrelTec

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82319 Starnberg
Germany

Surface Mount Zener DIODE
SMB

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SPECIFICATION

60A		1SMB59__Bx		SMBX		L03
Type		Type		Package		Packing
60A: ZENER DIODE		1SMB59__B		SMB		L03: tape and Reel(embossed tape) for 3000 pc (13'REEL)

All products according to RoHS (2015/863/EU)

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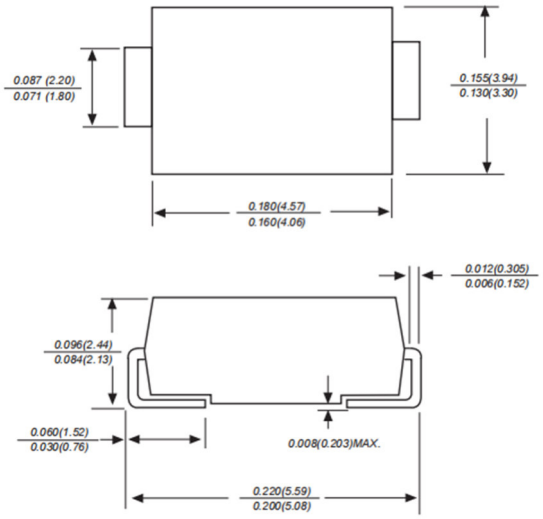
PACKAGE OUTLINE

DO-214AA（SMB）

DIMENSIONS



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SMB

Surface Mount Zener DIODE

MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified

Rating	Symbol	Value	Unit
Maximum Steady State Power Dissipation at T_L = 75°C,	P_D	3.0	W
Measured at Zero Lead Length			
Derate Above 75 °C		40	mW/°C
Thermal Resistance From Junction to Lead	R_{9JL}	25	°C/W
Maximum Steady State Power Dissipation at Ta = 25 °C	P_D	550	mW
Measured at Zero Lead Length			
Derate Above 25 °C		4.4	mW/°C
Thermal Resistance From Junction to Ambient	R_{9JA}	226	°C/W
Maximum Forward Voltage at I_F = 200 mA	V_F	1.5	Volts
Junction Temperature Range	T_J	- 65 to + 150	°C
Storage Temperature Range	Tstg	- 65 to + 150	°C

Electrical Characteristics TA=25°C Unless otherwise specified

Type	Zener voltage V_Z (V)				Zener Impedance			Leakage Current		I_{ZM} (mA) (dc)	Marking
	Min.	Mom .	Max.	@ I_{ZT} (mA)	Z_{ZT} @ I_{ZT} (Ω)	Z_{ZK} (Ω)	@ I_{ZK} (mA)	I_R (μA)	@ V_R (V)		
1SMB5913B	3. 13	3.3	3.47	113.6	10	500	1.0	100	1.0	454	913B
1SMB5914B	3.42	3.6	3.78	104.2	9.0	500	1.0	75	1.0	416	914B
1SMB5915B	3.70	3.9	4. 10	96. 1	7.5	500	1.0	25	1.0	384	915B
1SMB5916B	4.08	4.3	4.52	87.2	6.0	500	1.0	5	1.0	348	916B
1SMB5917B	4.46	4.7	4.94	79.8	5.0	500	1.0	5	1.5	319	917B
1SMB5918B	4.84	5.1	5.36	73.5	4.0	350	1.0	5	2.0	294	918B
1SMB5919B	5.32	5.6	5.88	66.9	2.0	250	1.0	5	3.0	267	919B
1SMB5920B	5.89	6.2	6.51	60.5	2.0	200	1.0	5	4.0	241	920B
1SMB5921B	6.46	6.8	7. 14	55. 1	2.5	200	1.0	5	5.2	220	921B
1SMB5922B	7. 12	7.5	7.88	50	3.0	400	0.5	5	6.0	200	922B
1SMB5923B	7.79	8.2	8.61	45.7	3.5	400	0.5	5	6.5	182	923B
1SMB5924B	8.64	9.1	9.56	41.2	4.0	500	0.5	5	7.0	164	924B
1SMB5925B	9.5	10	10.5	37.5	4.5	500	0.25	5	8.0	150	925B
1SMB5926B	10.45	11	11.55	34. 1	5.5	550	0.25	1	8.4	136	926B
1SMB5927B	11.4	12	12.6	31.2	6.5	550	0.25	1	9.1	125	927B
1SMB5928B	12.35	13	13.65	28.8	7.0	550	0.25	1	9.9	115	928B
1SMB5929B	14.25	15	15.75	25	9.0	600	0.25	1	11.4	100	929B
1SMB5930B	15.2	16	16.8	23.4	10	600	0.25	1	12.2	93	930B
1SMB5931B	17. 1	18	18.9	20.8	12	650	0.25	1	13.7	83	931B
1SMB5932B	19	20	21	18.7	14	650	0.25	1	15.2	75	932B
1SMB5933B	20.9	22	23. 1	17	17.5	650	0.25	1	16.7	68	933B
1SMB5934B	22.8	24	25.2	15.6	19	700	0.25	1	18.2	62	934B
1SMB5935B	25.65	27	28.35	13.9	23	700	0.25	1	20.6	55	935B
1SMB5936B	28.5	30	31.5	12.5	28	750	0.25	1	22.8	50	936B
1SMB5937B	31.35	33	34.65	11.4	33	800	0.25	1	25. 1	45	937B
1SMB5938B	34.2	36	37.8	10.4	38	850	0.25	1	27.4	41	938B

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1SMB5939B	37.05	39	40.95	9.6	45	900	0.25	1	29.7	38	939B
1SMB5940B	40.85	43	45. 15	8.7	53	950	0.25	1	32.7	34	940B
1SMB5941B	44.65	47	49.35	8.0	67	1000	0.25	1	35.8	31	941B
1SMB5942B	48.45	51	53.55	7.3	70	1100	0.25	1	38.8	29	942B
1SMB5943B	53.2	56	58.8	6.7	86	1300	0.25	1	42.6	26	943B
1SMB5944B	58.9	62	65. 1	6.0	100	1500	0.25	1	47. 1	24	944B
1SMB5945B	64.6	68	71.4	5.5	120	1700	0.25	1	51.7	22	945B
1SMB5946B	71.25	75	78.75	5	140	2000	0.25	1	56	20	946B
1SMB5947B	77.9	82	86. 1	4.6	160	2500	0.25	1	62.2	18	947B
1SMB5948B	86.45	91	95.55	4.1	200	3000	0.25	1	69.2	16	948B
1SMB5949B	95	100	105	3.7	250	3100	0.25	1	76	15	949B
1SMB5950B	104.5	110	115.5	3.4	300	4000	0.25	1	83.6	13	950B
1SMB5951B	114	120	126	3.1	380	4500	0.25	1	91.2	12	951B
1SMB5952B	123.5	130	136.5	2.9	450	5000	0.25	1	98.8	11	952B
1SMB5953B	142.5	150	157.5	2.5	600	6000	0.25	1	114	10	953B
1SMB5954B	152	160	168	2.3	700	6500	0.25	1	121.6	9	954B
1SMB5955B	171	180	189	2.1	900	7000	0.25	1	136.8	8	955B
1SMB5956B	190	200	210	1.9	1200	8000	0.25	1	152	7	956B

Note :

(1) Suffix " B " indicates ± 5% tolerance, suffix " A " indicates ± 10% tolerance.

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RATINGS AND CHARACTERISTICS CURVES

FIG. 1 - POWER TEMPERATURE DERATING CURVE

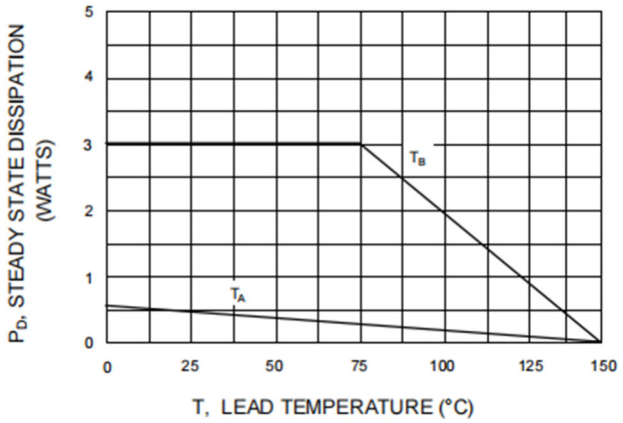


FIG. 3 - MAXIMUM SURGE POWER

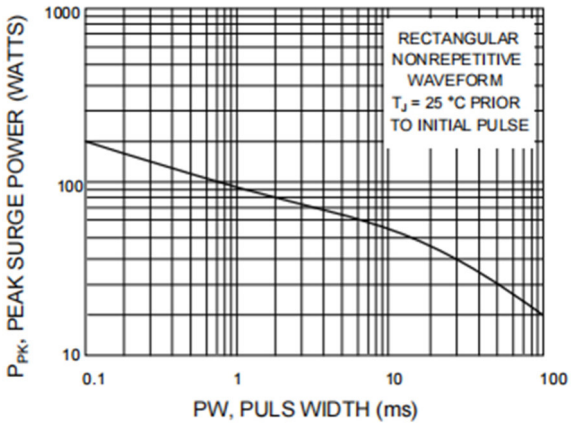


FIG. 5 - TEMPERATURE COEFFICIENT RANGES UNITS TO 12 VOLTS

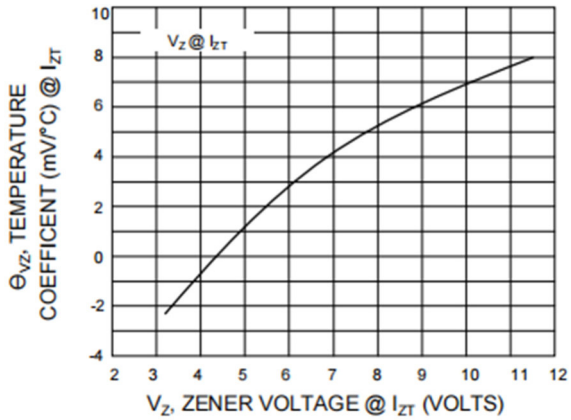


FIG. 6 - TEMPERATURE COEFFICIENT RANGES UNITS 10 TO 400 VOLTS

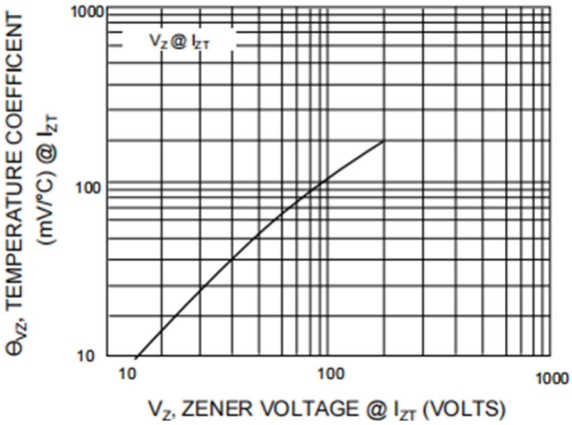


FIG. 7 - ZENER VOLTAGE VS. ZENER CURRENT V_Z = 3.3 thru 10 VOLTS

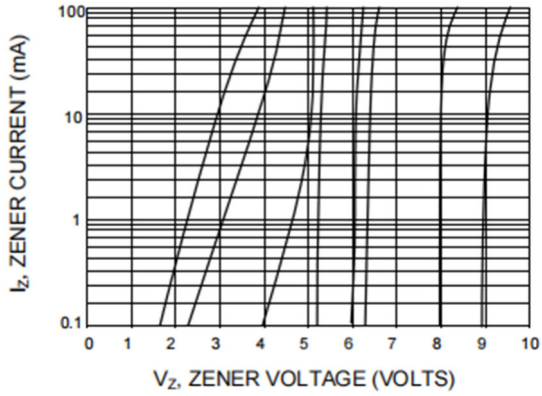
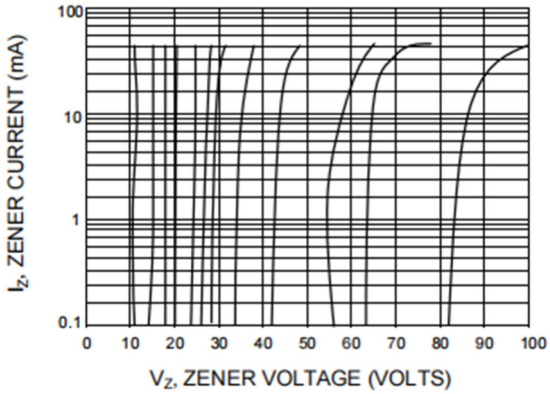


FIG. 8 - ZENER VOLTAGE VS. ZENER CURRENT V_Z = 12 thru 82 VOLTS



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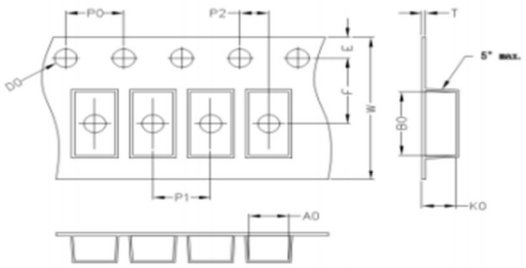
Package Information

Carrier Dimension(mm)



A0	B0	K0	D0	E	F
3.80	5.40	2.45	1.55	1.75	5.50
P0	**P1**	**P2**	**T**	**W**	**Tolerance**
4.0	8.0	2.0	0.25	12	0.1

Package Specifications

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SMB	13'	330	3.0	340	6.0	360*360*360	48

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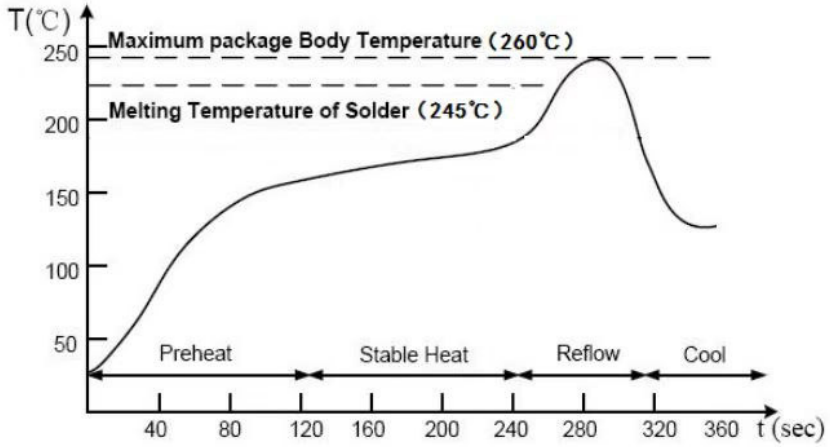
Suggested Soldering Temperature Profile



Note

- Recommended reflow methods: IR, vapor phase oven, hot air oven, wave solder.
- The device can be exposed to a maximum temperature of 260°C for 10 seconds.
- Devices can be cleaned using standard industry methods and solvents.
- If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

Stock period

The performance of these products, including the solderability, is guaranteed for 12 month, provided that they remain packed as they were when delivered and stored at a temperature of 20-30°C and a relative humidity 20-60%RH

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