

ZGFM5341B THRU ZGFM5378B

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ZGFM5341B THRU ZGFM5378B

5.0W Surface Mount Zener
Diodes 6.2V-100V

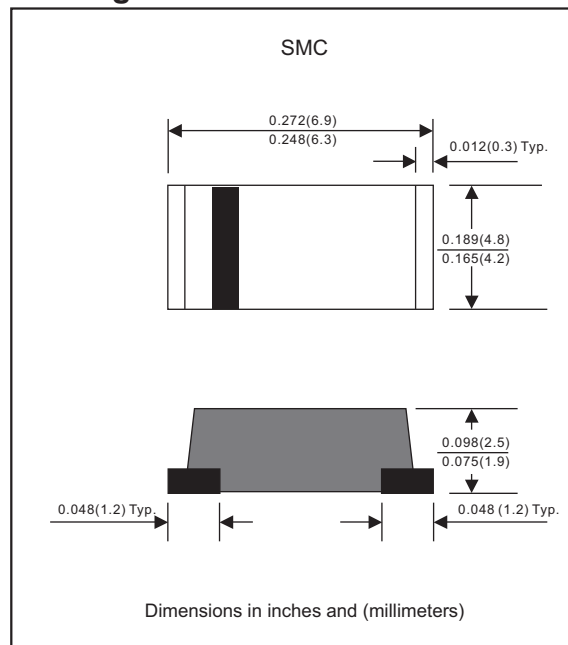
Features

- Batch process design, excellent power dissipation offers better reverse leakage current and thermal resistance
- Wide zener reverse voltage range 6.2V to 100V
- Small package size for high density applications
- Ideally suited for automated assembly processes
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free part, ex. ZGFM5341B-H

Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, DO-214AB / SMC
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.19 gram

Package outline



Maximum ratings (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Power dissipation at $T_L=75^\circ\text{C}$	P_D			5.0	W
Forward voltage at $I_F=1.0\text{A}$	V_F			1.20	V
Operating junction temperature range	T_J	-55		+150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-65		+175	$^\circ\text{C}$

Thermal characteristics

Parameter	Symbol	Limit	Unit
Typical thermal resistance junction to lead	$R_{\theta JL}$	23	$^\circ\text{C/W}$
Typical thermal resistance junction to ambient	$R_{\theta JA}$	50	$^\circ\text{C/W}$

Note 1: Mounted on FR-4 PCB

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Electrical characteristics (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Part No.	Marking code	Zener voltage			Test current	Zener impedance			Leakage current	
		V _Z @ I _{ZT} (Volts)				I _{ZT}	Z _{ZT} @ I _{ZT}	Z _{ZK} @ I _{ZK}	I _{ZK}	I _R
		Min.	Nom.	Max.	mA	(Ω)Max	(Ω)Max	mA	(μA)Max	Volts
ZGFM5341B	5341	5.89	6.2	6.51	200.0	1	200	1.00	10.0	3.0
ZGFM5342B	5342	6.46	6.8	7.14	175.0	1	200	1.00	10.0	5.2
ZGFM5343B	5343	7.13	7.5	7.88	175.0	1.5	200	1.00	10.0	5.7
ZGFM5344B	5344	7.79	8.2	8.61	150.0	1.5	200	1.00	10.0	6.2
ZGFM5345B	5345	8.27	8.7	9.14	150.0	2	200	1.00	10.0	6.6
ZGFM5346B	5346	8.65	9.1	9.56	150.0	2	150	1.00	7.5	6.9
ZGFM5347B	5347	9.50	10	10.50	125.0	2	125	1.00	5.0	7.6
ZGFM5348B	5348	10.45	11	11.55	125.0	2.5	125	1.00	5.0	8.4
ZGFM5349B	5349	11.4	12	12.60	100.0	2.5	125	1.00	2.0	9.1
ZGFM5350B	5350	12.35	13	13.65	100.0	2.5	100	1.00	1.0	9.9
ZGFM5351B	5351	13.30	14	14.70	100.0	2.5	75	1.00	1.0	10.6
ZGFM5352B	5352	14.25	15	15.75	75.0	2.5	75	1.00	1.0	11.5
ZGFM5353B	5353	15.20	16	16.80	75.0	2.5	75	1.00	1.0	12.2
ZGFM5354B	5354	16.15	17	17.85	70.0	2.5	75	1.00	0.5	12.9
ZGFM5355B	5355	17.10	18	18.90	65.0	2.5	75	1.00	0.5	13.7
ZGFM5356B	5356	18.05	19	19.95	65.0	3	75	1.00	0.5	14.4
ZGFM5357B	5357	19.00	20	21.00	65.0	3	75	1.00	0.5	15.2
ZGFM5358B	5358	20.90	22	23.10	50.0	3.5	75	1.00	0.5	16.7
ZGFM5359B	5359	22.80	24	25.20	50.0	3.5	100	1.00	0.5	18.2
ZGFM5360B	5360	23.75	25	26.25	50.0	4	110	1.00	0.5	19.0
ZGFM5361B	5361	25.65	27	28.35	50.0	5	120	1.00	0.5	20.6
ZGFM5362B	5362	26.60	28	29.40	50.0	6	130	1.00	0.5	21.2
ZGFM5363B	5363	28.50	30	31.50	40.0	8	140	1.00	0.5	22.8
ZGFM5364B	5364	31.35	33	34.65	40.0	10	150	1.00	0.5	25.1
ZGFM5365B	5365	34.20	36	37.80	30.0	11	160	1.00	0.5	27.4
ZGFM5366B	5366	37.05	39	40.95	30.0	14	170	1.00	0.5	29.7
ZGFM5367B	5367	40.85	43	45.15	30.0	20	190	1.00	0.5	32.7
ZGFM5368B	5368	44.65	47	49.35	25.0	25	210	1.00	0.5	35.8
ZGFM5369B	5369	48.45	51	53.55	25.0	27	230	1.00	0.5	38.8
ZGFM5370B	5370	53.20	56	58.80	20.0	35	280	1.00	0.5	42.6
ZGFM5371B	5371	57.00	60	63.00	20.0	40	350	1.00	0.5	45.5
ZGFM5372B	5372	58.90	62	65.10	20.0	42	400	1.00	0.5	47.1
ZGFM5373B	5373	64.60	68	71.40	20.0	44	500	1.00	0.5	51.7
ZGFM5374B	5374	71.25	75	78.75	20.0	45	620	1.00	0.5	56.0
ZGFM5375B	5375	77.90	82	86.10	15.0	65	720	1.00	0.5	62.2
ZGFM5376B	5376	82.65	87	91.35	15.0	75	760	1.00	0.5	66.0
ZGFM5377B	5377	86.45	91	95.55	15.0	75	760	1.00	0.5	69.2
ZGFM5378B	5378	95.00	100	105.0	12.0	90	800	1.00	0.5	76.0

Note : 5% tolerance of Zener voltage

Rating and characteristic curves (ZGFM5341B THRU ZGFM5378B)

FIG.1 POWER TEMPERATURE DERATING CURVE

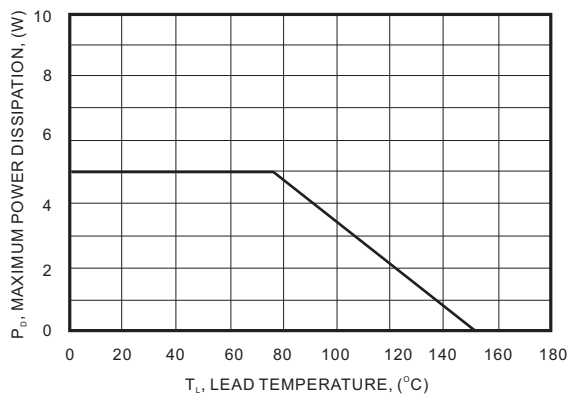
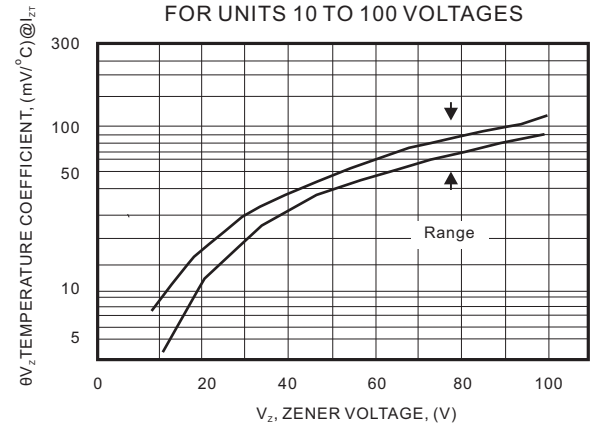


FIG.2 TEMPERATURE COEFFICIENT-RANGE FOR UNITS 10 TO 100 VOLTAGES

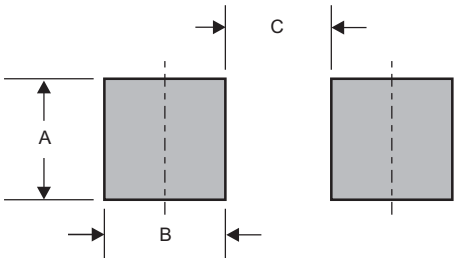


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Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Suggested solder pad layout

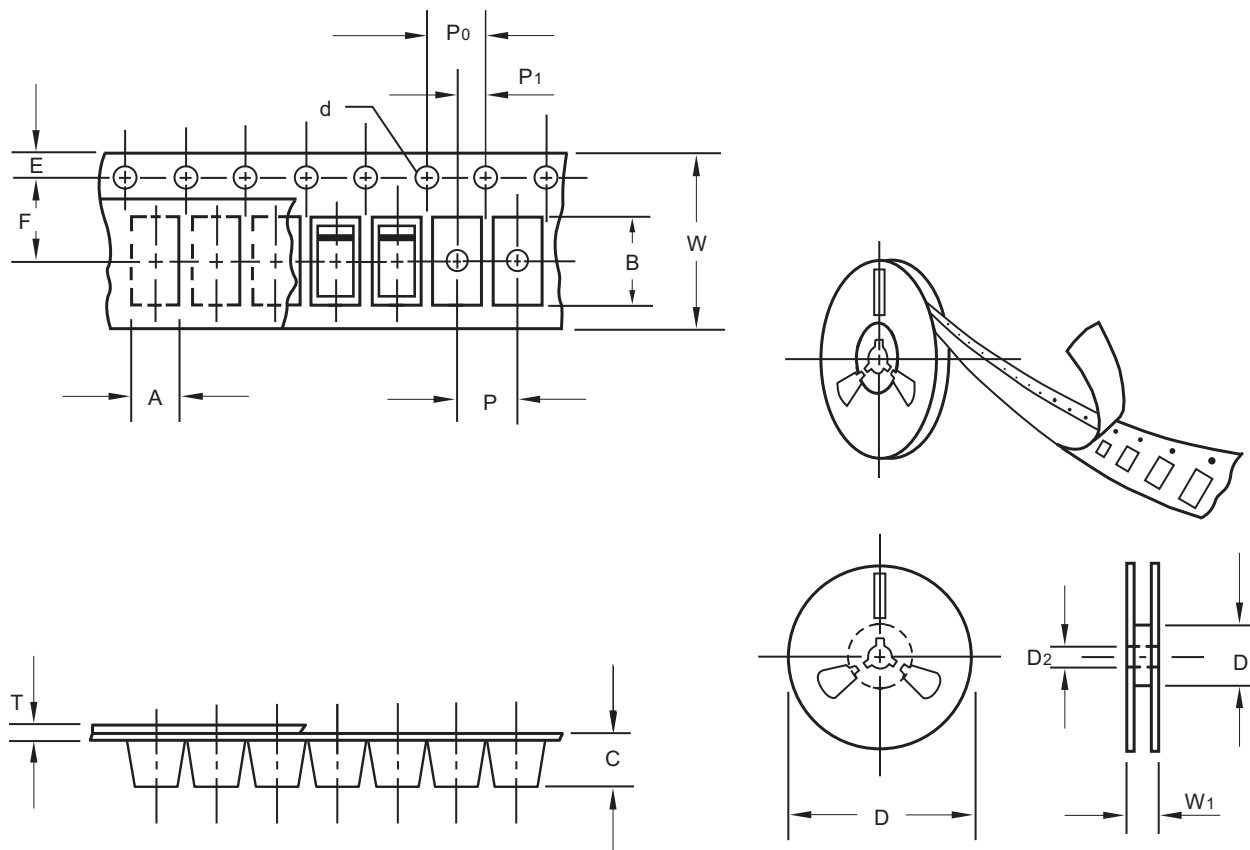


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SMC	0.189 (4.80)	0.063 (1.60)	0.158 (4.00)

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Packing information



unit:mm

Item	Symbol	Tolerance	SMC
Carrier width	A	0.1	5.10
Carrier length	B	0.1	7.20
Carrier depth	C	0.1	2.50
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	330.00
13" Reel inner diameter	D1	min	50.00
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	62.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	5.50
Punch hole pitch	P	0.1	8.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	12.00
Reel width	W1	1.0	18.00

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

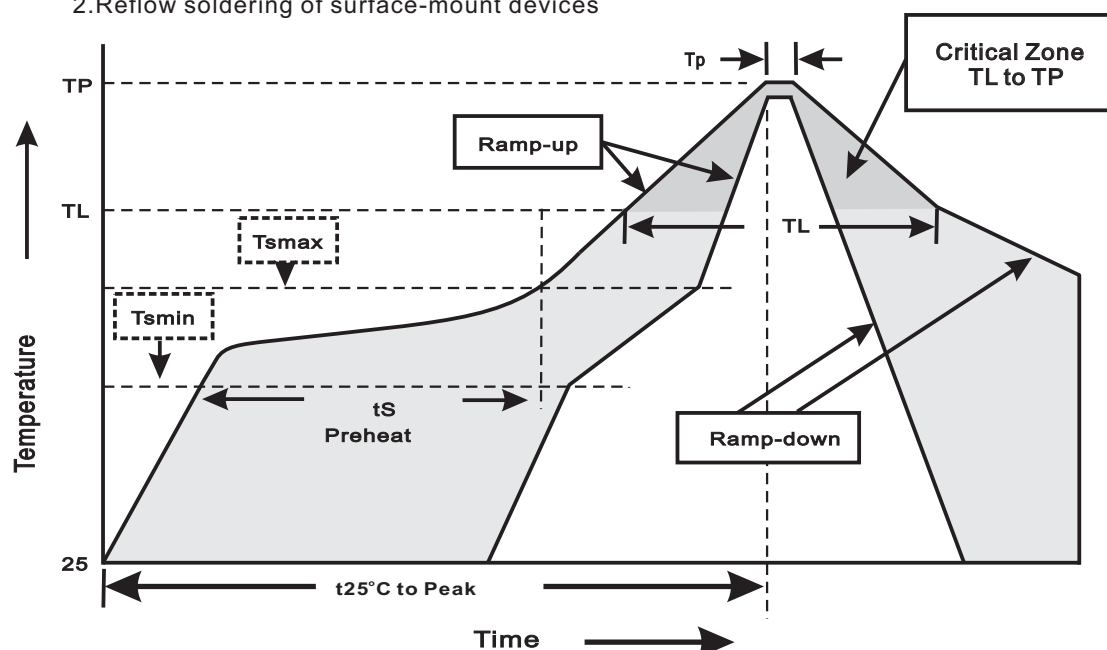
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SMC	13"	3,000	8.0	6,000	335*335*38	330	350*330*360	48,000	17.0

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T _L to T _P)	<3°C/sec
Preheat -Temperature Min(T _{smmin}) -Temperature Max(T _{smmax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smmax} to T _L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T _L) -Time(t _L)	217°C 60~260sec
Peak Temperature(T _P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t _P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^{\circ}\text{C}$ for $10 \pm 2\text{sec.}$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^{\circ}\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_z = V_{z,\text{Nom}} * 80\%$ at $T_j = 150^{\circ}\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Pressure Cooker	$15P_{\text{SIG}}$ at $T_A = 121^{\circ}\text{C}$ for 4 hrs.	JESD22-A102
5. Temperature Cycling	-55°C to $+125^{\circ}\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
6. Humidity	at $T_A = 85^{\circ}\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
7. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031