Features

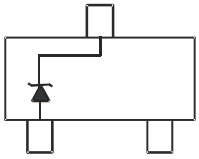
- Planar Die Construction
- 350mW Power Dissipation on FR-4 PCB
- Ideally Suited for Automated Assembly Processes
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at https://www.diodes.com/products/automotive/automotive-products/.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. https://www.diodes.com/quality/product-definitions/**

Mechanical Data

- Package: SOT23
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.008 grams (Approximate)

SOT23

Top View



Device Schematic

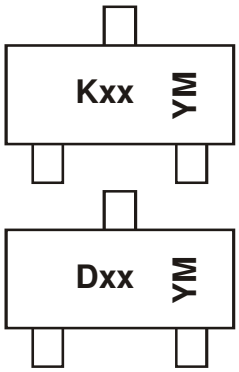
Ordering Information (Notes 4, 5)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
(Type Number)-7-F*	SOT23	3,000	Tape & Reel
(Type Number)Q-7-F*	SOT23	3,000	Tape & Reel
(Type Number)-13-F*	SOT23	10,000	Tape & Reel
(Type Number)Q-13-F*	SOT23	10,000	Tape & Reel

* Add "-7-F" to the appropriate type number in Electrical Characteristics Table from Page 2. Example: 6.2V Zener = MMBZ5234B-7-F.

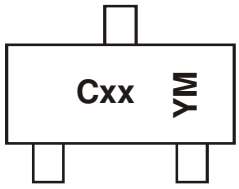
Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.
5. Selected voltages are available on 13" reels (10,000 devices per reel). Add "-13-F" to the appropriate type number in Electrical Characteristics Table from Page 2. Example: 6.2V Zener = MMBZ5234B-13-F. Please contact your Diodes Incorporated sales representative for availability.

Marking Information



K/D = SAT (Shanghai Assembly / Test site)
xx = Product Type Marking Code
See Electrical Characteristics Table
YM = Date Code Marking
Y = Year (ex: I = 2021)
M = Month (ex: 9 = September)

For MMBZ5234B-7-F & MMBZ5245B-7-F only:
Assembly/Test in Shanghai or Chuzhou
M or $\overline{M}$ = Month (ex: 9 = September)



C = CAT (Chengdu Assembly / Test site)
xx = Product Type Marking Code
See Electrical Characteristics Table
YM = Date Code Marking
Y = Year (ex: K = 2023)
M = Month (ex: 9 = September)

Date Code Key

Year	2014	……	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	B	……	I	J	K	L	M	N	O	P	R	S

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Maximum Ratings (@ T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Forward Voltage @ I_F = 10mA	V_F	0.9	V

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	350	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{\theta JA}$	357	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Note: 6. Mounted on FR4 PC Board with recommended pad layout which can be found on our website at http://www.diodes.com/package-outlines.html.

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Type Number	Type Code	Zener Voltage Range (Note 7)				Maximum Zener Impedance f = 1kHz		Maximum Reverse Leakage Current (Note 7)	
		V_Z @ I_{ZT}			I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK} = 0.25mA	I_R	@ V_R
		Nom (V)	Min (V)	Max (V)	mA	Ω		μA	V
MMBZ5221B	C1	2.4	2.28	2.52	20	30	1,200	100	1.0
MMBZ5222B	C2	2.5	2.38	2.63	20	30	1,200	100	1.0
MMBZ5223B	C3	2.7	2.57	2.84	20	30	1,300	75	1.0
MMBZ5225B	C5	3.0	2.85	3.15	20	30	1,600	50	1.0
MMBZ5226B	G1	3.3	3.14	3.47	20	28	1,600	25	1.0
MMBZ5227B	G2	3.6	3.42	3.78	20	24	1,700	15	1.0
MMBZ5228B	G3	3.9	3.71	4.10	20	23	1,900	10	1.0
MMBZ5229B	G4	4.3	4.09	4.52	20	22	2,000	5.0	1.0
MMBZ5230B	G5	4.7	4.47	4.94	20	19	1,900	5.0	2.0
MMBZ5231B	E1	5.1	4.85	5.36	20	17	1,600	5.0	2.0
MMBZ5232B	E2	5.6	5.32	5.88	20	11	1,600	5.0	3.0
MMBZ5233B	E3	6.0	5.70	6.30	20	7	1,600	5.0	3.5
MMBZ5234B	E4	6.2	5.89	6.51	20	7	1,000	5.0	4.0
MMBZ5235B	E5	6.8	6.46	7.14	20	5	750	3.0	5.0
MMBZ5236B	F1	7.5	7.13	7.88	20	6	500	3.0	6.0
MMBZ5237B	F2	8.2	7.79	8.61	20	8	500	3.0	6.5
MMBZ5238B	F3	8.7	8.27	9.14	20	8	600	3.0	6.5
MMBZ5239B	F4	9.1	8.65	9.56	20	10	600	3.0	7.0
MMBZ5240B	F5	10	9.50	10.50	20	17	600	3.0	8.0
MMBZ5241B	H1	11	10.45	11.55	20	22	600	2.0	8.4
MMBZ5242B	H2	12	11.40	12.60	20	30	600	1.0	9.1
MMBZ5243B	H3	13	12.35	13.65	9.5	13	600	0.5	9.9
MMBZ5244B	H4	14	13.30	14.70	9.0	15	600	0.1	10
MMBZ5245B	H5	15	14.25	15.75	8.5	16	600	0.1	11
MMBZ5246B	J1	16	15.20	16.80	7.8	17	600	0.1	12
MMBZ5248B	J3	18	17.10	18.90	7.0	21	600	0.1	14
MMBZ5250B	J5	20	19.00	21.00	6.2	25	600	0.1	15
MMBZ5251B	K1	22	20.90	23.10	5.6	29	600	0.1	17
MMBZ5252B	K2	24	22.80	25.20	5.2	33	600	0.1	18
MMBZ5254B	K4	27	25.65	28.35	5.0	41	600	0.1	21
MMBZ5255B	K5	28	26.60	29.40	4.5	44	600	0.1	21
MMBZ5256B	M1	30	28.50	31.50	4.2	49	600	0.1	23
MMBZ5257B	M2	33	31.35	34.65	3.8	58	700	0.1	25
MMBZ5258B	M3	36	34.20	37.80	3.4	70	700	0.1	27
MMBZ5259B	M4	39	37.05	40.95	3.2	80	800	0.1	30

Note: 7. Short duration pulse test used to minimize self-heating effect.

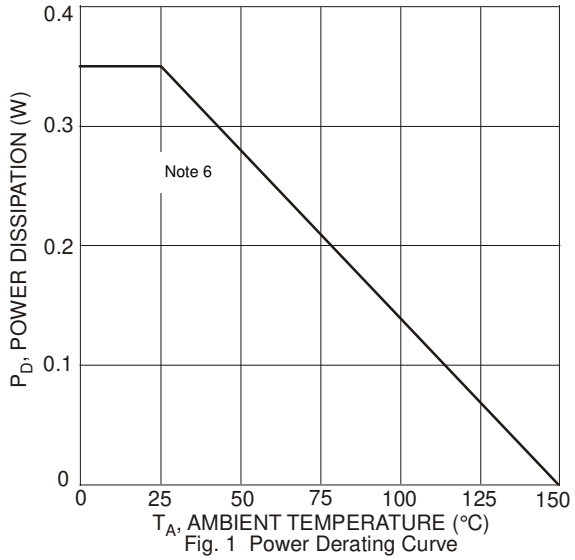


Fig. 1 Power Derating Curve

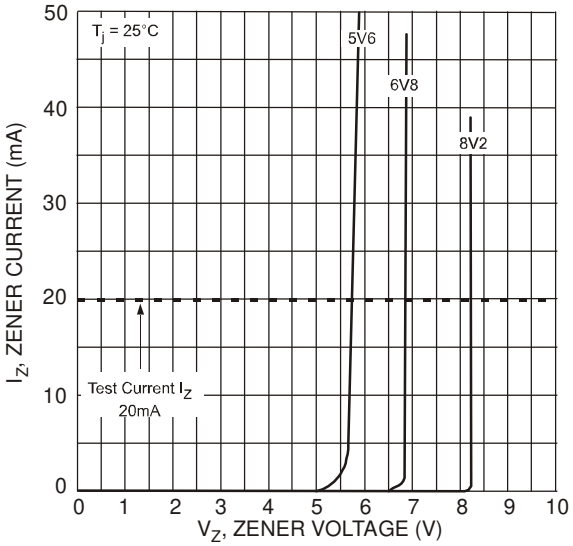


Fig. 2 Typical Zener Breakdown Characteristics

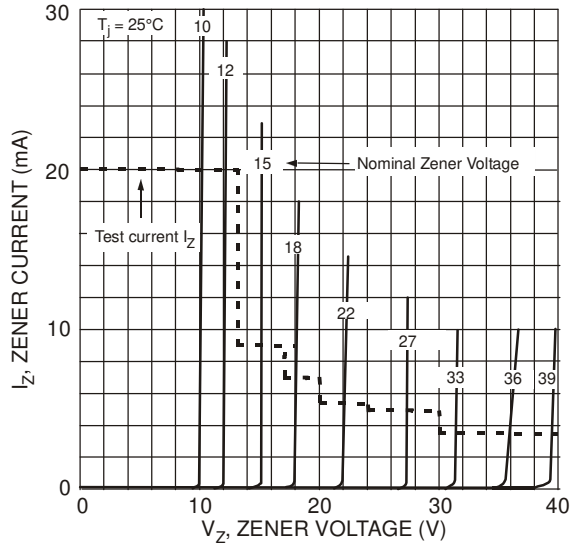


Fig. 3 Typical Zener Breakdown Characteristics

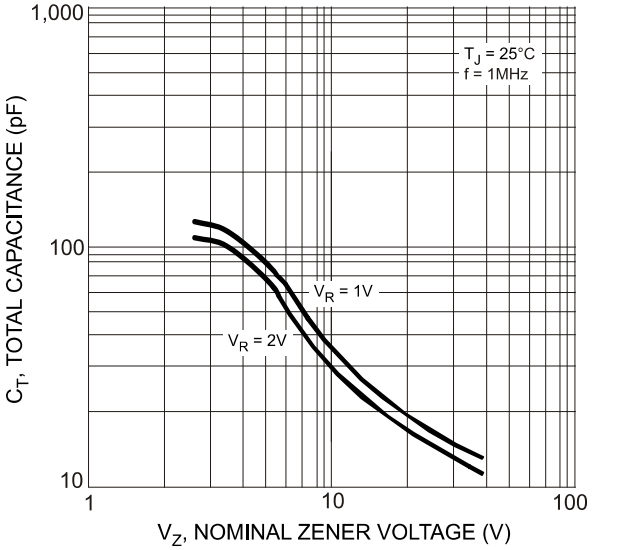


Fig. 4 Typical Total Capacitance vs. Nominal Zener Voltage

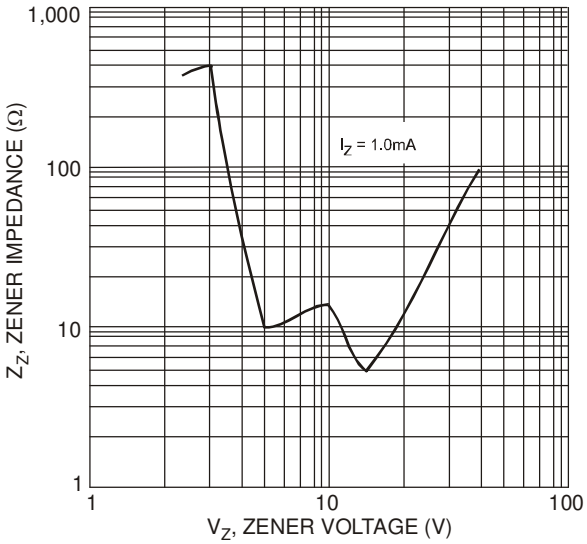
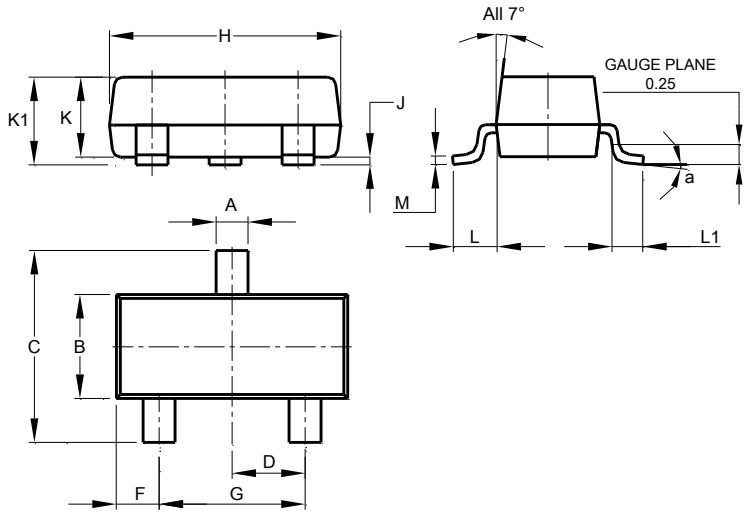


Fig. 5 Typical Zener Impedance Characteristics

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

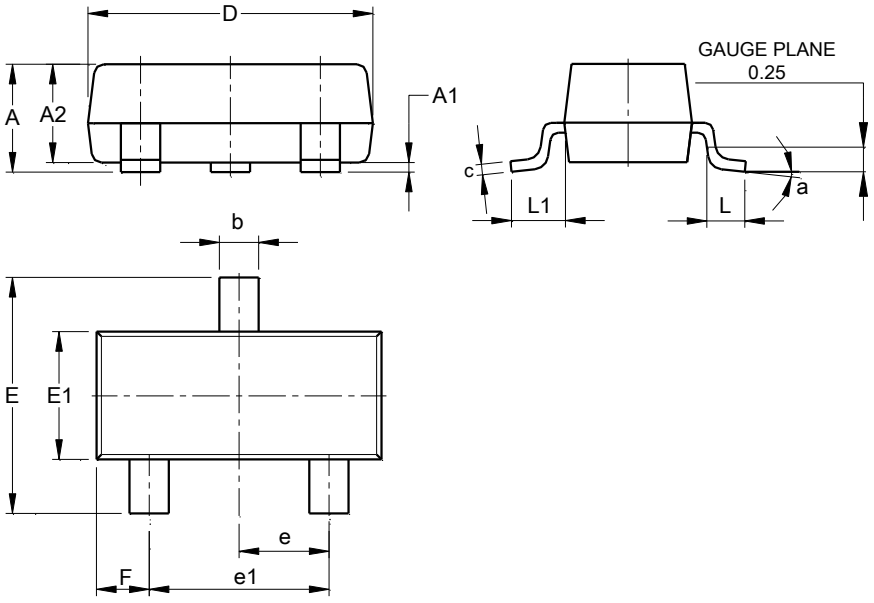
SOT23



SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

For MMBZ5234B-7-F & MMBZ5245B-7-F only:

SOT23 (Standard)

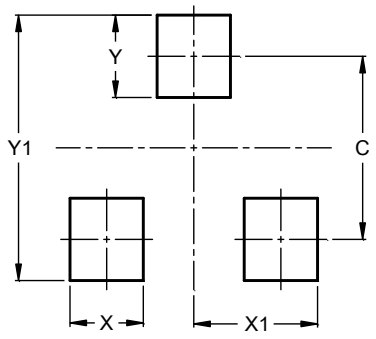


SOT23 (Standard)			
Dim	**Min**	**Max**	**Typ**
A	0.90	1.15	1.025
A1	0.00	0.10	0.05
A2	0.85	1.10	0.975
b	0.30	0.51	0.40
c	0.080	0.202	0.11
D	2.80	3.00	2.90
E	2.25	2.55	2.40
E1	1.20	1.40	1.30
e	0.89	1.03	0.915
e1	1.78	2.05	1.83
F	0.40	0.60	0.535
L1	0.45	0.61	0.55
L	0.25	0.55	0.40
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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