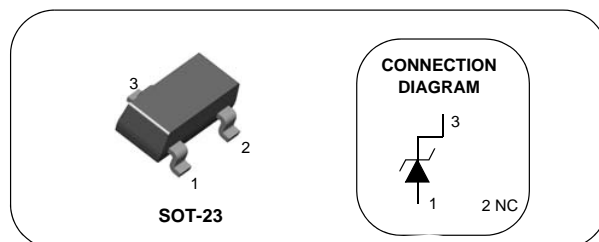


MMBZ5221B-MMBZ5257B

Zener Diodes

Tolerance = 5%



Absolute Maximum Ratings * $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
P_D	Power Dissipation	350	mW
T_{STG}	Storage Temperature Range	-55 to +150	$^\circ\text{C}$
T_J	Operating Junction Temperature	+150	$^\circ\text{C}$

* These ratings are limiting values above which the serviceability of the diode may be impaired.

NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Device	Mark	V_Z (V)			$Z_Z(\Omega) @ I_Z$ (mA)		$Z_{ZK}(\Omega) @ I_{ZK}$ (mA)		I_R (μA) @ V_R (V)	
		Min.	Nor.	Max.						
MMBZ5221B	18A	2.28	2.4	2.52	30	20	1,200	0.25	100	1.0
MMBZ5223B	18C	2.565	2.7	2.835	30	20	1,300	0.25	75	1.0
MMBZ5226B	8A	3.135	3.3	3.465	28	20	1,600	0.25	25	1.0
MMBZ5227B	8B	3.42	3.6	3.78	24	20	1,700	0.25	15	1.0
MMBZ5228B	8C	3.705	3.9	4.095	23	20	1,900	0.25	10	1.0
MMBZ5229B	8D	4.085	4.3	4.515	22	20	1,000	0.25	5.0	1.0
MMBZ5230B	8E	4.465	4.7	4.935	19	20	1,900	0.25	5.0	2.0
MMBZ5231B	8F	4.845	5.1	5.355	17	20	1,600	0.25	5.0	2.0
MMBZ5232B	8G	5.32	5.6	5.88	11	20	1,600	0.25	5.0	3.0
MMBZ5233B	8H	5.7	6.0	6.3	7.0	20	1,600	0.25	5.0	3.5
MMBZ5234B	8J	5.89	6.2	6.51	7.0	20	1,000	0.25	5.0	4.0
MMBZ5235B	8K	6.46	6.8	7.14	5.0	20	750	0.25	3.0	5.0
MMBZ5236B	8L	7.125	7.5	7.875	6.0	20	500	0.25	3.0	6.0
MMBZ5237B	8M	7.79	8.2	8.61	8.0	20	500	0.25	3.0	6.5
MMBZ5238B	8N	8.265	8.7	9.135	8.0	20	600	0.25	3.0	6.5
MMBZ5239B	8P	8.645	9.1	9.555	10	20	600	0.25	3.0	7.0
MMBZ5240B	8Q	9.5	10	10.5	17	20	600	0.25	3.0	8.0
MMBZ5241B	8R	10.45	11	11.55	22	20	600	0.25	2.0	8.4
MMBZ5242B	8S	11.4	12	12.6	30	20	600	0.25	1.0	9.1

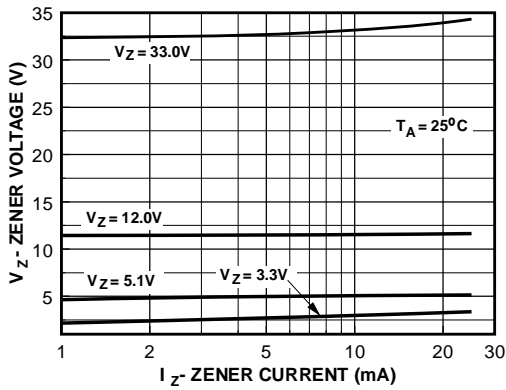
V_F Forward Voltage = 0.9V Maximum @ $I_F = 10\text{mA}$ for all MMBZ5200 series

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

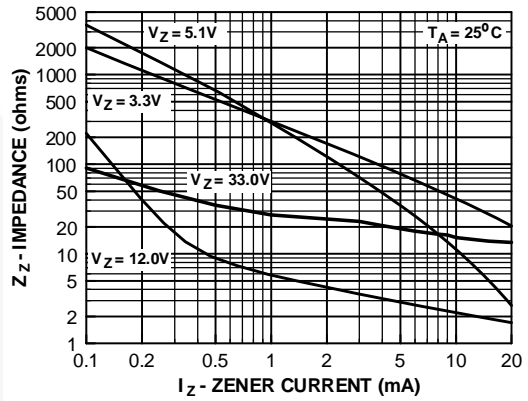
Device	Mark	V_Z (V)			$Z_Z(\Omega)$ @ I_Z (mA)		$Z_{ZK}(\Omega)$ @ I_{ZK} (mA)		I_R (μA) @ V_R (V)	
		Min.	Nor.	Max.						
MMBZ5243B	8T	12.35	13	13.65	13	9.5	600	0.25	0.5	9.9
MMBZ5244B	8U	13.3	14	14.7	15	9.0	600	0.25	0.1	10
MMBZ5245B	8V	14.25	15	15.75	16	8.5	600	0.25	0.1	11
MMBZ5246B	8W	15.2	16	16.8	17	7.8	600	0.25	0.1	12
MMBZ5247B	8X	16.15	17	17.85	19	7.4	600	0.25	0.1	13
MMBZ5248B	8Y	17.1	18	18.9	21	7.0	600	0.25	0.1	14
MMBZ5249B	8Z	18.05	19	19.95	23	6.6	600	0.25	0.1	14
MMBZ5250B	81A	19	20	21	25	6.2	600	0.25	0.1	15
MMBZ5251B	81B	20.9	22	23.1	29	5.6	600	0.25	0.1	17
MMBZ5252B	81C	22.8	24	25.2	33	5.2	600	0.25	0.1	18
MMBZ5253B	81D	23.75	25	26.25	35	5.0	600	0.25	0.1	19
MMBZ5254B	81E	25.65	27	28.35	41	4.6	600	0.25	0.1	21
MMBZ5255B	81F	26.6	28	29.4	44	4.5	600	0.25	0.1	21
MMBZ5256B	81G	28.5	30	31.5	49	4.2	600	0.25	0.1	23
MMBZ5257B	81H	31.35	33	34.65	58	3.8	600	0.25	0.1	25

V_F Forward Voltage = 0.9V Maximum @ $I_F = 10\text{mA}$ for all MMBZ5200 series

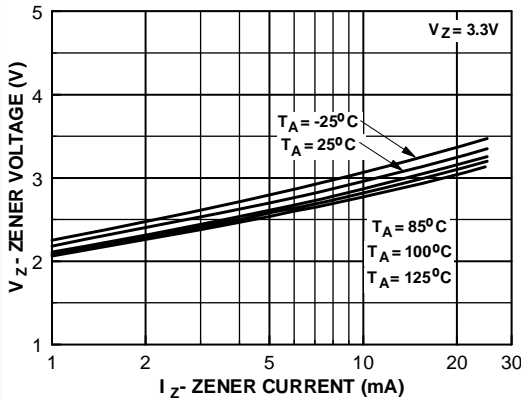
Typical Performance Characteristics



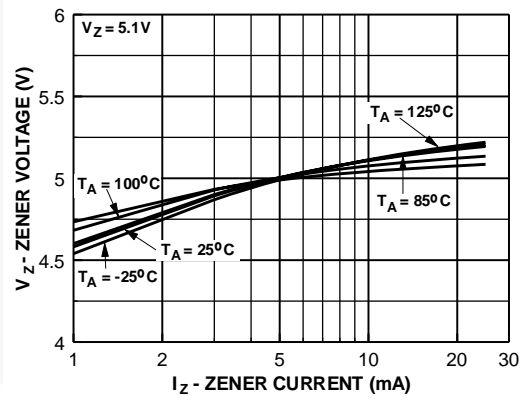
Zener Current vs. Zener Voltage



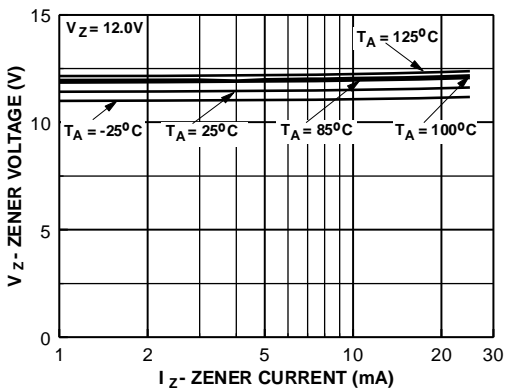
Zener Current vs. Zener Impedance



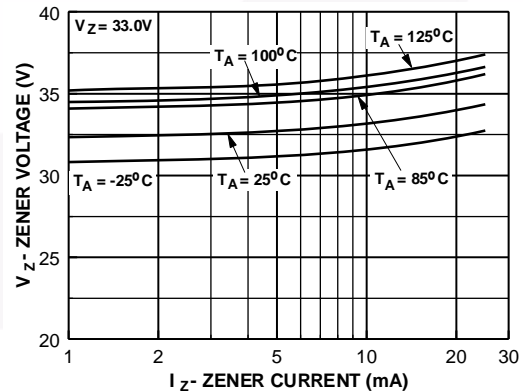
3.3 Zener Voltage vs. Temperature



5.1 Zener Voltage vs. Temperature



12 Zener Voltage vs. Zener Temperature



33 Zener Voltage vs. Zener Temperature



TRADEMARKS

The following includes registered and unregistered trademarks and service marks, owned by Fairchild Semiconductor and/or its global subsidiaries, and is not intended to be an exhaustive list of all such trademarks.

2Cool™
AccuPower™
Auto-SPM™
AX-CAP™*
BitSiC™
Build it Now™
CorePLUS™
CorePOWER™
CROSSVOLT™
CTL™
Current Transfer Logic™
DEUXPEED®
Dual Cool™
EcoSPARK®
EfficientMax™
ESBC™
F®
Fairchild®
Fairchild Semiconductor®
FACT Quiet Series™
FACT®
FAST®
FastvCore™
FETBench™
FlashWriter®*

FPS™
F-PFS™
FRFET®
Global Power Resource™
GreenBridge™
Green FPS™
Green FPS™ e-Series™
Gmax™
GTO™
IntelliMAX™
ISOPLANAR™
Making Small Speakers Sound Louder and Better™
MegaBuck™
MICROCOUPLER™
MicroFET™
MicroPak™
MicroPak2™
MillerDrive™
MotionMax™
Motion-SPM™
mWSaver™
OptoHi™
OPTOLOGIC®
OPTOPLANAR®

®
PowerTrench®
PowerXS™
Programmable Active Droop™
QFET®
QS™
Quiet Series™
RapidConfigure™
™
Saving our world, 1mW/W/kW at a time™
SignalWise™
SmartMax™
SMART START™
Solutions for Your Success™
SPM®
STEALTH™
SuperFET®
SuperSOT™-3
SuperSOT™-6
SuperSOT™-8
SupreMOS®
SyncFET™
Sync-Lock™
SYSTEM GENERAL®*

The Power Franchise®
the **power** franchise
TinyBoost™
TinyBuck™
TinyCalc™
TinyLogic®
TINYOPTO™
TinyPower™
TinyPWM™
TinyWire™
TranSiC™
TriFault Detect™
TRUECURRENT®*
µSerDes™

UHC®
Ultra FRFET™
UniFET™
VCX™
VisualMax™
VoltagePlus™
XS™

* Trademarks of System General Corporation, used under license by Fairchild Semiconductor.

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION, OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

ANTI-COUNTERFEITING POLICY

Fairchild Semiconductor Corporation's Anti-Counterfeiting Policy. Fairchild's Anti-Counterfeiting Policy is also stated on our external website, www.fairchildsemi.com, under Sales Support.

Counterfeiting of semiconductor parts is a growing problem in the industry. All manufacturers of semiconductor products are experiencing counterfeiting of their parts. Customers who inadvertently purchase counterfeit parts experience many problems such as loss of brand reputation, substandard performance, failed applications, and increased cost of production and manufacturing delays. Fairchild is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. Fairchild strongly encourages customers to purchase Fairchild parts either directly from Fairchild or from Authorized Fairchild Distributors who are listed by country on our web page cited above. Products customers buy either from Fairchild directly or from Authorized Fairchild Distributors are genuine parts, have full traceability, meet Fairchild's quality standards for handling and storage and provide access to Fairchild's full range of up-to-date technical and product information. Fairchild and our Authorized Distributors will stand behind all warranties and will appropriately address any warranty issues that may arise. Fairchild will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources. Fairchild is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative / In Design	Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

Rev. I60