



Is Now Part of



**ON Semiconductor®**

To learn more about ON Semiconductor, please visit our website at  
[www.onsemi.com](http://www.onsemi.com)

Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (\_), the underscore (\_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (\_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at [www.onsemi.com](http://www.onsemi.com). Please email any questions regarding the system integration to [Fairchild\\_questions@onsemi.com](mailto:Fairchild_questions@onsemi.com).

ON Semiconductor and the ON Semiconductor logo are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

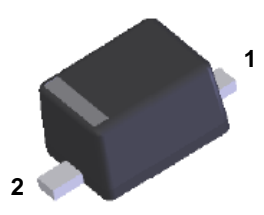


# MM3Z2V4C-MM3Z75VC

## Zener Diodes

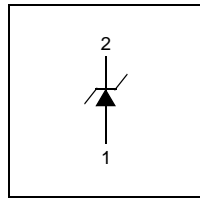
### Features

- Wide Zener Voltage Range Selection, 2.4V to 75V
- VZ Tolerance Selection of ±5% (C Series)
- Very Small and Thin SMD package
- Matte Tin(Sn) finish, Pb Free



\* Band Denotes Cathode **SOD-323F**

### Connection Diagram



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

Symbol	Parameter	Value	Units
$P_D$	Power Dissipation	200	mW
$T_{STG}$	Storage Temperature Range	-65 to +150	$^\circ\text{C}$
$T_J$	Maximum Junction Temperature	150	$^\circ\text{C}$
$I_{ZM}$	Maximum Regulator Current	$P_D/V_Z$	mA

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

### Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	595	$^\circ\text{C/W}$

\* Device mounted on PCB with minimum land pad.

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

Symbol	Parameter/ Test condition	Min.	Typ.	Max.	Unit
$V_F$	Forward Voltage / $I_F = 10 \text{ mA}$	--	--	1.0	V

### Package Marking and Ordering Information

Device Marking	Device	Package	Packing	Reel Size	Tape Width	Quantity
Refer to Product table list	Refer to Product table list	SOD-323F	Tape & Reel	7"	12mm	3,000

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

Device Type	Device Marking	$V_Z$ (V) @ $I_{ZT}$			$Z_{ZT}(\Omega)$ @ $I_{ZT}$	$I_{ZT}$ (mA)	$Z_{ZK}(\Omega)$ @ $I_{ZK}$	$I_{ZK}$ (mA)	$I_R(\mu\text{A})$ @ $V_R$	$V_R$ (V)
		Min.	Typ.	Max.	Max.	-	Max.	-	Max	-
MM3Z2V4C	Z0	2.28	2.4	2.52	94	5	564	1	45	1
MM3Z2V7C	Z1	2.57	2.7	2.84	94	5	564	1	18	1
MM3Z3V0C	Z2	2.85	3	3.15	89	5	564	1	9	1
MM3Z3V3C	Z3	3.14	3.3	3.47	89	5	564	1	4.5	1
MM3Z3V6C	Z4	3.42	3.6	3.78	84	5	564	1	4.5	1
MM3Z3V9C	Z5	3.71	3.9	4.1	84	5	564	1	2.7	1
MM3Z4V3C	Z6	4.09	4.3	4.52	84	5	564	1	2.7	1
MM3Z4V7C	Z7	4.47	4.7	4.94	75	5	470	1	2.7	2
MM3Z5V1C	Z8	4.85	5.1	5.36	56	5	451	1	1.8	2
MM3Z5V6C	Z9	5.32	5.6	5.88	37	5	376	1	0.9	2
MM3Z6V2C	ZA	5.89	6.2	6.51	9	5	141	1	2.7	4
MM3Z6V8C	ZB	6.46	6.8	7.14	14	5	75	1	1.8	4
MM3Z7V5C	ZC	7.11	7.5	7.86	14	5	75	1	0.9	5
MM3Z8V2C	ZD	7.79	8.2	8.61	14	5	75	1	0.63	5
MM3Z9V1C	ZE	8.65	9.1	9.56	14	5	94	1	0.45	6
MM3Z10VC	ZF	9.5	10	10.5	18	5	141	1	0.18	7
MM3Z11VC	ZG	10.45	11	11.55	18	5	141	1	0.09	8
MM3Z12VC	ZH	11.4	12	12.6	23	5	141	1	0.09	8
MM3Z13VC	ZJ	12.35	13	13.65	28	5	160	1	0.09	8
MM3Z15VC	ZK	14.25	15	15.75	28	5	188	1	0.045	10.5
MM3Z16VC	ZL	15.2	16	16.8	37	5	188	1	0.045	11.2
MM3Z18VC	ZM	17.1	18	18.9	42	5	212	1	0.045	12.6
MM3Z20VC	ZN	19	20	21	51	5	212	1	0.045	14
MM3Z22VC	ZP	20.9	22	23.1	51	5	235	1	0.045	15.4
MM3Z24VC	ZR	22.8	24	25.2	65	5	235	1	0.045	16.8
MM3Z27VC	ZS	25.65	27	28.35	75	2	282	0.5	0.045	18.9
MM3Z30VC	ZT	28.5	30	31.5	75	2	282	0.5	0.045	21
MM3Z33VC	ZU	31.35	33	34.65	75	2	306	0.5	0.045	23
MM3Z36VC	ZV	34.2	36	37.8	84	2	329	0.5	0.045	25.2
MM3Z39VC	ZW	37.05	39	40.95	122	2	329	0.5	0.045	27.3
MM3Z43VC	ZX	40.85	43	45.15	141	2	353	0.5	0.045	30.1
MM3Z47VC	ZY	44.65	47	49.35	160	2	353	0.5	0.045	33
MM3Z51VC	Z <sub>-</sub>	48.45	51	53.55	169	2	376	0.5	0.045	35.7
MM3Z56VC	Z <sub>=</sub>	53.2	56	58.8	188	2	400	0.5	0.045	39.2
MM3Z62VC	Z <sub>=</sub>	58.9	62	65.1	202	2	423	0.5	0.045	43.4
MM3Z68VC	Z <sub>&gt;</sub>	64.6	68	71.4	226	2	447	0.5	0.045	47.6
MM3Z75VC	Z <sub>&lt;</sub>	71.25	75	78.75	240	2	470	0.5	0.045	52.5

## Notes :

1. The Zener Voltage ( $V_Z$ ) is tested under pulse condition of 10mS.
2. The device numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ .
3. The zener impedance is derived from the 60-cycle ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed to  $I_{ZT}$  or  $I_{ZK}$ .

Typical Performance Characteristics

Figure 1. Zener current vs. Zener Voltage

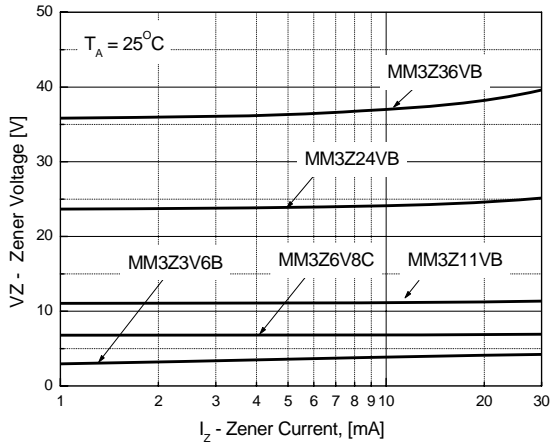


Figure 2. Zener current vs. Zener Impedance

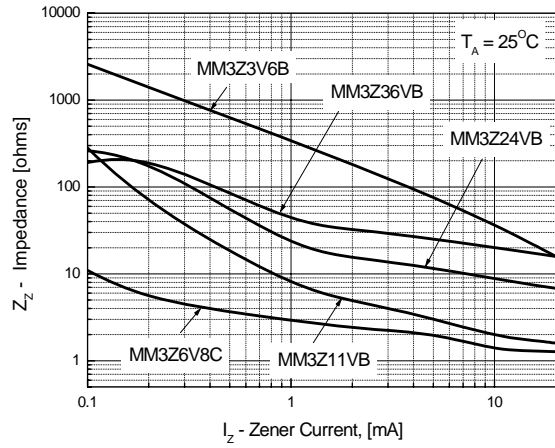


Figure 3. MM3Z3V6B  
Zener current vs. Zener Voltage

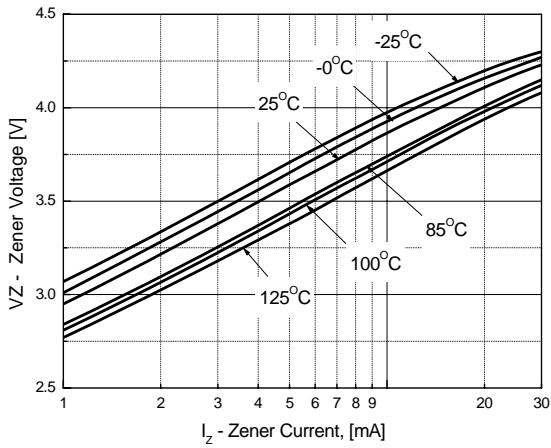


Figure 4. MM3Z6V8C  
Zener current vs. Zener Voltage

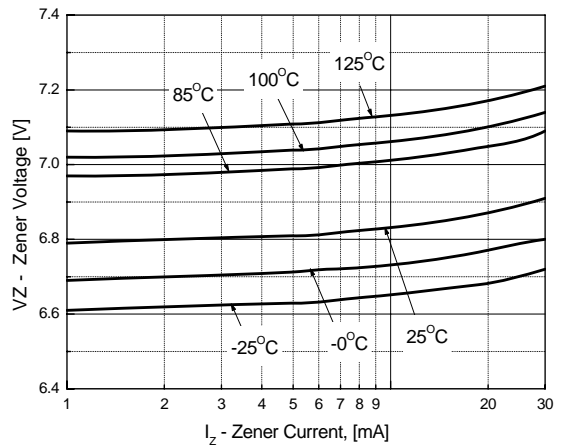


Figure 5. MM3Z11VB  
Zener current vs. Zener Voltage

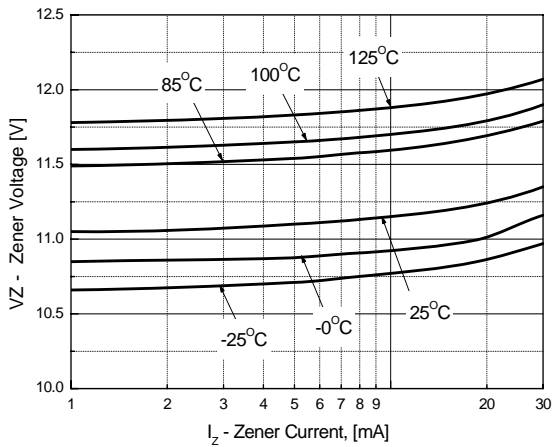
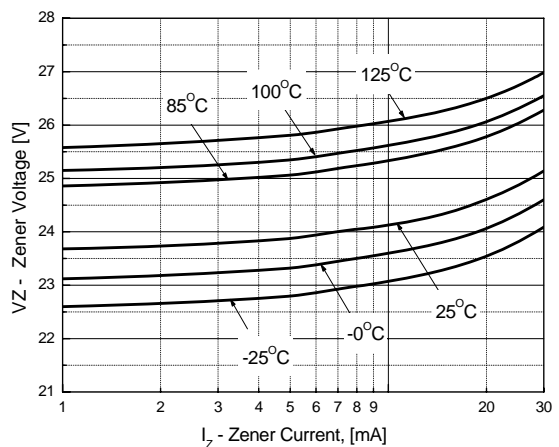
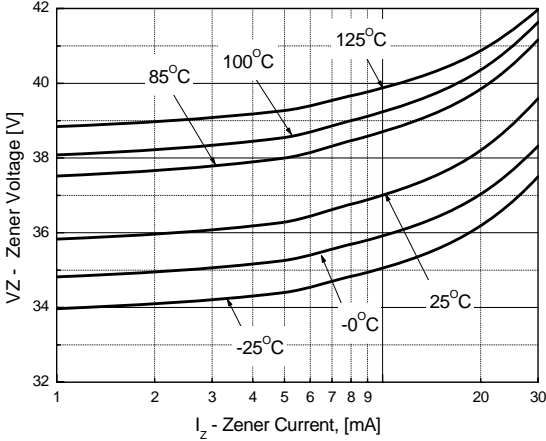


Figure 6. MM3Z24VB  
Zener current vs. Zener Voltage



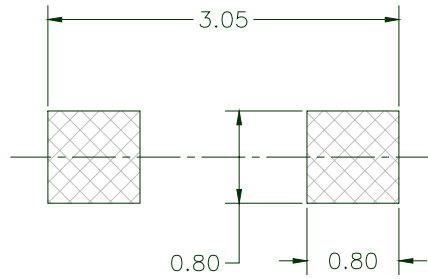
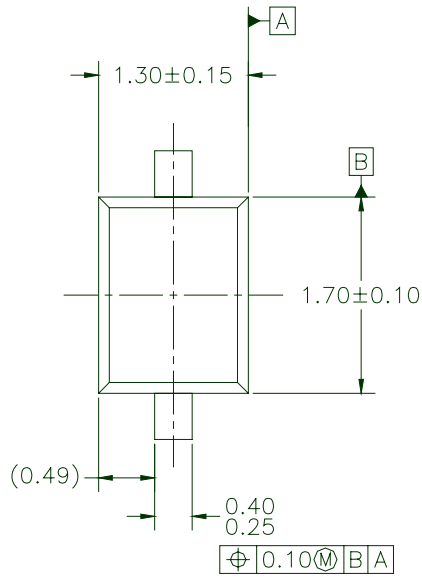
Typical Performance Characteristics (Continued)

Figure 7. MM3Z36VB  
Zener current vs. Zener Voltage

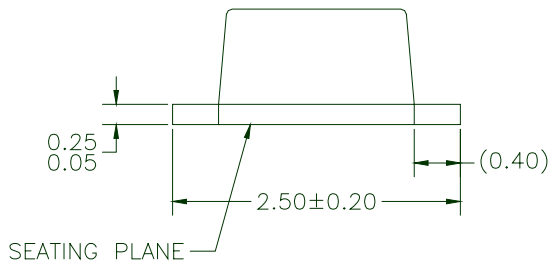


# Package Dimensions

## SOD - 323F



LAND PATTERN RECOMMENDATION



NOTES: UNLESS OTHERWISE SPECIFIED

- A) THIS PACKAGE IS COMPLIANT TO JEITA SC90 STANDARD EXCEPT FOR THE OVERALL PACKAGE HEIGHT.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.
- D) DIMENSIONING AND TOLERANCING PER ASME Y14.5M - 1994.



**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.

AccuPower™  
AttitudeEngine™  
Awinda®  
AX-CAP®\*  
BitSiC™  
Build it Now™  
CorePLUS™  
CorePOWER™  
CROSSVOL™  
CTL™  
Current Transfer Logic™  
DEUXPEED®  
Dual Cool™  
EcoSPARK®  
EfficientMax™  
ESBC™  
F®  
Fairchild®  
Fairchild Semiconductor®  
FACT Quiet Series™  
FACT®  
FastvCore™  
FETBench™  
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™  
MotionGrid®  
MTi®  
MTx®  
MVN®  
mWSaver®  
OptoHiT™  
OPTOLOGIC®

OPTOPLANAR®  
Power Supply WebDesigner™  
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®  
TinyBoost®  
TinyBuck®  
TinyCalc™  
TinyLogic®  
TINYOPTO™  
TinyPower™  
TinyPWM™  
TinyWire™  
TranSiC™  
TriFault Detect™  
TRUECURRENT®\*  
µSerDes™  
SerDes®  
UHC®  
Ultra FRFET™  
UniFET™  
VCX™  
VisualMax™  
VoltagePlus™  
XS™  
Xsens™  
仙童™

\* 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. TO OBTAIN THE LATEST, MOST UP-TO-DATE DATASHEET AND PRODUCT INFORMATION, VISIT OUR WEBSITE AT [HTTP://WWW.FAIRCHILDSEMI.COM](http://www.fairchildsemi.com). 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.

**AUTHORIZED USE**

Unless otherwise specified in this data sheet, this product is a standard commercial product and is not intended for use in applications that require extraordinary levels of quality and reliability. This product may not be used in the following applications, unless specifically approved in writing by a Fairchild officer: (1) automotive or other transportation, (2) military/aerospace, (3) any safety critical application – including life critical medical equipment – where the failure of the Fairchild product reasonably would be expected to result in personal injury, death or property damage. Customer's use of this product is subject to agreement of this Authorized Use policy. In the event of an unauthorized use of Fairchild's product, Fairchild accepts no liability in the event of product failure. In other respects, this product shall be subject to Fairchild's Worldwide Terms and Conditions of Sale, unless a separate agreement has been signed by both Parties.

**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](http://www.fairchildsemi.com), under Terms of Use

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. I76

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

## PUBLICATION ORDERING INFORMATION

### LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor  
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA  
**Phone:** 303-675-2175 or 800-344-3860 Toll Free USA/Canada  
**Fax:** 303-675-2176 or 800-344-3867 Toll Free USA/Canada  
**Email:** [orderlit@onsemi.com](mailto:orderlit@onsemi.com)

**N. American Technical Support:** 800-282-9855 Toll Free  
USA/Canada  
**Europe, Middle East and Africa Technical Support:**  
Phone: 421 33 790 2910  
**Japan Customer Focus Center**  
Phone: 81-3-5817-1050

**ON Semiconductor Website:** [www.onsemi.com](http://www.onsemi.com)  
**Order Literature:** <http://www.onsemi.com/orderlit>  
For additional information, please contact your local  
Sales Representative