Schottky Barrier Diode

NSR0240MX2

Schottky barrier diodes are optimized for very low forward voltage drop and low leakage current and are used in a wide range of dc−dc converter, clamping and protection applications in portable devices. NSR0240MX2 in X2DFN2 and X2DFNW2 miniature packages enables designers to meet the challenging task of achieving higher efficiency and meeting reduced space requirements.

Features

- Very Low Forward Voltage Drop: 460 mV @ 100 mA
- Low Reverse Current: 0.2 μA @ 25 V VR
- 200 mA of Continuous Forward Current
- Very High Switching Speed
- Low Capacitance: CT = 7 pF
- NSR0240MX2WT5G − Wettable Flank Package for optimal Automated Optical Inspection (AOI)
- Wettable Flank Package for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

Typical Applications

- LCD and Keypad Backlighting
- Camera Photo Flash
- Buck and Boost dc−dc Converters
- Reverse Voltage and Current Protection
- Clamping & Protection

Markets

- Mobile Handsets & MP3 Players
- Digital Camera and Camcorders
- Notebook PCs & PDAs
- GPS

MAXIMUM RATINGS

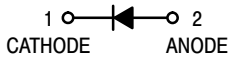
Rating	Symbol	Value	Unit
Reverse Voltage	V_R	40	V
Forward Current (DC)	I_F	200	mA
Non−Repetitive Peak Forward Surge Current, Square Wave, 10 ms	I_{FSM}	3.0	A
Repetitive Peak Forward Current, Square Wave, 1.0 ms, D.C. = 25%	I_{FRM}	1.0	A
ESD Rating: Human Body Model Machine Model	ESD	Class 1C Class A	

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

ON Semiconductor®

www.onsemi.com

40 V SCHOTTKY BARRIER DIODE



X2DFN2
CASE 714AB

X2DFNW2
CASE 711BG

MARKING DIAGRAM

R = Specific Device Code
M = Month Code

ORDERING INFORMATION

Device	Package	Shipping†
NSR0240MX2T5G	X2DFN2 (Pb−Free)	8000 / Tape & Reel
NSR0240MX2WT5G	X2DFNW2 (Pb−Free)	8000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Thermal Resistance Junction–to–Ambient (Note 1) Total Power Dissipation @ T_A = 25°C	 $R_{\theta JA}$ P_D			 400 300	 °C/W mW
Junction and Storage Temperature Range	T_J, T_{stg}			–55 to +150	°C

1. FR–4, 20 mm^2, 1 oz. Cu.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Leakage (V_R = 25 V) (V_R = 40 V)	I_R		 0.2 0.8	 0.55 5.0	µA
Forward Voltage (I_F = 0.1 mA) (I_F = 1.0 mA) (I_F = 10 mA) (I_F = 100 mA) (I_F = 200 mA)	V_F		 0.21 0.27 0.34 0.46 0.54	 0.24 0.30 0.365 0.50 0.60	V
Total Capacitance (V_R = 1.0 V, f = 1 MHz)	C_T		7.0		pF

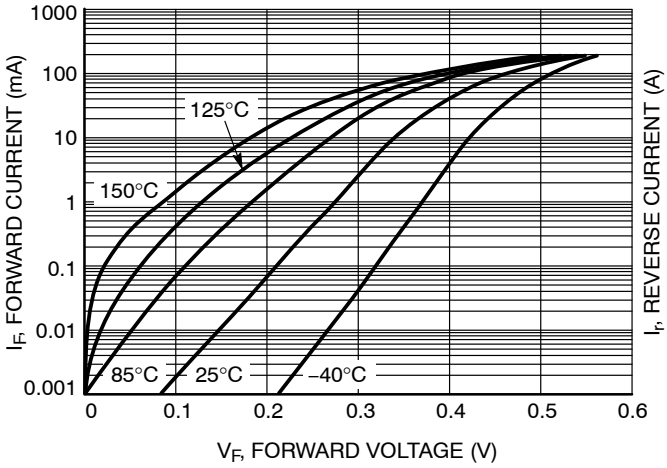


Figure 1. Forward Voltage

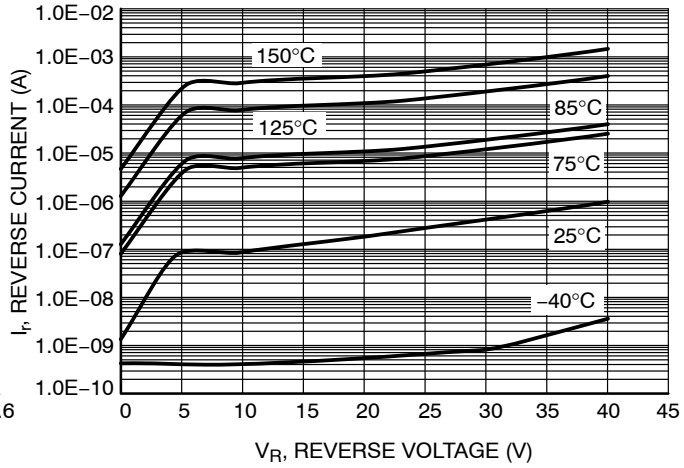


Figure 2. Leakage Current

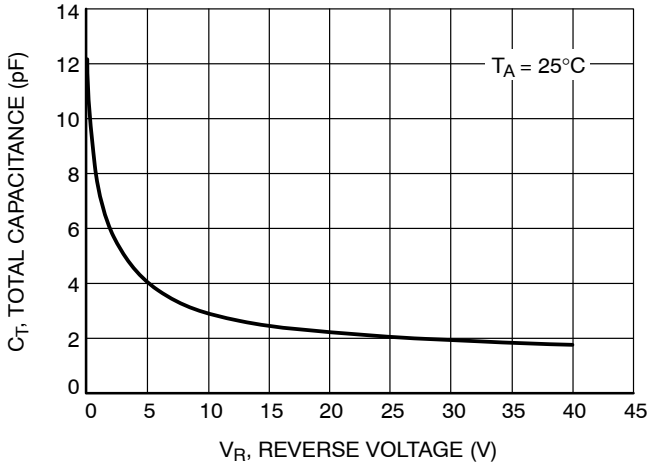


Figure 3. Total Capacitance

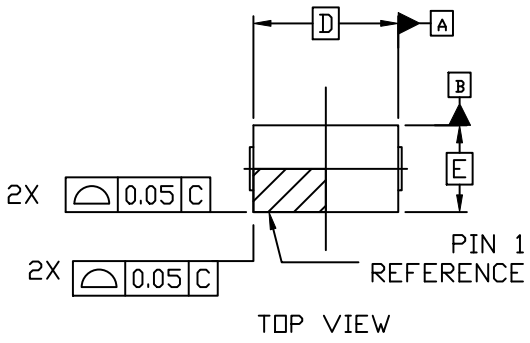
MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

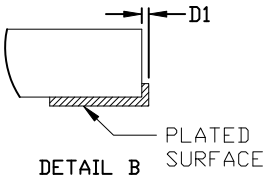
ON Semiconductor®

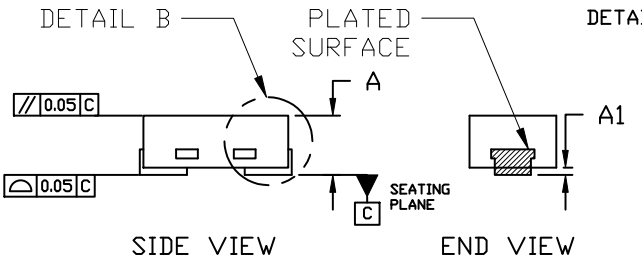
X2DFNW2 1.0x0.6, 0.65P
CASE 711BG
ISSUE C

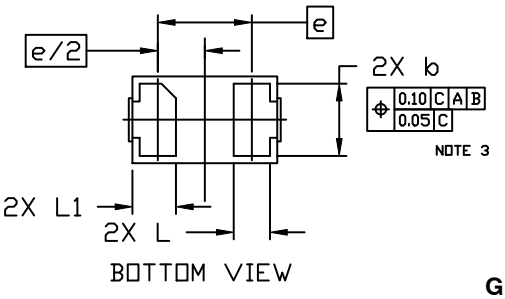
DATE 13 SEP 2019

SCALE 8:1





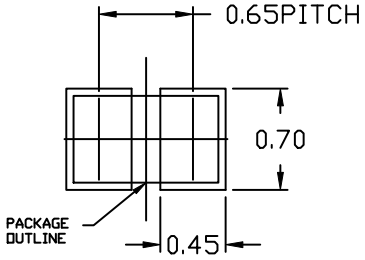




NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSION b APPLIES TO THE PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 FROM THE TERMINAL TIP.

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.34	0.37	0.40
A1	---	---	0.05
b	0.45	0.50	0.55
D	0.90	1.00	1.10
D1	---	---	0.05
E	0.50	0.60	0.70
e	0.65 BSC		
L	0.22 REF		
L1	0.24	0.285	0.34



RECOMMENDED
MOUNTING FOOTPRINT

* For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

GENERIC MARKING DIAGRAM*

XX = Specific Device Code
M = Date Code

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G”, may or not be present. Some products may not follow the Generic Marking.

DOCUMENT NUMBER:	**98AON15241G**	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped “CONTROLLED COPY” in red.
DESCRIPTION:	**X2DFNW2 1.0X0.6, 0.65P**	**PAGE 1 OF 1**

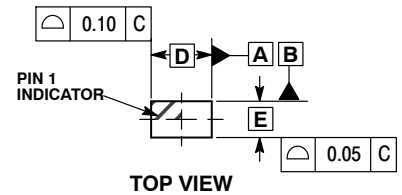
MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

ON Semiconductor®

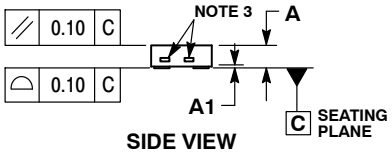
X2DFN2 1.0x0.6, 0.65P
CASE 714AB
ISSUE B

DATE 21 NOV 2017

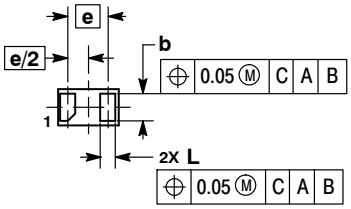
SCALE 8:1



TOP VIEW



SIDE VIEW

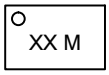


BOTTOM VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. EXPOSED COPPER ALLOWED AS SHOWN.

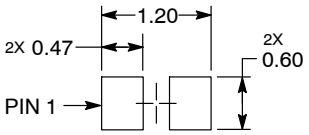
	MILLIMETERS		
DIM	MIN	NOM	MAX
A	0.34	0.37	0.40
A1	---	0.03	0.05
b	0.45	0.50	0.55
D	0.95	1.00	1.05
E	0.55	0.60	0.65
e	0.65 BSC		
L	0.20	0.25	0.30

GENERIC MARKING DIAGRAM*



XX = Specific Device Code
M = Date Code

RECOMMENDED SOLDER FOOTPRINT*



DIMENSIONS: MILLIMETERS

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “ ▪”, may or may not be present. Some products may not follow the Generic Marking.

DOCUMENT NUMBER:	**98AON98172F**	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped “CONTROLLED COPY” in red.
DESCRIPTION:	**X2DFN2 1.0X0.6, 0.65P**	**PAGE 1 OF 1**

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Email Requests to: orderlit@onsemi.com

ON Semiconductor Website: www.onsemi.com

TECHNICAL SUPPORT
North American Technical Support:
Voice Mail: 1 800−282−9855 Toll Free USA/Canada
Phone: 011 421 33 790 2910

Europe, Middle East and Africa Technical Support:
Phone: 00421 33 790 2910
For additional information, please contact your local Sales Representative

◊