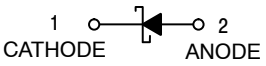
Schottky Barrier Diode
NSR0240MX2

40 V SCHOTTKY BARRIER DIODE

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 the X2DFN2 miniature package 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 V_R
- 200 mA of Continuous Forward Current
- Very High Switching Speed
- Low Capacitance: CT = 7 pF
- X2DFNW2 Wettable Flank Package for Optimal Automated Optical Inspection (AOI)
- NSV prefix PN 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 & Notebook PCs
- Automotive Electronic Control Units
- GPS

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)	
NSVR0240MX2WT5G		

†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.

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.

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) NSVR0240MX2WT5G NSVR0240MX2WT5G (T_A = 125°C) (I_F = 200 mA) NSVR0240MX2WT5G	V_F		 0.21 0.27 0.34 0.46 0.49 0.39 0.54 0.60	 0.24 0.30 0.365 0.50 0.53 0.50 0.60 0.65	V
Total Capacitance (V_R = 1.0 V, f = 1 MHz)	C_T		7.0		pF

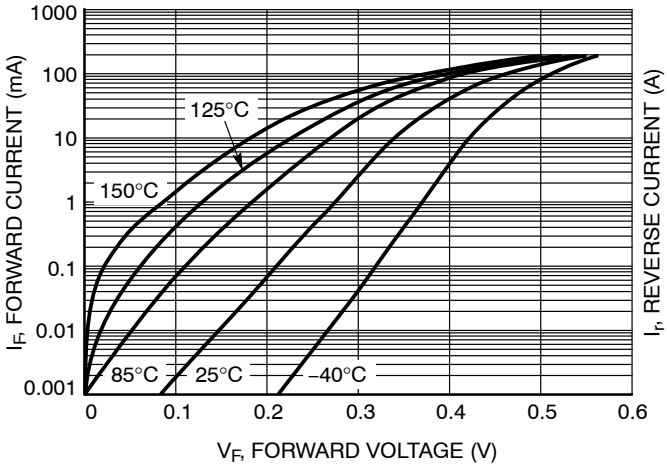


Figure 1. Forward Voltage

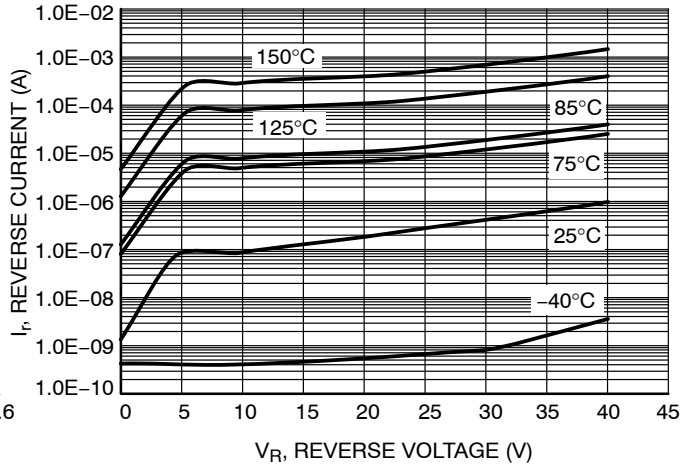


Figure 2. Leakage Current

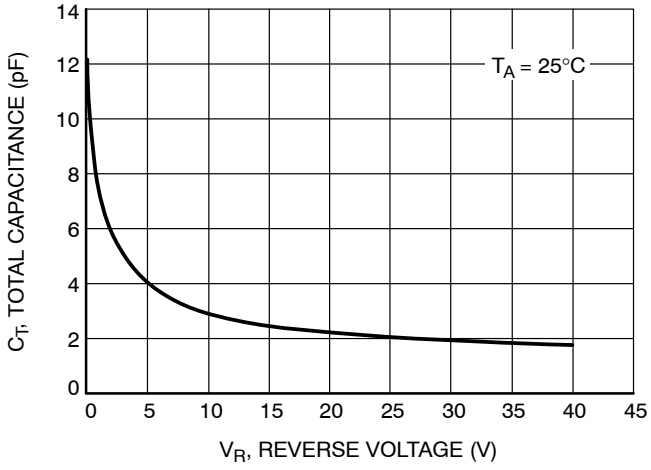
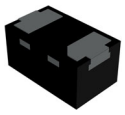
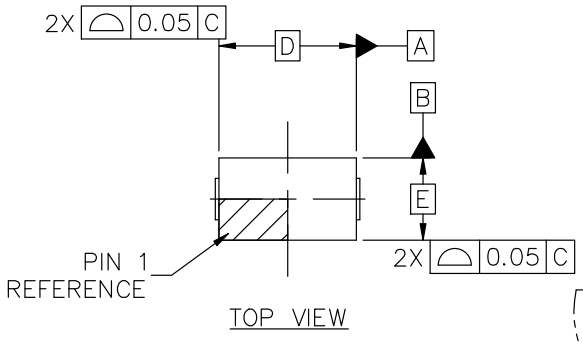


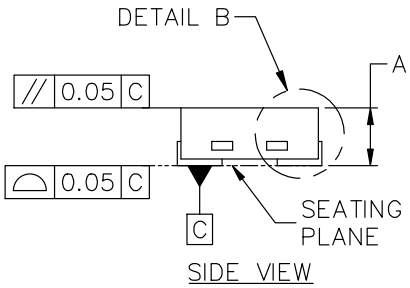
Figure 3. Total Capacitance

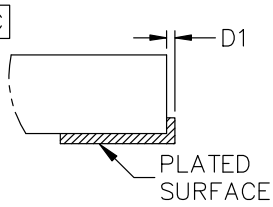


X2DFNW2 1.00x0.60x0.37, 0.65P
CASE 711BG
ISSUE D

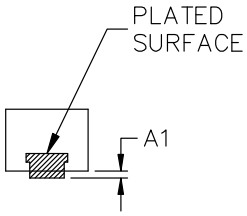
DATE 29 FEB 2024



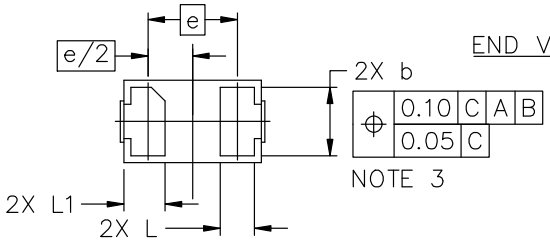




DETAIL "B"
SCALE 2:1



END VIEW

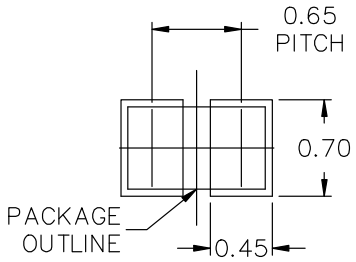


BOTTOM VIEW

NOTES:

1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5−2018.
2. ALL DIMENSION ARE IN 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		1.00 BSC	
D1	−−−	−−−	0.05
E		0.60 BSC	
e		0.65 BSC	
L		0.22 REF	
L1	0.24	0.28	0.34



RECOMMENDED MOUNTING FOOTPRINT*

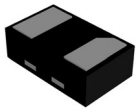
* FOR ADDITIONAL INFORMATION ON OUR Pb−FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

GENERIC
MARKING DIAGRAM*

XX = Specific Device Code
M = Date Code

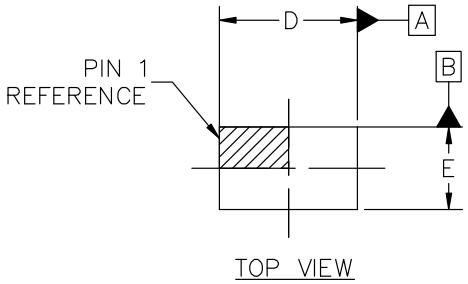
*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, "G", may or not be present. Some products may not follow the Generic Marking.

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 1.00x0.60x0.37, 0.65P**	**PAGE 1 OF 1**

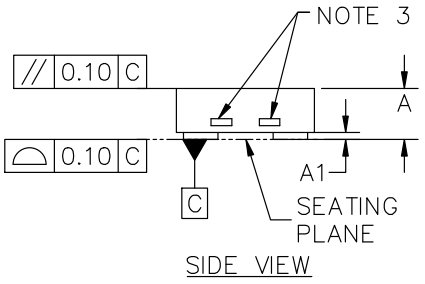


X2DFN2 1.00x0.60x0.37, 0.65P
CASE 714AB
ISSUE C

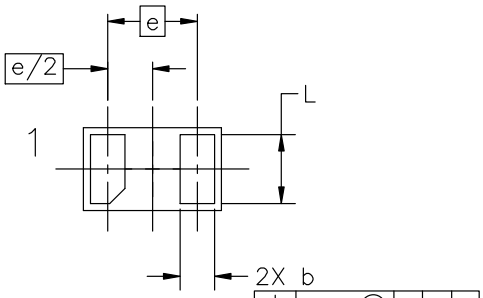
DATE 21 FEB 2024



TOP VIEW



SIDE VIEW

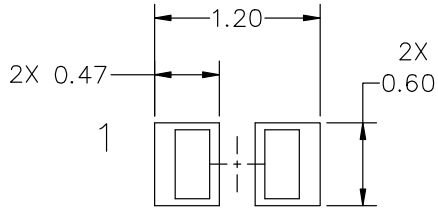


BOTTOM VIEW

NOTES:

1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5−2018.
2. ALL DIMENSION ARE IN MILLIMETERS.
3. EXPOSED COPPER ALLOWED AS SHOW.

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.34	0.37	0.40
A1	−−−	0.03	0.050
b	0.20	0.25	0.30
D	0.95	1.00	1.05
E	0.55	0.60	0.65
e	0.65 BSC		
L	0.45	0.50	0.55



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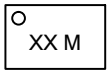

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