

# NSR0240MX

## 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. NSR0240MX in a 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  $\mu$ A @ 25 V VR
- 200 mA of Continuous Forward Current
- Very High Switching Speed
- Low Capacitance – CT = 7 pF
- This is a Pb-Free Device

### 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	

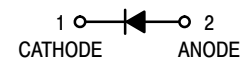
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.



**ON Semiconductor**<sup>®</sup>

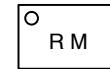
[www.onsemi.com](http://www.onsemi.com)

## 40 V SCHOTTKY BARRIER DIODE



X2DFN2  
CASE 714AB

### MARKING DIAGRAM



R = Specific Device Code  
M = Month Code

### ORDERING INFORMATION

Device	Package	Shipping†
NSR0240MXT5G	X2DFN2 (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.

# NSR0240MX

## THERMAL CHARACTERISTICS

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

1. FR-4, 20 mm<sup>2</sup>, 1 oz. Cu.

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

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

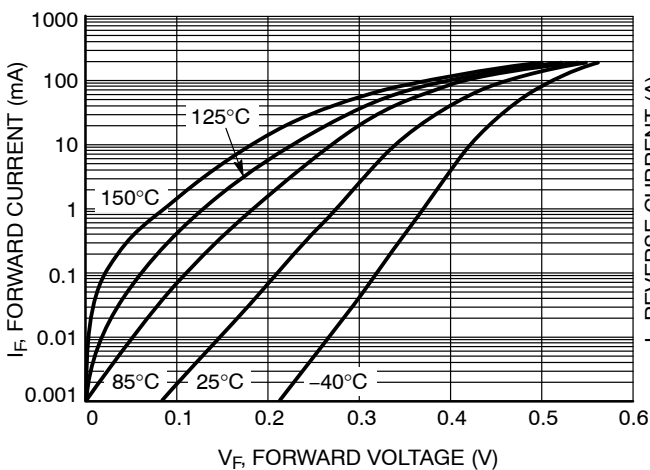


Figure 1. Forward Voltage

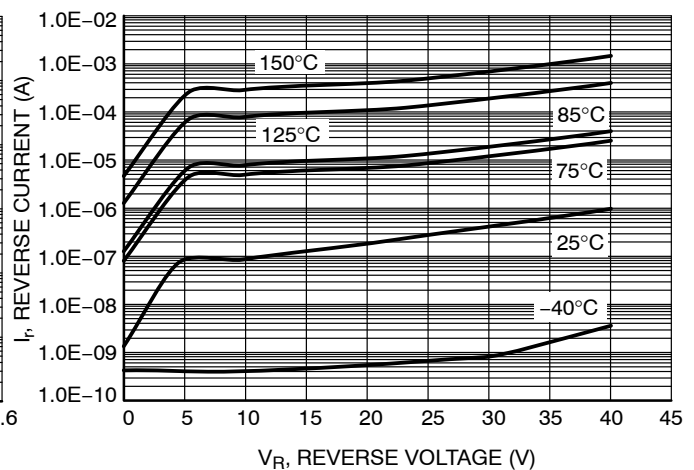


Figure 2. Leakage Current

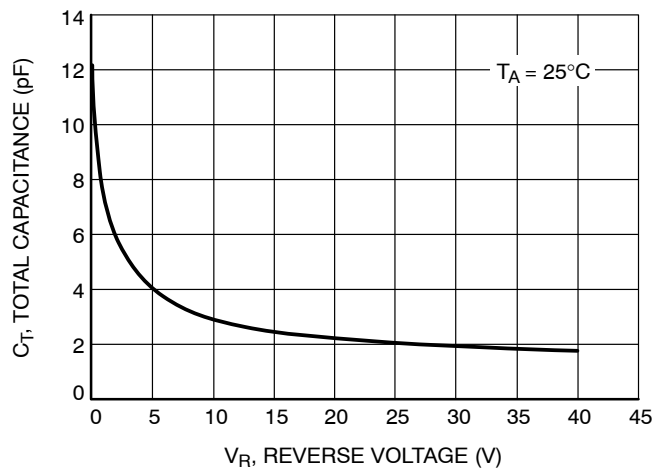
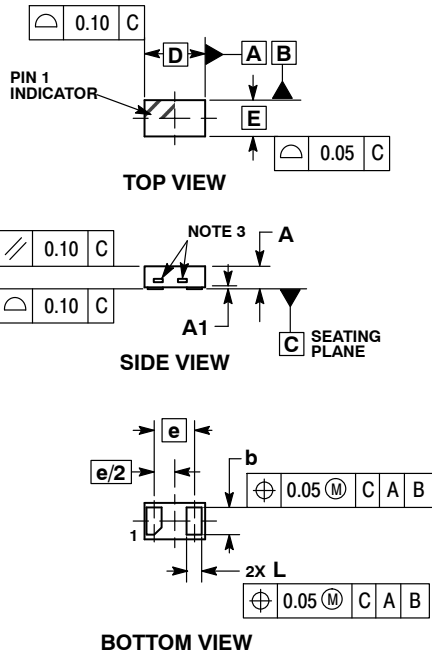


Figure 3. Total Capacitance

# NSR0240MX

## PACKAGE DIMENSIONS

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

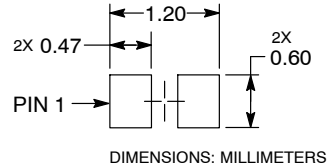


**NOTES:**

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

MILLIMETERS		
DIM	MIN	MAX
A	0.34	0.40
A1	---	0.05
b	0.45	0.55
D	1.00 BSC	
E	0.60 BSC	
e	0.65 BSC	
L	0.20	0.30

**RECOMMENDED  
SOLDER 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.

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