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 μA @ 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) | ΙF | 200 | mA |
| Non-Repetitive Peak Forward Surge Current, Square Wave, 10 ms | I _{FSM} | 3.0 | Α |
| Repetitive Peak Forward Current, Square Wave, 1.0 ms, D.C. = 25% | I _{FRM} | 1.0 | Α |
| 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®

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40 V SCHOTTKY BARRIER DIODE





X2DFN2 CASE 714AB

MARKING DIAGRAM

O R M

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 | | Min | Тур | Max | Unit |
|---|--|-----|-----|-------------|------------|
| Thermal Resistance Junction-to-Ambient (Note 1) Total Power Dissipation @ T _A = 25°C | $egin{array}{c} R_{	hetaJA} \ P_D \end{array}$ | | | 400 300 | °C/W mW |
| Junction and Storage Temperature Range | T _J , T _{stg} | | | -55 to +150 | °C |

^{1.} FR-4, 20 mm², 1 oz. Cu.

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

| Characteristic | Symbol | Min | Тур | Max | Unit |
|--|----------------|-----|--------------------------------------|---------------------------------------|------|
| Reverse Leakage (V _R = 25 V) (V _R = 40 V) | I _R | | 0.2 0.8 | 0.55 5.0 | μА |
| 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) | СТ | | 7.0 | | pF |

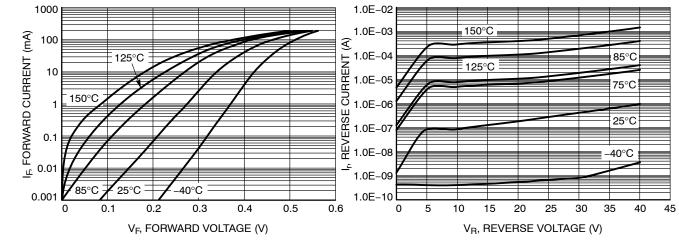


Figure 1. Forward Voltage

Figure 2. Leakage Current

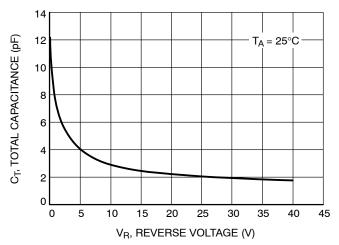
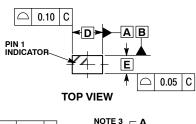


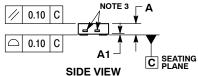
Figure 3. Total Capacitance

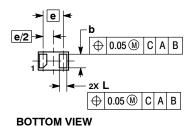
NSR0240MX

PACKAGE DIMENSIONS

X2DFN2 1.0x0.6, 0.65PCASE 714AB ISSUE O





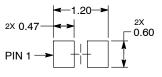


NOTES:

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

| | MILLIMETERS | | |
|------------|-------------|------|--|
| DIM | MIN | MAX | |
| Α | 0.34 | 0.40 | |
| A 1 | 0.05 | | |
| b | 0.45 | 0.55 | |
| D | 1.00 BSC | | |
| Е | 0.60 BSC | | |
| е | 0.65 BSC | | |
| L | 0.20 0.30 | | |

RECOMMENDED SOLDER FOOTPRINT*



DIMENSIONS: MILLIMETERS

*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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