

NSR05301

500 mA, 30 V Schottky Diode

These Schottky diodes are optimized for low forward voltage drop and low leakage current that offers the most optimal power dissipation in applications. They are housed in space saving micro-packaging ideal for space constrained applications.

Features

- Smallest Package Available (01005); 0.445mm x 0.24mm
- 500 mA of Continuous Forward Current
- Low Forward Voltage Drop – 430 mV (Typ.) @ $I_F = 200$ mA
- Low Reverse Current – 25 μ A (Typ.) @ $V_R = 30$ V
- Low t_{rr} – 9 ns Typical
- Low Capacitance – 19 pF Typical

Typical Applications

- Mobile and Wearable Devices
- LED Boost Converters
- Buck and Boost dc–dc Converters
- Reverse Voltage and Current Protection
- Clamping & Protection

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--|-----------|-------------|------|
| Operating Junction Temperature Range | T_J | -55 to +125 | °C |
| Storage Temperature Range | T_{stg} | -55 to +150 | °C |
| Lead Solder Temperature – Maximum (10 Seconds) | T_L | 260 | °C |
| Forward Current (DC) | I_F | 500 | mA |
| Reverse Voltage | V_R | 30 | V |
| Repetitive Peak Forward Current (Pulse Wave = 1 sec, Duty Cycle = 66%) | I_{FRM} | 1.0 | A |
| ESD Rating: Human Body Model | ESD | >8.0 | kV |
| Machine Model | | >400 | V |

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.



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MARKING DIAGRAM



X4DFN2
CASE 718AA



D = Specific Device Code
M = Date Code

ORDERING INFORMATION

| Device | Package | Shipping† |
|----------------|---------------------|------------------------|
| NSR05301MX4T5G | X4DFN2 (Pb-Free) | 10000 / 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.

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

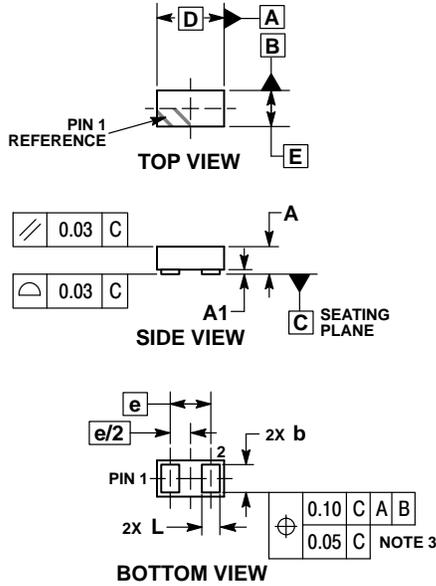
| Characteristic | Symbol | Min | Typ | Max | Unit |
|--|-----------------|-----|-------------------|-------------------|------|
| Reverse Leakage (V _R = 10 V) (V _R = 30 V) | I _R | | 15 25 | 50 100 | μA |
| Forward Voltage (I _F = 100 mA) (I _F = 200 mA) (I _F = 500 mA) | V _F | | 355 430 640 | 480 540 800 | mV |
| Total Capacitance (V _R = 5.0 V, f = 1 MHz) | C _T | | 19 | | pF |
| Reverse Recovery Time (I _F = I _R = 10 mA, I _{R(REC)} = 1.0 mA) | t _{rr} | | 9.0 | 11 | ns |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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PACKAGE DIMENSIONS

X4DFN2, 0.445x0.24, 0.27P (01005)
CASE 718AA
ISSUE A

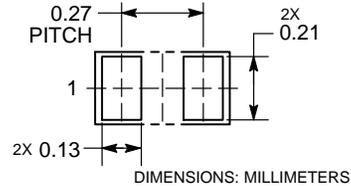


NOTES:

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

| DIM | MILLIMETERS | | |
|-----|-------------|-------|-------|
| | MIN | NOM | MAX |
| A | 0.15 | 0.18 | 0.21 |
| A1 | --- | --- | 0.03 |
| b | 0.170 | 0.185 | 0.200 |
| D | 0.415 | 0.445 | 0.475 |
| E | 0.210 | 0.240 | 0.270 |
| e | 0.270 BSC | | |
| L | 0.105 | 0.120 | 0.135 |

RECOMMENDED MOUNTING FOOTPRINT*



See Application Note AND8398/D for more mounting details
 *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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