Trench-based Schottky Diode, 100 mA, 30 V

NSR01301MX4

These Trench 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
- 100 mA of Continuous Forward Current
- Low Forward Voltage Drop − 450 mV (Typical) @ I_F = 100 mA
- Low Reverse Current − 0.04 μA (Typical) @ V_R = 30 V
- Very Low Reverse Recovery Time − 8 ns Maximum
- Low Capacitance − 20 pF Typical

Typical Applications

- Mobile and Wearable Devices
- Camera Photo Flash
- Buck and Boost DC−DC Converters
- Reverse Current Protection
- Clamping & Protection

MAXIMUM RATINGS

Rating		Symbol	Value	Unit
Forward Current (DC)		I_F	100	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 Machine Model	ESD	>8.0 >400	kV 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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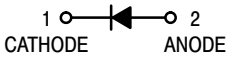
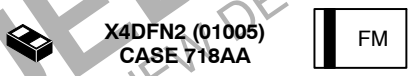


MARKING DIAGRAM



F = Specific Device Code
M = Date Code

ORDERING INFORMATION

Device	Package	Shipping†
NSR01301MX4T5G	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.

DISCONTINUED
THIS DEVICE IS NOT RECOMMENDED FOR NEW DESIGN
PLEASE CONTACT YOUR onsemi REPRESENTATIVE FOR INFORMATION

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction−to−Ambient (Note 1) Total Power Dissipation @ T_A = 25°C	$R_{\theta JA}$ P_D	614.9 203	°C/W mW
Thermal Resistance Junction−to−Ambient (Note 2) Total Power Dissipation @ T_A = 25°C	$R_{\theta JA}$ P_D	239.4 522	°C/W mW
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

1. Mounted onto a 4 in^2 FR−4 board 10 mm^2 1 oz. Cu 0.06' thick single−sided. Operating to steady state.
2. Mounted onto a 4 in^2 FR−4 board 2 cm^2 1 oz. Cu 0.06' thick single−sided. Operating to steady state.

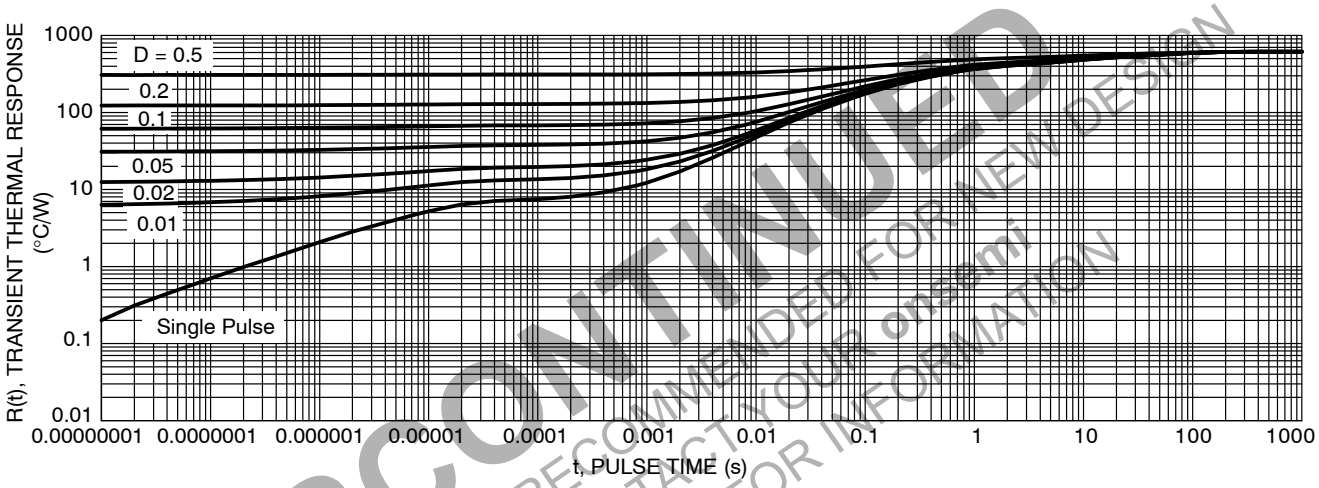


Figure 1. Thermal Response (Note 1)

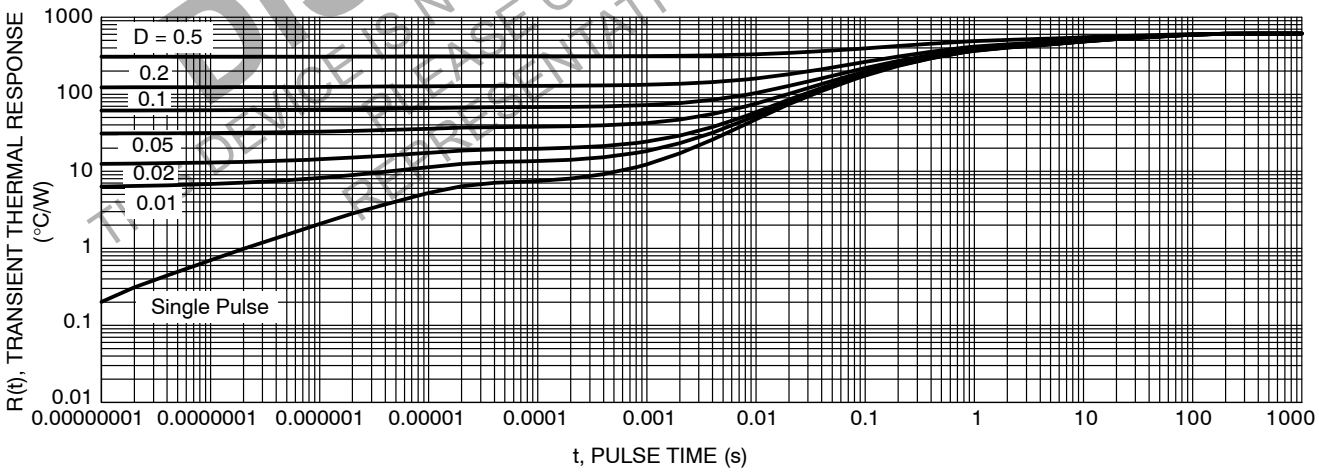


Figure 2. Thermal Response (Note 2)

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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		 0.02 0.04	 4.0 20	μA
Forward Voltage (I_F = 10 mA) (I_F = 50 mA) (I_F = 100 mA)	V_F		 400 420 450	 450 470 500	mV
Total Capacitance (V_R = 5.0 V, f = 1 MHz)	C_T		 20		pF
Reverse Recovery Time (I_F = I_R = 10 mA, $I_{R(REC)}$ = 1.0 mA)	t_{rr}			 8.0	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.

TYPICAL CHARACTERISTICS

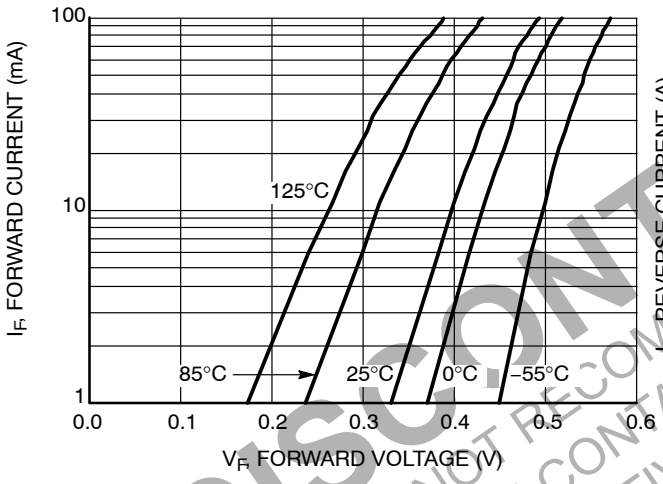

Figure 3. Forward Voltage

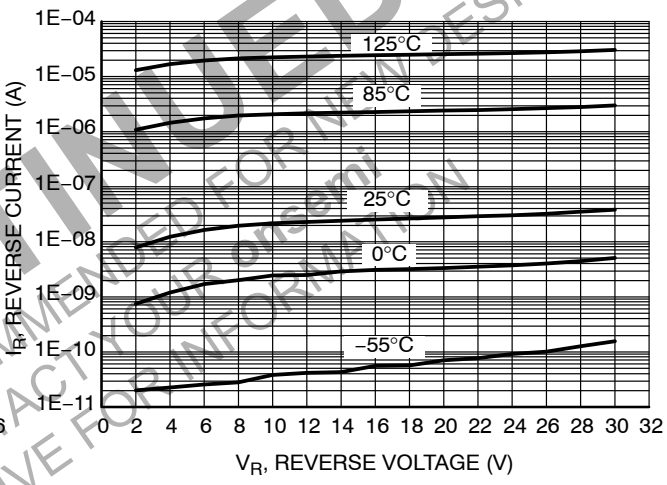

Figure 4. Leakage Current

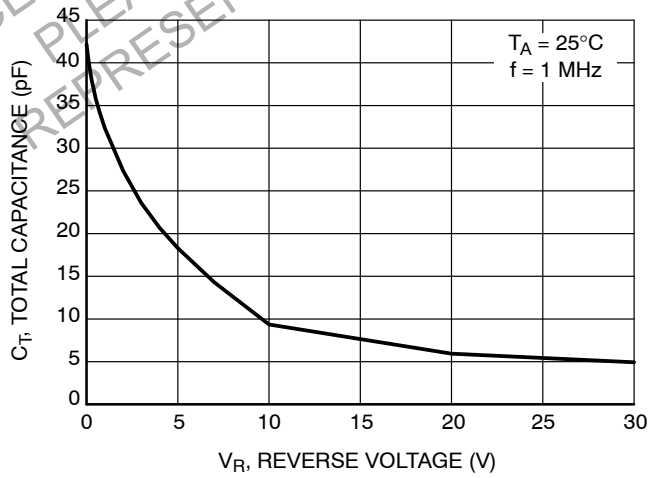

Figure 5. Total Capacitance

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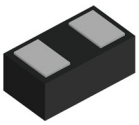
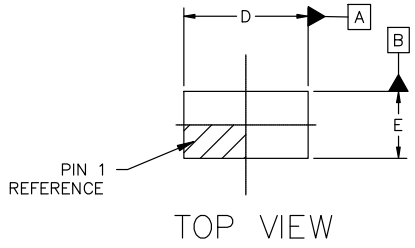
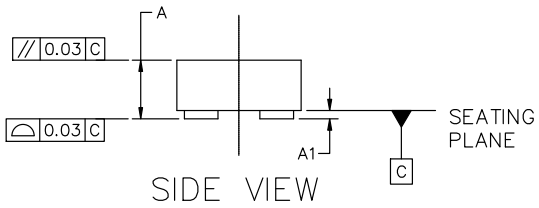


X4DFN2, 0.44x0.24x0.18, 0.27P
CASE 718AA
ISSUE B

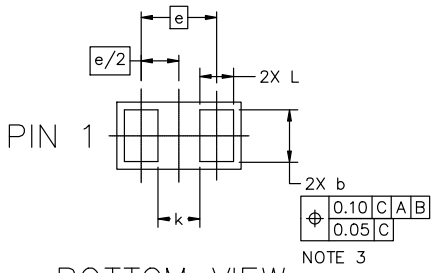
DATE 05 MAR 2025



TOP VIEW



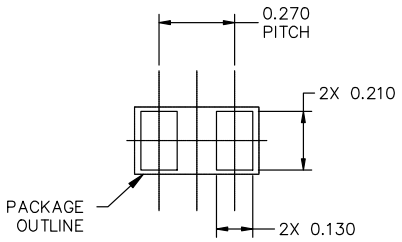
SIDE VIEW



BOTTOM VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING AS PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. EXPOSED COPPER ALLOWED AS SHOWN.

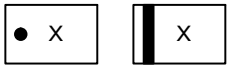
MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.150	0.180	0.210
A1	---	---	0.030
b	0.170	0.185	0.200
D	0.415	0.445	0.475
E	0.210	0.240	0.270
e	0.270 BSC		
k	0.125	---	---
L	0.105	0.120	0.135



RECOMMENDED MOUNTING FOOTPRINT

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

GENERIC
MARKING DIAGRAMS*



X = Specific Device Code

*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.

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DESCRIPTION:	**X4DFN2, 0.44x0.24x0.18, 0.27P**		**PAGE 1 OF 1**

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