Schottky Barrier Diodes, 500 mA, 40 V

NSR05T404MX2

These Schottky barrier 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 spacing saving micro−packaging ideal for space constraint applications.

Features

- Low Forward Voltage Drop − 560 mV (Typ.) @ I_F = 500 mA
- Low Reverse Current − 3.0 μA (Typ.) @ V_R = 40 V
- 500 mA of Continuous Forward Current
- High Switching Speed
- 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

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	40	V
Forward Current (DC)	I_F	500	mA
Forward Surge Current (60 Hz @ 1 cycle)	I_{FSM}	2.5	A
Repetitive Peak Forward Current (Pulse Wave = 1 sec, Duty Cycle = 66%)	I_{FRM}	0.6	A
ESD Rating: Human Body Model Charged Device Model	ESD	> 8 > 1	kV

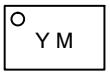
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

ON Semiconductor®

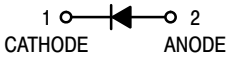
www.onsemi.com

X2DFN2
CASE 714AB

MARKING DIAGRAM



Y = Specific Device Code
M = Date Code



ORDERING INFORMATION

Device	Package	Shipping†
NSR05T404MX2T5G	X2DFN2 (Pb−Free)	2 mm Pitch 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.

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			310 480	°C/W mW
Thermal Resistance Junction−to−Ambient (Note 2) Total Power Dissipation @ T_A = 25°C	$R_{\theta JA}$ P_D			150 1000	°C/W mW
Junction and Storage Temperature Range	T_J, T_{stg}		−55 to +150		°C

1. Mounted onto a 4 in square FR−4 board 50 mm sq. 1 oz. Cu 0.06” thick single sided. Operating to steady state.
2. Mounted onto a 4 in square FR−4 board 650 mm sq. 1 oz. Cu 0.06” thick single sided. Operating to steady state.

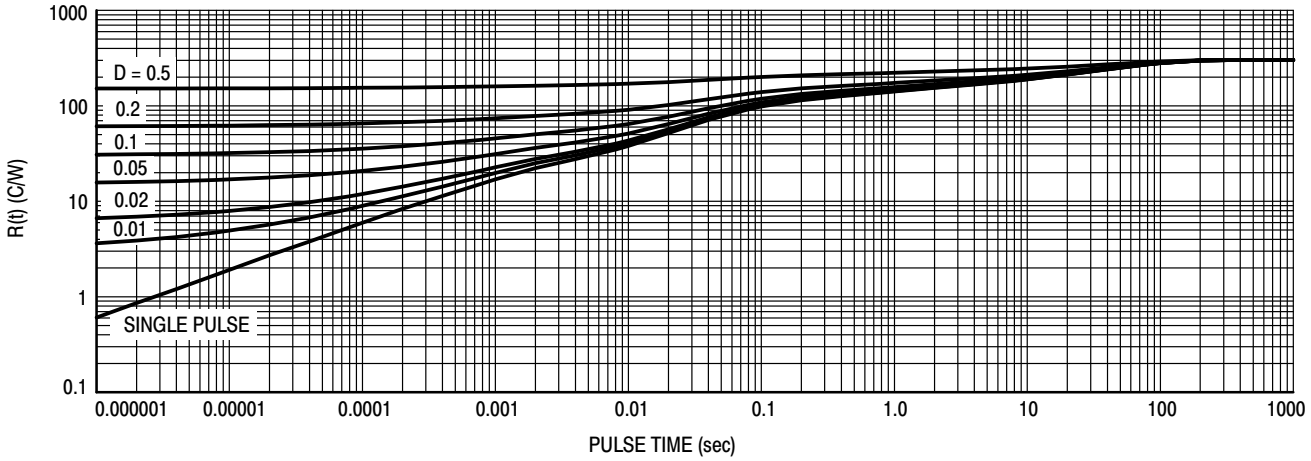


Figure 1. Thermal Response (Note 1)

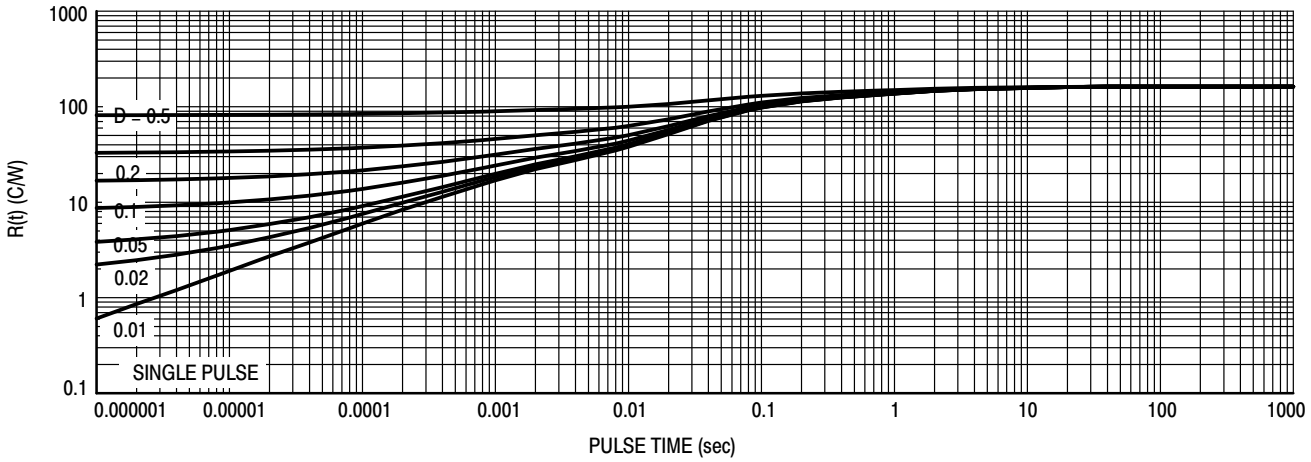
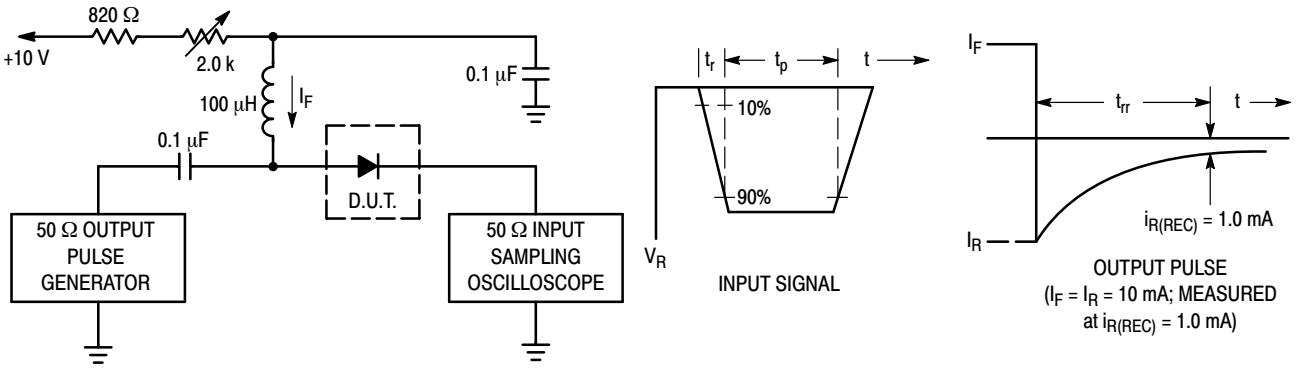


Figure 2. Thermal Response (Note 2)

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Leakage (V_R = 10 V) (V_R = 40 V)	I_R		 0.2 3.0	 3.1 85	μA
Forward Voltage (I_F = 10 mA) (I_F = 100 mA) (I_F = 200 mA) (I_F = 500 mA)	V_F		 370 450 490 560	 400 480 530 630	mV
Total Capacitance (V_R = 1.0 V, f = 1.0 MHz)	C_T		50		pF
Reverse Recovery Time (I_F = I_R = 10 mA, $I_{R(REC)}$ = 1.0 mA, Figure 3)	t_{rr}		13		ns
Peak Forward Recovery Voltage (I_F = 100 mA, t_r = 20 ns, Figure 4)	V_{FRM}		600		mV

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.



Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 10 mA.
2. Input pulse is adjusted so $I_{R(peak)}$ is equal to 10 mA.
3. $t_p \gg t_{rr}$

Figure 3. Recovery Time Equivalent Test Circuit

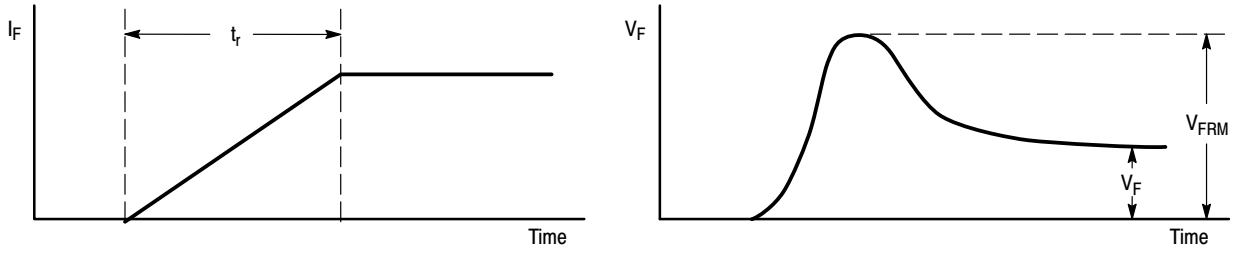


Figure 4. Peak Forward Recovery Voltage Definition

TYPICAL CHARACTERISTICS

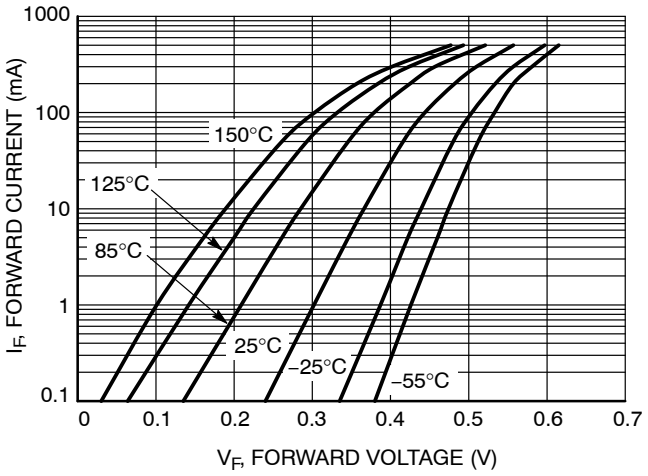


Figure 5. Forward Voltage

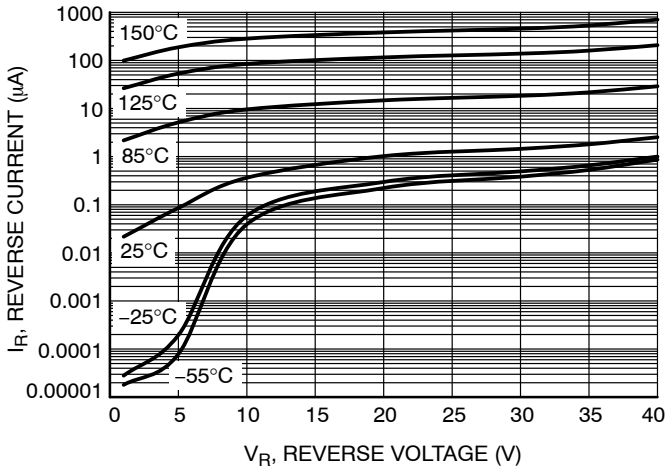


Figure 6. Reverse Voltage

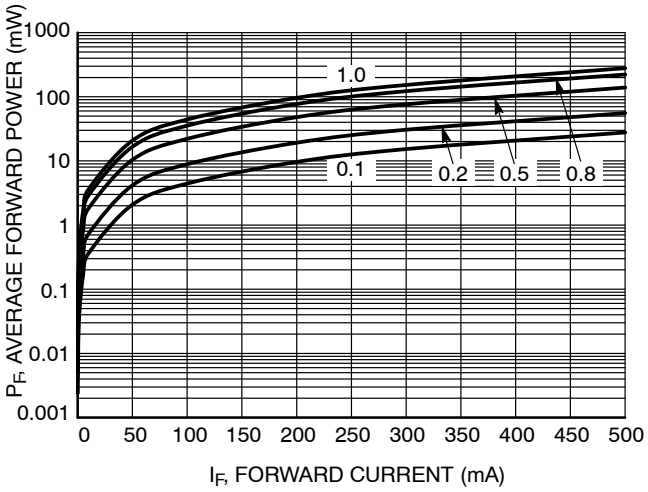


Figure 7. Average Forward Power Dissipation

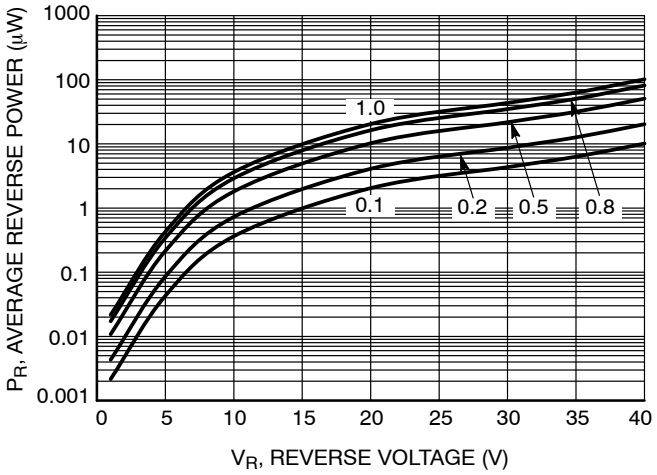


Figure 8. Average Reverse Power Dissipation

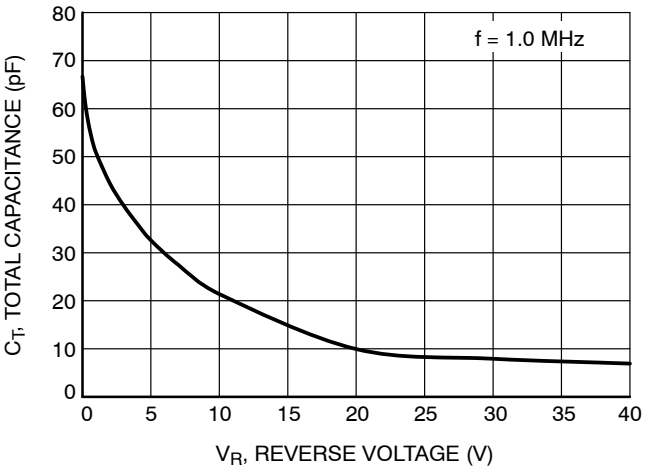


Figure 9. Total Capacitance

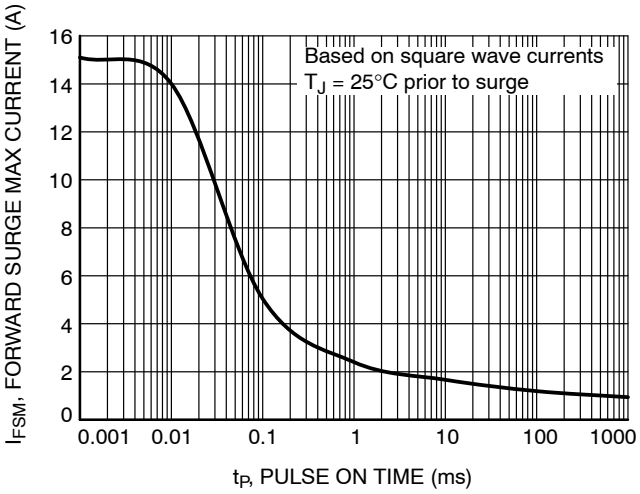


Figure 10. Forward Surge Current

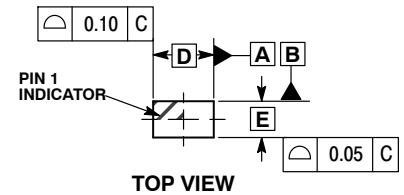
MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

ON Semiconductor®

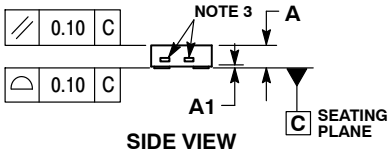
X2DFN2 1.0x0.6, 0.65P
CASE 714AB
ISSUE B

DATE 21 NOV 2017

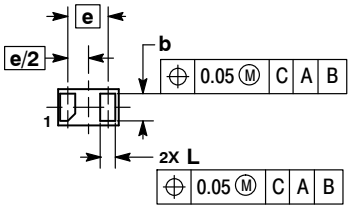
SCALE 8:1



TOP VIEW



SIDE VIEW

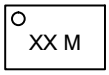


BOTTOM VIEW

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

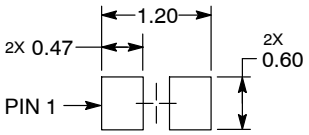
	MILLIMETERS		
DIM	MIN	NOM	MAX
A	0.34	0.37	0.40
A1	---	0.03	0.05
b	0.45	0.50	0.55
D	0.95	1.00	1.05
E	0.55	0.60	0.65
e	0.65 BSC		
L	0.20	0.25	0.30

GENERIC MARKING DIAGRAM*



XX = Specific Device Code
M = Date Code

RECOMMENDED SOLDER FOOTPRINT*



DIMENSIONS: MILLIMETERS

*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:	**X2DFN2 1.0X0.6, 0.65P**	**PAGE 1 OF 1**

PUBLICATION ORDERING INFORMATION

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For additional information, please contact your local Sales Representative

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