Schottky Barrier Diode, 1 A, 40 V

NSR10T406MX2

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.

ON Semiconductor®

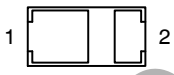
www.onsemi.com

Features

- Low Forward Voltage Drop − 470 mV (Typ.) @ I_F = 1 A
- Low Reverse Current − 5 μA (Typ.) @ V_R = 40 V
- 1 A of Continuous Forward Current
- High Switching Speed
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

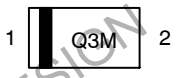
Typical Applications

- LCD and Keypad Backlighting
- Camera Photo Flash
- Buck and Boost dc−dc Converters
- Reverse Voltage and Current Protection
- Clamping & Protection



X2DFNW2
CASE 717AB

MARKING DIAGRAM



Q3 = Specific Device Code
M = Date Code



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	40	V
Forward Current (DC)	I_F	1.0	A
Forward Surge Current (60 Hz @ 1 cycle)	I_{FSM}	9.5	A
Repetitive Peak Forward Current (Pulse Wave = 1 sec, Duty Cycle = 66%)	I_{FRM}	3.98	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.

ORDERING INFORMATION

Device	Package	Shipping†
NSR10T406MX2WT5G	X2DFNW2 (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.

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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			150 800	°C/W mW
Thermal Resistance Junction–to–Ambient (Note 2) Total Power Dissipation @ T_A = 25°C	$R_{\theta JA}$ P_D			72.7 1500	°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.

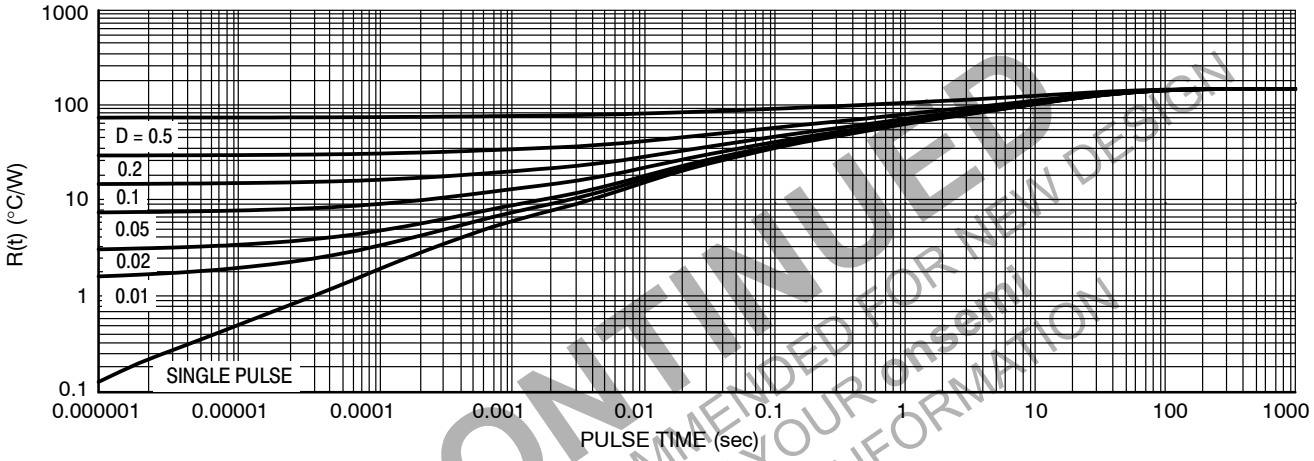


Figure 1. Thermal Response (Note 1)

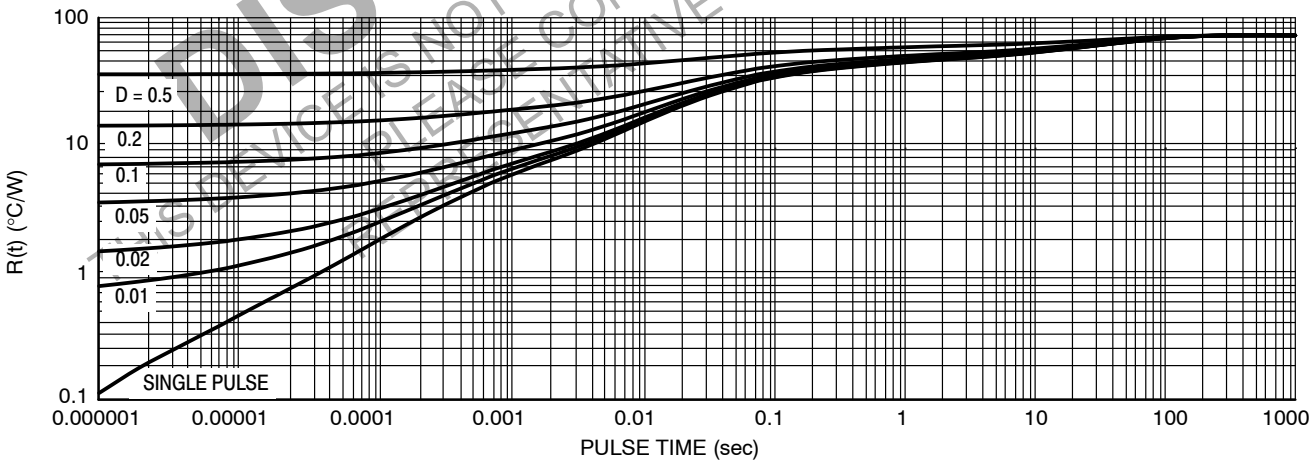


Figure 2. Thermal Response (Note 2)

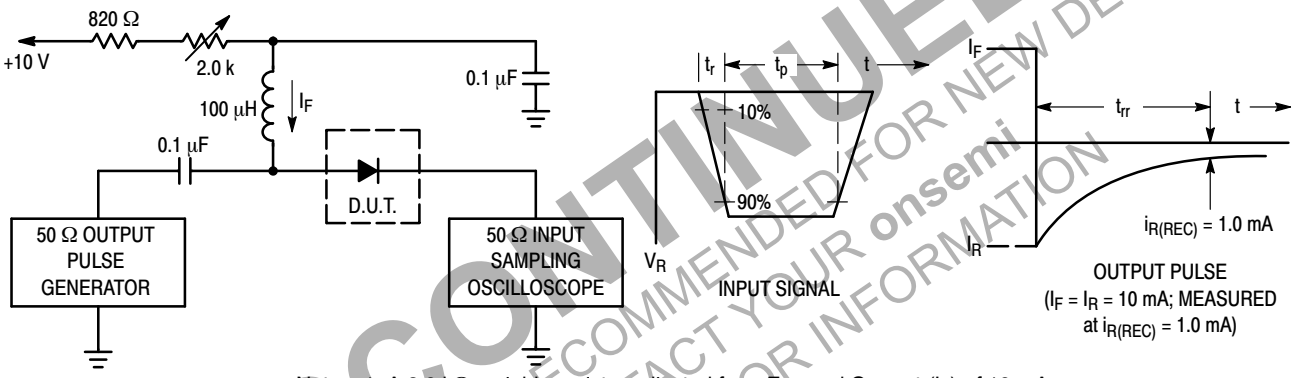
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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Leakage (V_R = 10 V) (V_R = 40 V)	I_R		 0.5 2.1	 1.5 10	μA
Forward Voltage (I_F = 10 mA) (I_F = 100 mA) (I_F = 200 mA) (I_F = 500 mA) (I_F = 1.0 A)	V_F		 310 375 400 435 475	 380 440 470 500 530	mV
Total Capacitance (V_R = 1.0 V, f = 1.0 MHz)	C_T		255	295	pF
Reverse Recovery Time (I_F = I_R = 10 mA, $I_{R(REC)}$ = 1.0 mA, Figure 3)	t_{rr}		65	74	ns
Peak Forward Recovery Voltage (I_F = 100 mA, t_r = 20 ns, Figure 4)	V_{FRM}		0.54	0.59	V

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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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

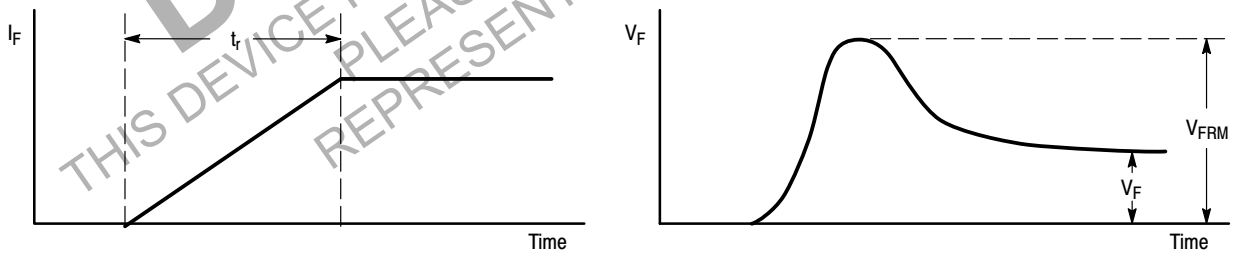


Figure 4. Peak Forward Recovery Voltage Definition

TYPICAL CHARACTERISTICS

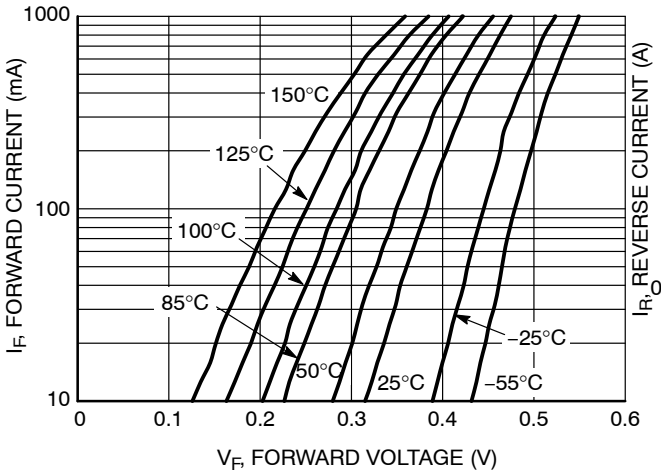


Figure 5. Forward Voltage

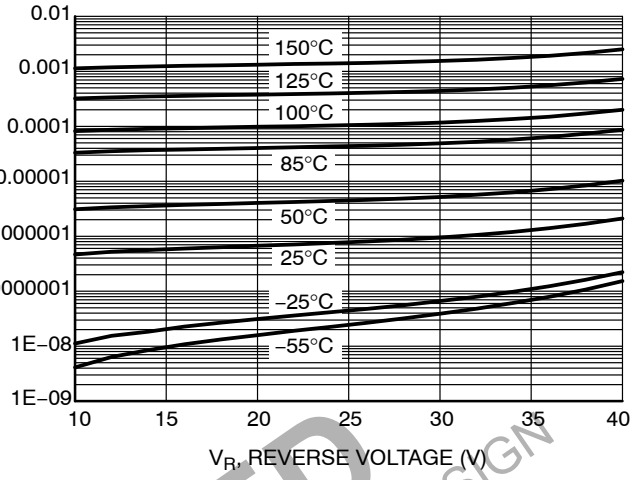


Figure 6. Leakage Current

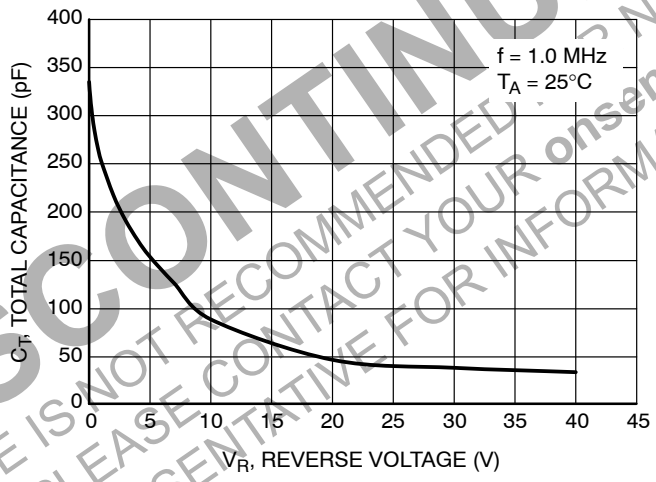
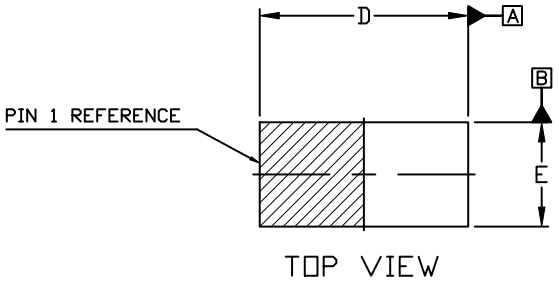


Figure 7. Total Capacitance

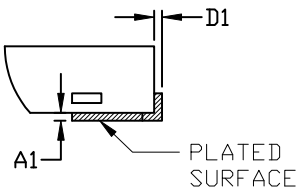
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X2DFNW2 1.60x0.80
CASE 717AB
ISSUE B

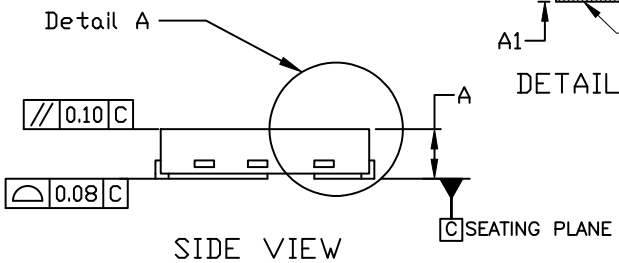
DATE 30 OCT 2019



TOP VIEW



DETAIL A

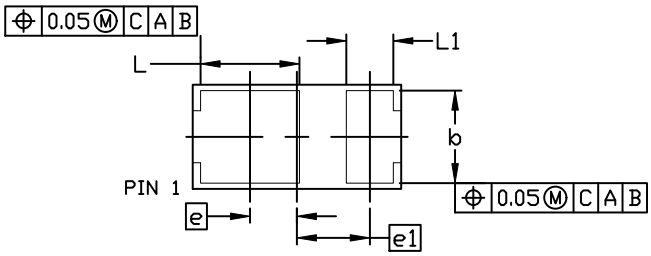


SIDE VIEW

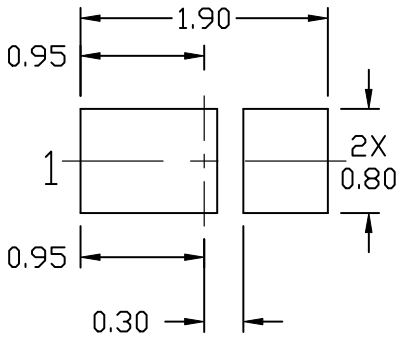
NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. CONTROLLING DIMENSION: MILLIMETERS

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.34	0.37	0.40
A1	---	---	0.04
b	0.67	0.71	0.75
D	1.55	1.60	1.65
D1	---	---	0.04
E	0.75	0.80	0.85
e	0.36 BSC		
e1	0.56 BSC		
L	0.72	0.76	0.80
L1	0.32	0.36	0.40



BOTTOM VIEW



RECOMMENDED
MOUNTING 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.

GENERIC
MARKING DIAGRAM*



XX = Specific Device Code
M = Date Code

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G”, may or not be present. Some products may not follow the Generic Marking.

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