NSR15405NXT5G

1.5 A, 40 V Schottky Barrier Diode

These Schottky barrier diodes are optimized for low forward voltage drop and low leakage current and are offered in a Chip Scale Package (CSP) to reduce board space. The low thermal resistance enables designers to meet the challenging task of achieving higher efficiency and meeting reduced space requirements.

Features

- Low Forward Voltage Drop − 540 mV (Typ.) @ I_F = 1.5 A
- Low Reverse Current − 20 μA (Typ.) @ V_R = 40 V
- 1.5 A of Continuous Forward Current
- ESD Rating − Human Body Model: Class 3B
  − Machine Model: Class C
- 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	1.5	A
Forward Surge Current (60 Hz @ 1 cycle)	I_{FSM}	13	A
Repetitive Peak Forward Current (Pulse Wave = 1 sec, Duty Cycle = 66%)	I_{FRM}	3	A
ESD Rating: Human Body Model Machine Model	ESD	> 8 > 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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DSN2
(0502)
CASE 152AU

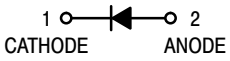
MARKING DIAGRAM

PIN 1



5G = Specific Device Code
M = Date Code

PIN CONNECTIONS



ORDERING INFORMATION

Device	Package	Shipping†
NSR15405NXT5G	DSN2 (Pb−Free)	5000 / 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			 255 490	 °C/W mW
Thermal Resistance Junction−to−Ambient (Note 2) Total Power Dissipation @ T_A = 25°C	 $R_{\theta JA}$ P_D			 95 1.32	 °C/W W
Storage Temperature Range	T_{stg}			−40 to +125	°C
Junction Temperature	T_J			+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.

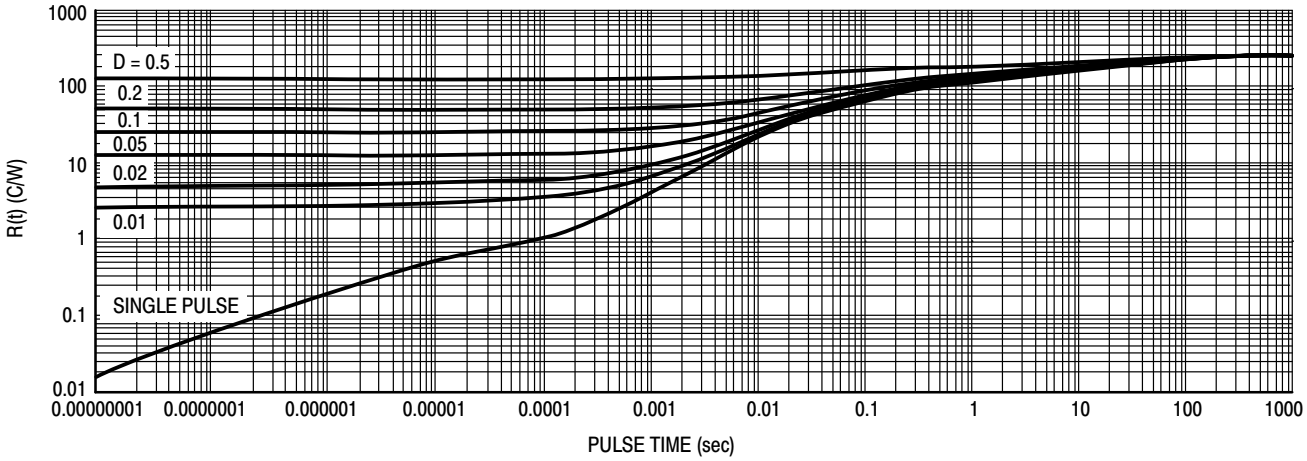


Figure 1. Thermal Response (Note 1)

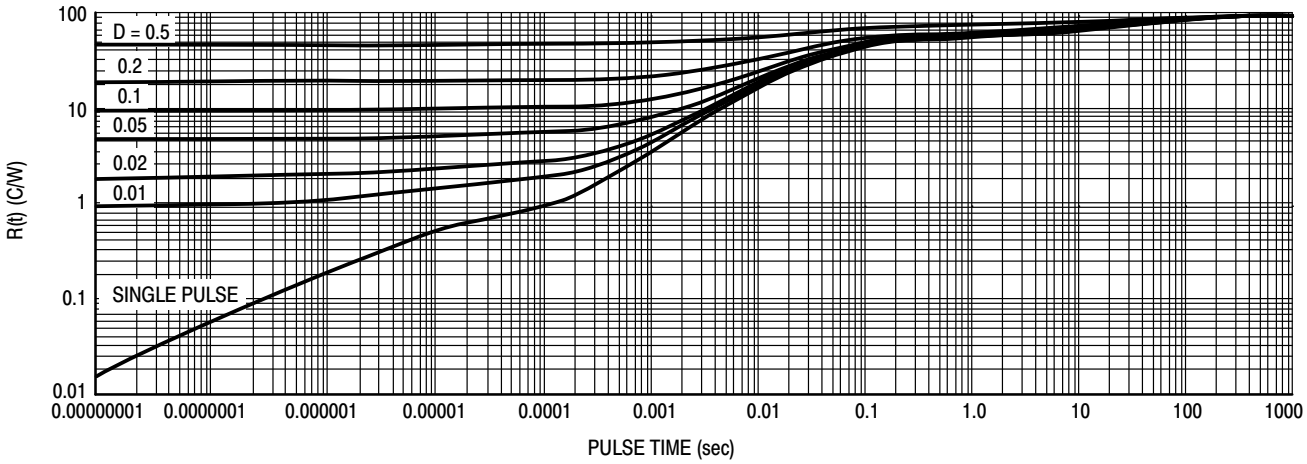
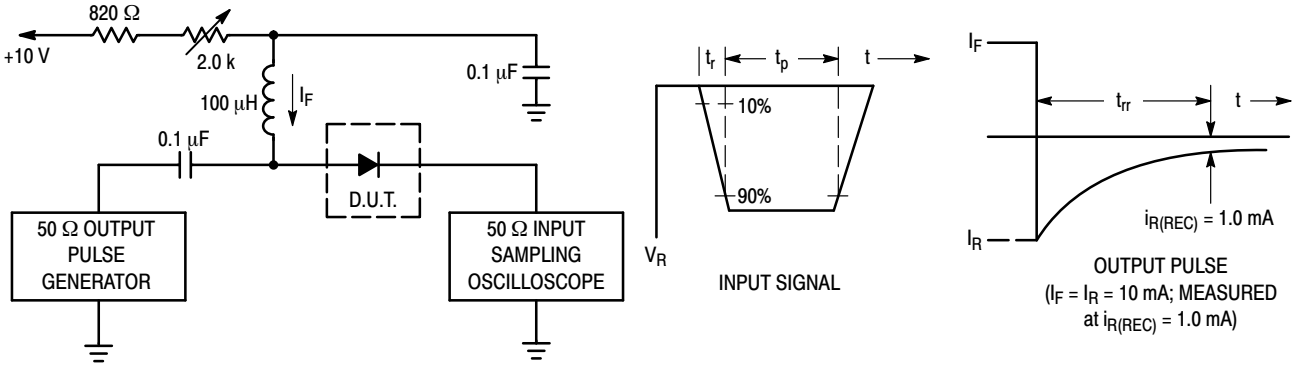


Figure 2. Thermal Response (Note 2)

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	 – –	 2 20	 10 75	μA
Forward Voltage (I_F = 10 mA) (I_F = 100 mA) (I_F = 500 mA) (I_F = 1 A) (I_F = 1.5 A)	V_F	 – – – – –	 250 320 410 480 540	 290 360 450 520 590	mV
Total Capacitance (V_R = 2.0 V, f = 1.0 MHz)	C_T	–	85	–	pF
Reverse Recovery Time (I_F = I_R = 10 mA, $I_{R(REC)}$ = 1.0 mA, Figure 3)	t_{rr}	–	33	–	ns
Peak Forward Recovery Voltage (I_F = 100 mA, t_r = 20 ns, Figure 4)	V_{FRM}	–	460	–	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

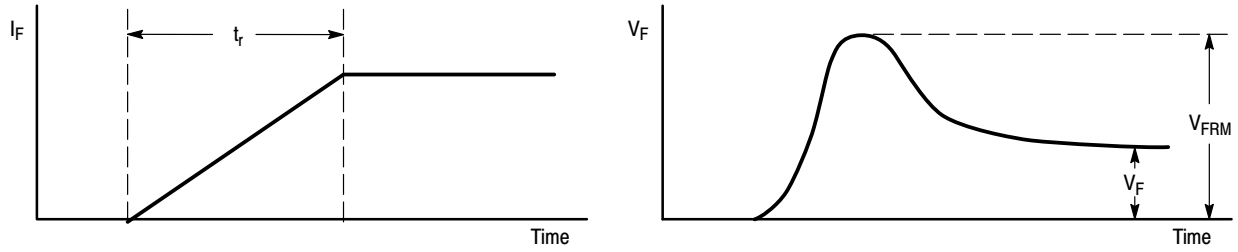


Figure 4. Peak Forward Recover Voltage Definition

TYPICAL CHARACTERISTICS

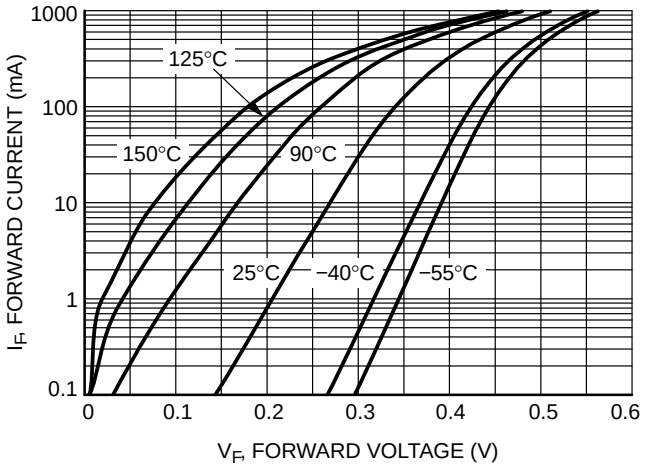


Figure 5. Forward Voltage

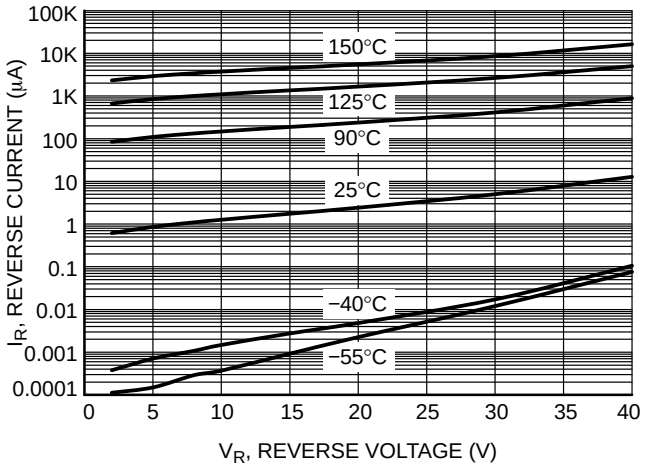


Figure 6. Leakage Current

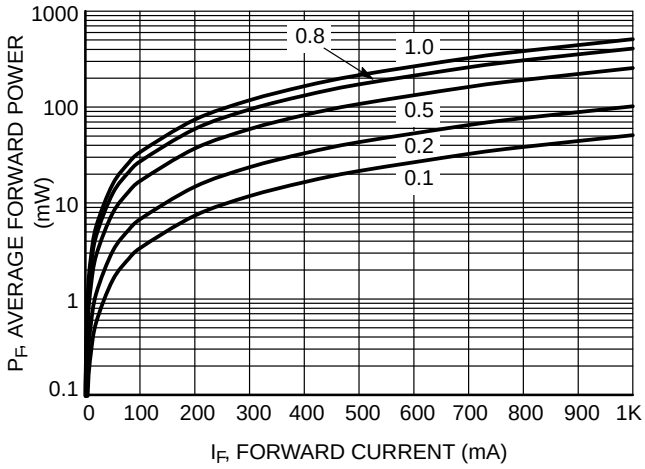


Figure 7. Average Forward Power Dissipation

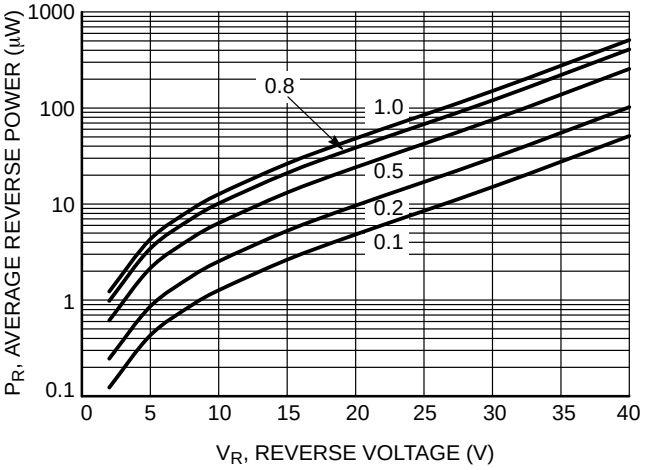


Figure 8. Average Reverse Power Dissipation

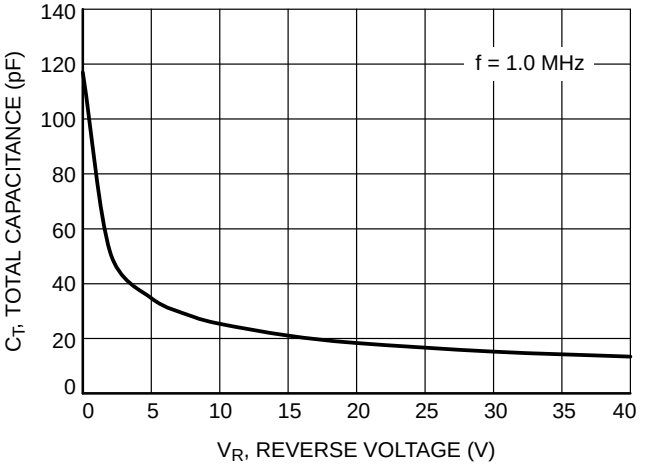


Figure 9. Total Capacitance

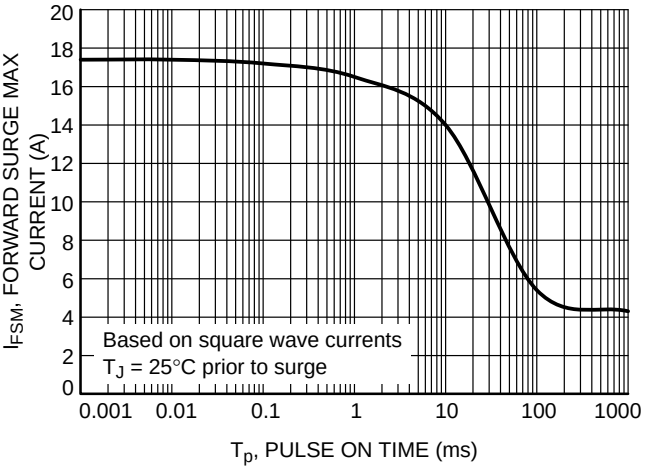
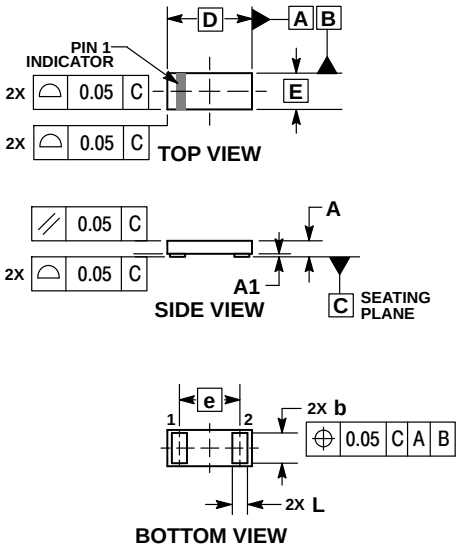


Figure 10. Forward Surge Maximum

NSR15405NXT5G

PACKAGE DIMENSIONS

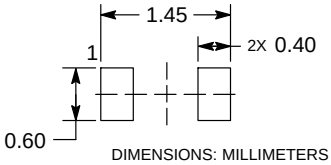
DSN2, 1.4x0.6, 1.00P (0502)
CASE 152AU
ISSUE A



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.

	MILLIMETERS	
DIM	MIN	MAX
A	0.25	0.31
A1	0.00	0.05
b	0.45	0.55
D	1.40 BSC	
E	0.60 BSC	
e	1.00 BSC	
L	0.20	0.30

RECOMMENDED MOUNTING FOOTPRINT*



DIMENSIONS: MILLIMETERS

See Application Note AND8464/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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