

# NIC9N05TS1, NIC9N05ATS1

## Protected Power MOSFET

2.6 A, 52 V, N-Channel, Logic Level,  
Clamped MOSFET w/ ESD Protection



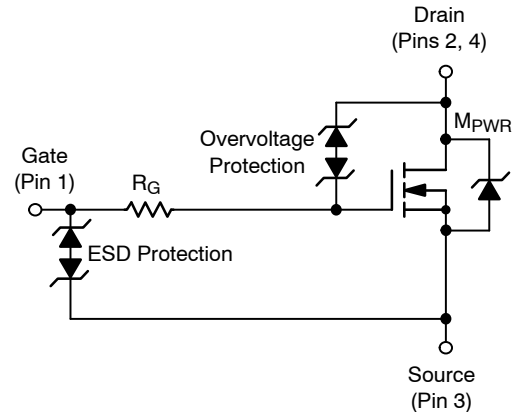
ON Semiconductor®

<http://onsemi.com>

MAXIMUM RATINGS ( $T_J = 25^\circ\text{C}$  unless otherwise specified)

Rating	Symbol	Value	Unit
Drain-to-Source Voltage Internally Clamped	$V_{DSS}$	52-59	V
Gate-to-Source Voltage - Continuous	$V_{GS}$	$\pm 15$	V
Operating and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150	$^\circ\text{C}$
Electro-Static Discharge Capability (HBM) (MM)	ESD	5000 500	V

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

# NIC9N05TS1, NIC9N05ATS1

## MOSFET ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ\text{C}$ unless otherwise specified) (Note 1)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Drain-to-Source Breakdown Voltage ( $V_{GS} = 0\text{ V}$ , $I_D = 1.0\text{ mA}$ , $T_J = 25^\circ\text{C}$ )	$V_{(BR)DSS}$	52	55	59	V
Zero Gate Voltage Drain Current ( $V_{DS} = 40\text{ V}$ , $V_{GS} = 0\text{ V}$ )	$I_{DSS}$			10	$\mu\text{A}$
Gate-Body Leakage Current ( $V_{GS} = \pm 8\text{ V}$ , $V_{DS} = 0\text{ V}$ ) ( $V_{GS} = \pm 14\text{ V}$ , $V_{DS} = 0\text{ V}$ )	$I_{GSS}$		$\pm 22$	$\pm 10$	$\mu\text{A}$
<b>ON CHARACTERISTICS</b>					
Gate Threshold Voltage ( $V_{DS} = V_{GS}$ , $I_D = 100\ \mu\text{A}$ )	$V_{GS(th)}$	1.3	1.75	2.5	V
Static Drain-to-Source On-Resistance ( $V_{GS} = 3.5\text{ V}$ , $I_D = 0.6\text{ A}$ ) ( $V_{GS} = 4.0\text{ V}$ , $I_D = 1.5\text{ A}$ ) ( $V_{GS} = 10\text{ V}$ , $I_D = 2.6\text{ A}$ )	$R_{DS(on)}$		190 165 107	380 200 125	$\text{m}\Omega$
<b>SOURCE-DRAIN DIODE CHARACTERISTICS</b>					
Forward On-Voltage	$I_S = 2.6\text{ A}$ , $V_{GS} = 0\text{ V}$ $I_S = 2.6\text{ A}$ , $V_{GS} = 0\text{ V}$ , $T_J = 125^\circ\text{C}$	$V_{SD}$		0.81 0.66	1.5 V

1. Wafers tested prior to sawing.

## ORDERING INFORMATION

Device	Shipping
NIC9N05TS1	5000 / Reel
NIC9N05ATS1	5000 / Reel

**onsemi**, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

## PUBLICATION ORDERING INFORMATION

### LITERATURE FULFILLMENT:

Email Requests to: [orderlit@onsemi.com](mailto:orderlit@onsemi.com)

**onsemi Website:** [www.onsemi.com](http://www.onsemi.com)

### TECHNICAL SUPPORT

**North American Technical Support:**

Voice Mail: 1 800-282-9855 Toll Free USA/Canada

Phone: 011 421 33 790 2910

**Europe, Middle East and Africa Technical Support:**

Phone: 00421 33 790 2910

For additional information, please contact your local Sales Representative