

Protected Power MOSFET

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



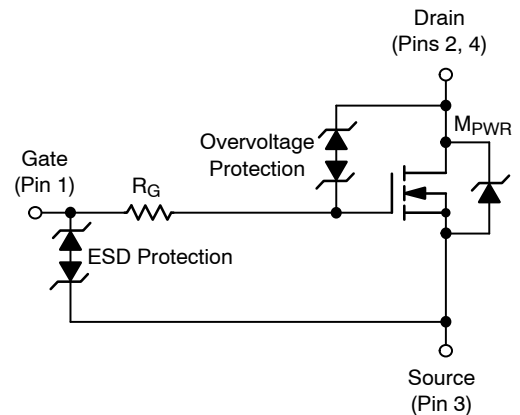
ON Semiconductor®

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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}	± 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

MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise specified) (Note 1)

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Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-to-Source Breakdown Voltage (V _{GS} = 0 V, I _D = 1.0 mA, T _J = 25°C)	V _{(BR)DSS}	52	55	59	V
Zero Gate Voltage Drain Current (V _{DS} = 40 V, V _{GS} = 0 V)	I _{DSS}			10	μA
Gate-Body Leakage Current (V _{GS} = ±8 V, V _{DS} = 0 V) (V _{GS} = ±14 V, V _{DS} = 0 V)	I _{GSS}		±22	±10	μA

ON CHARACTERISTICS

Gate Threshold Voltage (V _{DS} = V _{GS} , I _D = 100 μA)	V _{GS(th)}	1.3	1.75	2.5	V
Static Drain-to-Source On-Resistance (V _{GS} = 3.5 V, I _D = 0.6 A) (V _{GS} = 4.0 V, I _D = 1.5 A) (V _{GS} = 10 V, I _D = 2.6 A)	R _{DS(on)}		190 165 107	380 200 125	mΩ

SOURCE-DRAIN DIODE CHARACTERISTICS

Forward On-Voltage	I _S = 2.6 A, V _{GS} = 0 V I _S = 2.6 A, V _{GS} = 0 V, T _J = 125°C	V _{SD}		0.81 0.66	1.5	V
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1. Wafers tested prior to sawing.

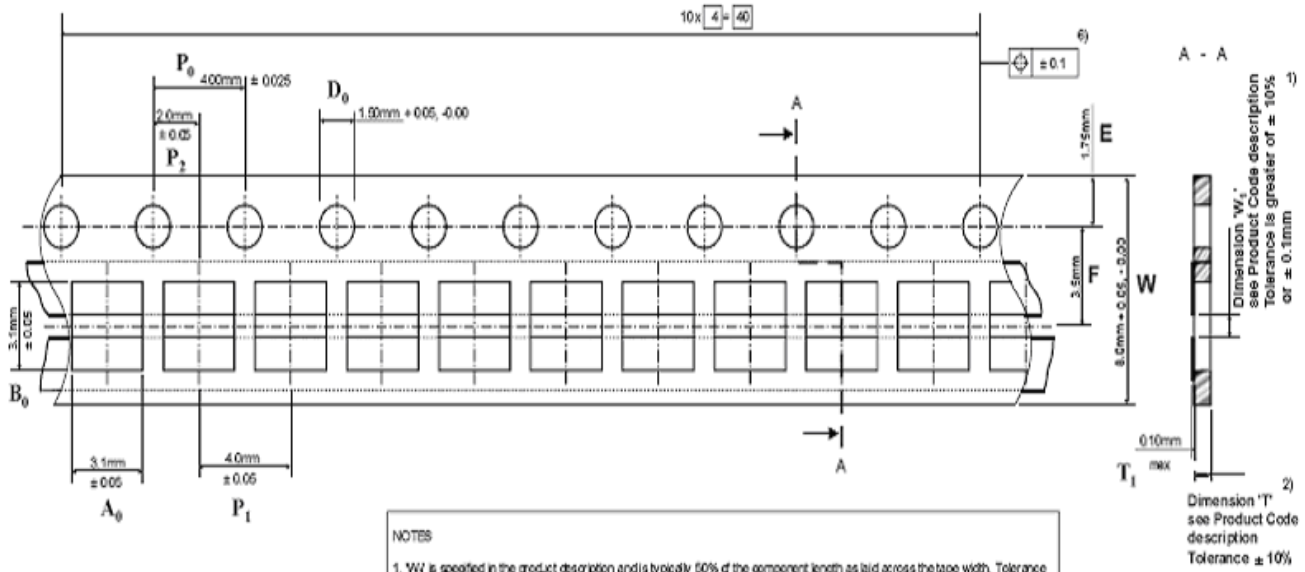
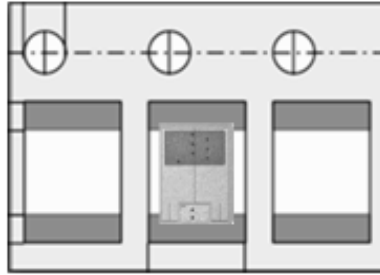
ORDERING INFORMATION

Device	Shipping
NIC9N05TS1	5000 / Reel

NIC9N05TS1

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Layout view of the die in reel
Orientation A



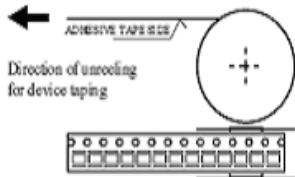
- NOTES
1. W_1 is specified in the product description and is typically 50% of the component length as laid across the tape width. Tolerance of W_1 is $\pm 0.1\text{mm}$ or $\pm 10\%$, whichever is the greater.
 2. T is specified in the product description and is always greater than the thickness of the component. Tolerance of T is $\pm 10\%$.
 3. Total thickness of the tape is $T + T_1$.
 4. Main tape body volume conductivity 10^4 to 10^6 ohms per square. Material modified HIPS or ABS.
 5. Adhesive tape surface resistivity 10^{12} ohms per square. Material Nibo SW110 unless otherwise specified.
 6. Cumulative tolerance for 40 consecutive pitches is $\pm 0.1\text{mm}$.

Product code description

S184T- W_1

T = .33, .45, .6, .7, or .85 (mm), as ordered
 $W_1 = 0.7$ to 1.2 (mm) in increments of 0.1 , as ordered

For example
 S184-7-0.8
 Type S184, T=0.7mm, $W_1=0.7\text{mm}$.




Change: TC0008 Drawing errors corrected - no change to dimensions or tolerances

Property data Company confidential All rights reserved	Drawing according to ISO 8015 General tolerances $\pm 0.05\text{mm}$		Scale 10:1
Date: 06/02/05 Name: Ken Ball			S184 type
B 07/06/05 K Ball A 06/07/05 K Ball			ADHESIVE BACKED PUNCHED PLASTIC CARRIER TAPE
Rev / Date / Name			TEMPO ELECTRONICS www.surftape.com
SURFTAPE®			

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