5HN01SS

MOSFET, Silicon, N-Channel

Ultrahigh−Speed Switching Applications

Features

- Low ON−resistance
- Ultrahigh−speed Switching
- 4 V Drive
- These Devices are Pb−Free and are RoHS Compliant

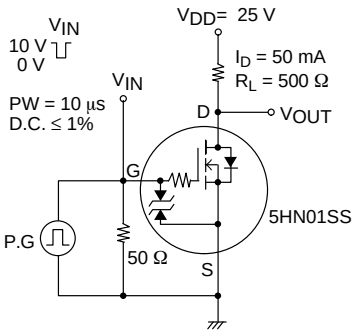

Figure 1. Switching Time Test Circuit

NOTE: Since the 5HN01SS is designed for high−speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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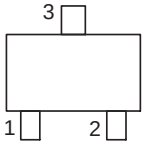
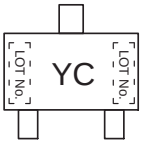


1 : Gate
2 : Source
3 : Drain

MARKING DIAGRAM



YC = Specific Device Code

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 6 of this data sheet.

SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain−to−Source Voltage	V_{DSS}		50	V
Gate−to−Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		0.1	A
Drain Current (Pulse)	I_{DP}	PW ≤ 10 μs, duty cycle ≤ 1%	0.4	A
Allowable Power Dissipation	P_D		0.15	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

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.

ELECTRICAL CHARACTERISTICS at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			Min	Typ	Max	
Drain−to−Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = 1 mA, V_{GS} = 0	50			V
Zero−Gate Voltage Drain Current	I_{DSS}	V_{DS} = 50 V, V_{GS} = 0			1	μA
Gate−to−Sourse Leakage Current	I_{GSS}	V_{GS} = ±16 V, V_{DS} = 0			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS} = 10 V, I_D = −100 μA	1		2.4	V
Forward Transfer Admittance	|yfs|	V_{DS} = 10 V, I_D = 50 mA	85	120		mS
Static Drain−to−Source On−State Resistance	R_{DS}(on)1	I_D = 50 mA, V_{GS} = 10 V		5.8	7.5	Ω
	R_{DS}(on)2	I_D = 30 mA, V_{GS} = 4 V		7.5	10.5	Ω
Input Capacitance	Ciss	V_{DS} = 10 V, f = 1 MHz		6.2		pF
Output Capacitance	Coss	V_{DS} = 10 V, f = 1 MHz		4.4		pF
Reverse Transfer Capacitance	Crss	V_{DS} = 10 V, f = 1 MHz		1.5		pF
Turn−ON Delay Time	t_d(on)	See specified Test Circuit		10		ns
Rise Time	t_r	See specified Test Circuit		11		ns
Turn−OFF Delay Time	t_d(off)	See specified Test Circuit		105		ns
Fall Time	t_f	See specified Test Circuit		75		ns
Total Gate Charge	Qg	V_{DS} = 10 V, V_{GS} = 10 V, I_D = 100 mA		1.40		nC
Gate Source Charge	Qgs	V_{DS} = 10 V, V_{GS} = 10 V, I_D = 100 mA		0.21		nC
Gate Drain Charge	Qgd	V_{DS} = 10 V, V_{GS} = 10 V, I_D = 100 mA		0.34		nC
Diode Forward Voltage	VSD	I_S = 100 mA, V_{GS} = 0		0.85	1.2	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.

TYPICAL CHARACTERISTICS

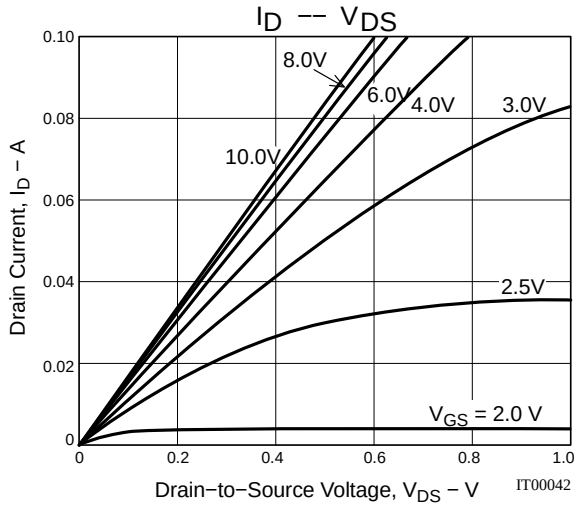


Figure 2.

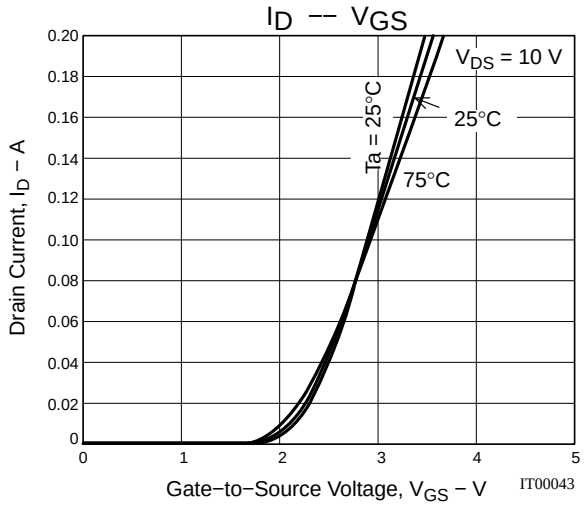
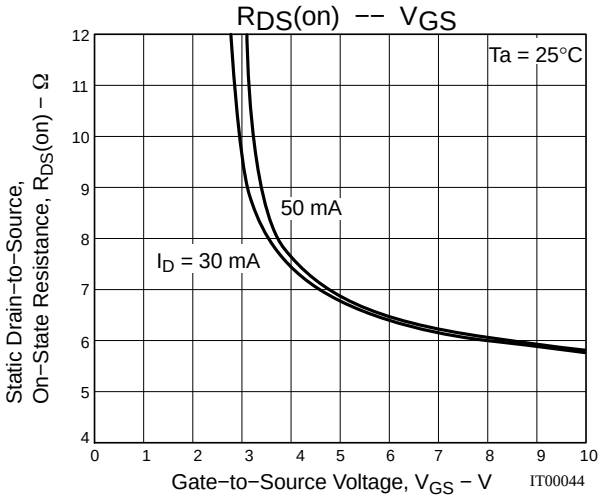


Figure 3.



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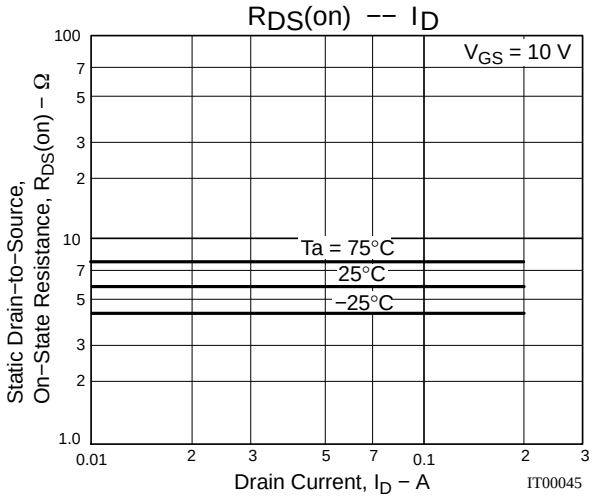
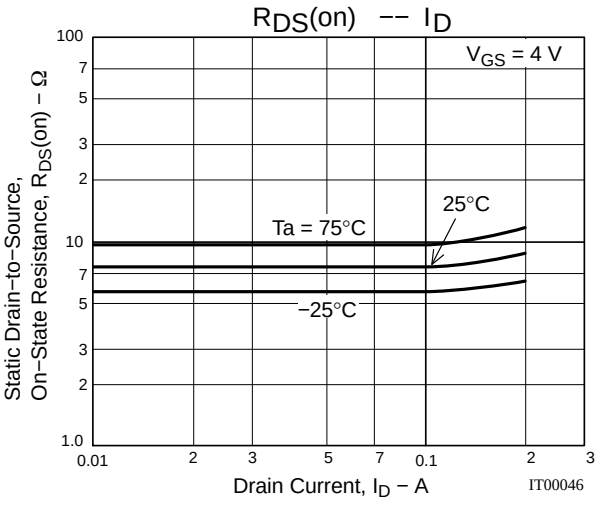


Figure 5.



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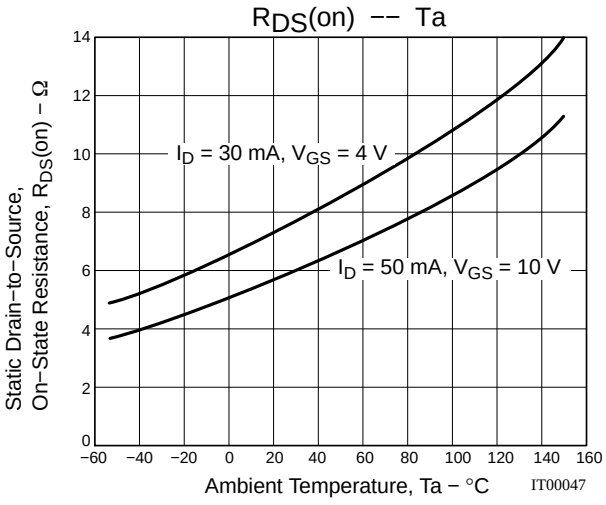
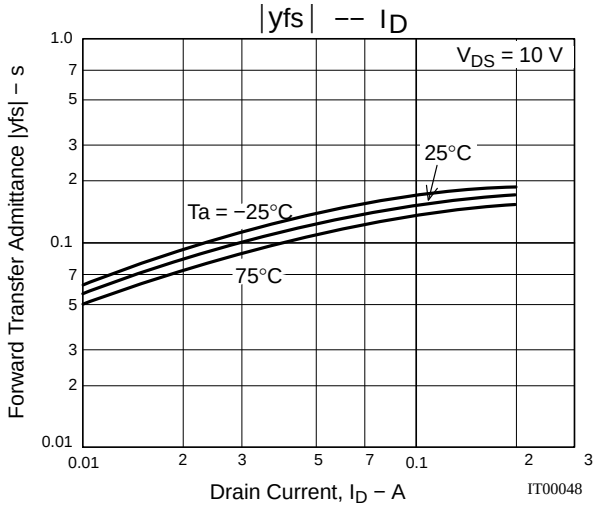


Figure 7.

TYPICAL CHARACTERISTICS



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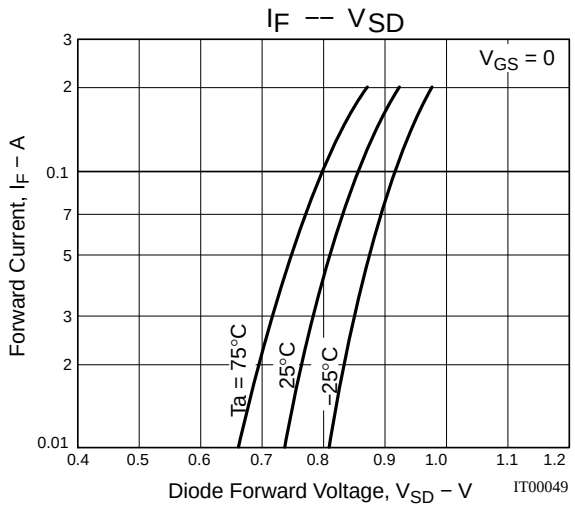


Figure 9.

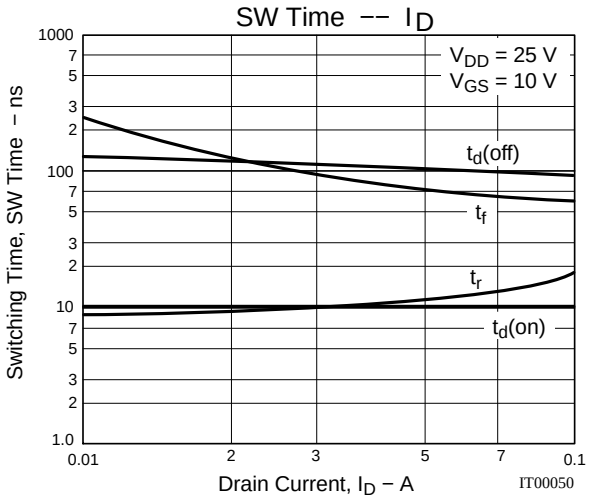
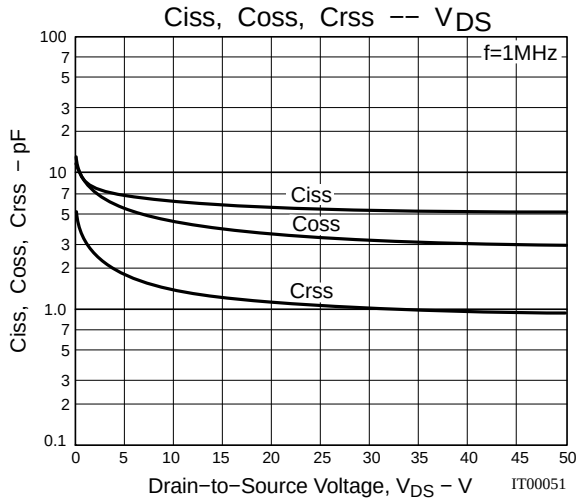


Figure 10.



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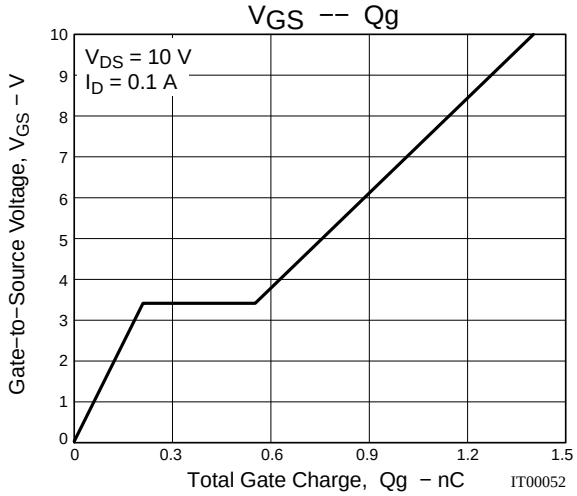

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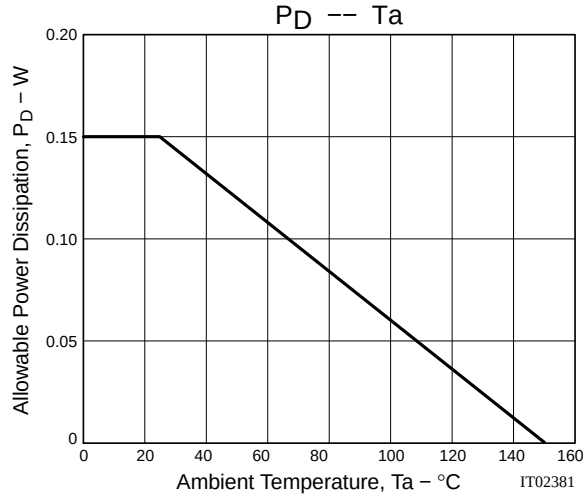
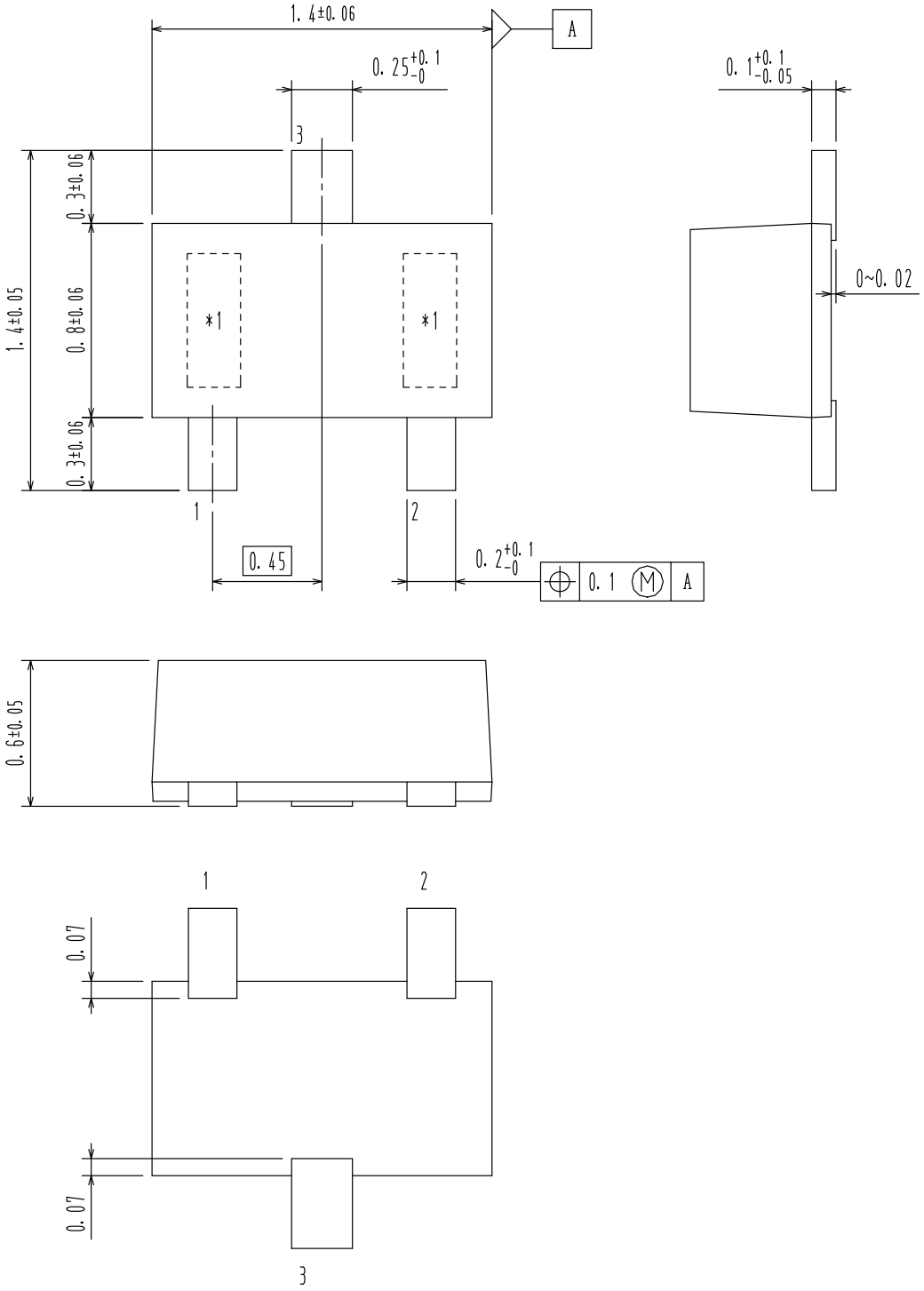


Figure 13.

PACKAGE DIMENSIONS

SOT−623 / SSFP
CASE 631AC
ISSUE O



ORDERING INFORMATION

Device	Marking	Package	Shipping†
5HN01SS−TL−E / 5HN01SS−TL−H	YC	SOT−623 / SSFP (Pb−Free / Halogen Free)	8,000 / 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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910

ON Semiconductor Website: **www.onsemi.com**

Order Literature: http://www.onsemi.com/orderlit

For additional information, please contact your local Sales Representative