



TN50H05NTE

N-Channel Enhancement Mode Power MOSFET

Product Summary

- $V_{DS} = 500V, I_D = 5A$
- $R_{DS(on)} < 1.5\Omega @ V_{GS} = 10V$

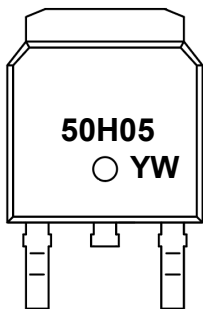
Features

- Advanced Planar Technology
- 100% Avalanche Tested
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

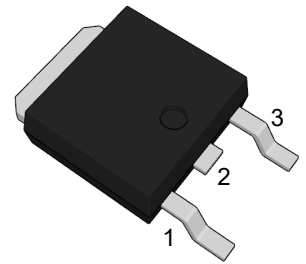
Application

- Load Switch
- PWM Application
- Power management

Marking Code



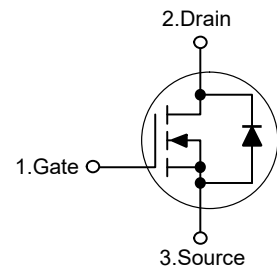
TO-252



(Top View)

Pin	Description
1	Gate
2	Drain
3	Source

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C case temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	500	V
Gate-Source Voltage	V_{GS}	± 30	V
Drain Current-Continuous	I_D	5	A
Drain Current-Pulsed ^{Note1}	I_{DM}	20	A
Single Pulse Avalanche Energy ^{Note2}	E_{AS}	5	mJ
Maximum Power Dissipation	P_D	38	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.59	°C/W
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Electrical Characteristics

(T_J=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	500	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =500V, V _{GS} =0V	--	--	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±30V, V _{DS} =0V	--	--	±100	nA
Gate Threshold Voltage ^{Note3}	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2	3	4	V
Drain-Source On-Resistance ^{Note3}	R _{DS(on)}	V _{GS} =10V, I _D =2.5A	--	1.2	1.5	Ω
Forward Transconductance ^{Note3}	g _{FS}	V _{DS} =5V, I _D =1A	--	3.6	--	S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz	--	495	--	pF
Output Capacitance	C _{oss}		--	63	--	pF
Reverse Transfer Capacitance	C _{rss}		--	10	--	pF
Gate Resistance	R _g	V _{DS} =0V, V _{GS} =0V, f=1MHz	--	4.5	--	Ω
Total Gate Charge	Q _g	V _{DS} =400V, I _D =5A, V _{GS} =10V	--	16.5	--	nC
Gate-Source Charge	Q _{gs}		--	3.8	--	nC
Gate-Drain Charge	Q _{gd}		--	5.6	--	nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =250V, I _D =5A V _{GS} =10V, R _{GEN} =10Ω	--	14	--	nS
Turn-on Rise Time	t _r		--	18	--	nS
Turn-off Delay Time	t _{d(off)}		--	32	--	nS
Turn-off Fall Time	t _f		--	11	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note3}	V _{SD}	V _{GS} =0V, I _S =5A	--	--	1.2	V
Diode Forward Current	I _S		--	--	5	A

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. EAS Condition: T_J=25°C, V_{DD}=100V, V_G=10V, L=10mH, R_G=25Ω, I_{AS}=1A.

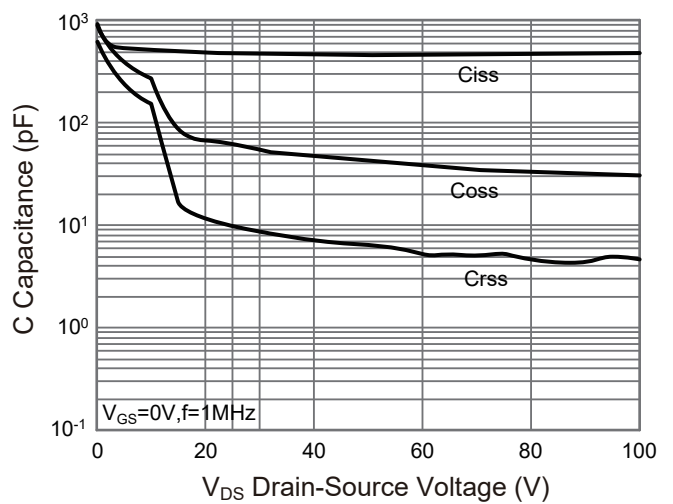
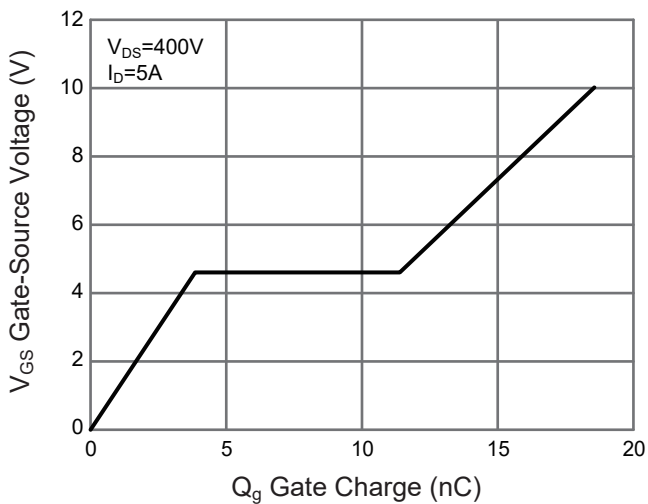
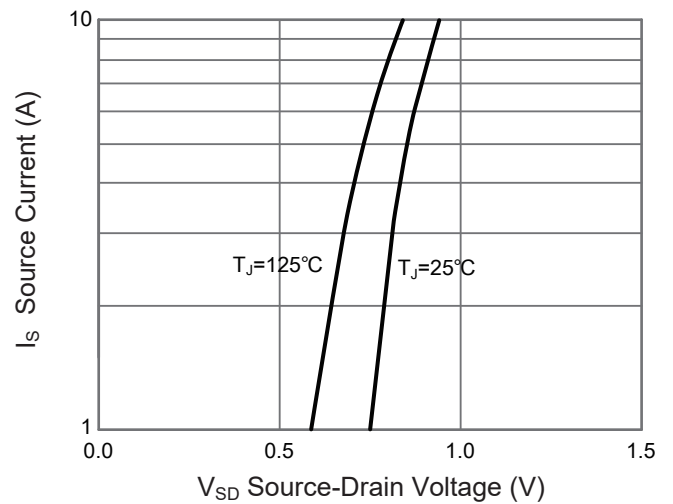
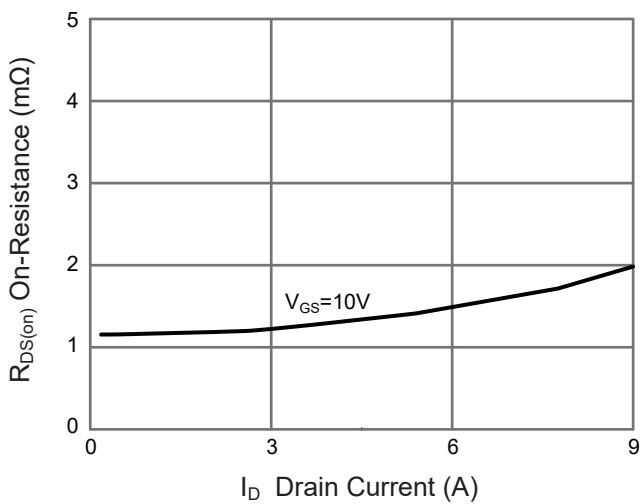
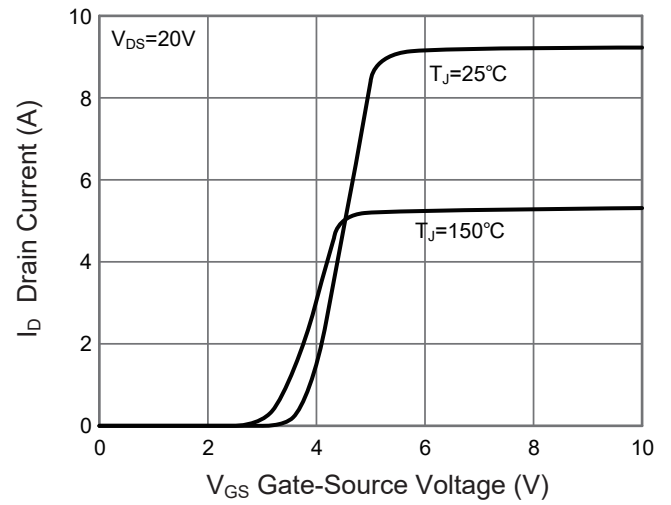
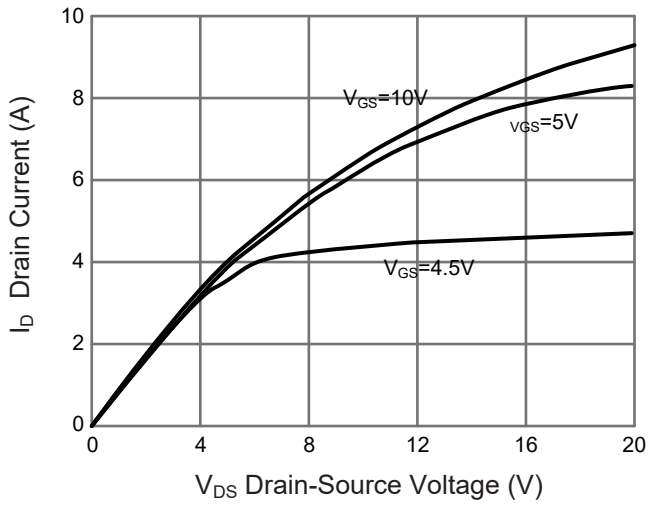
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.



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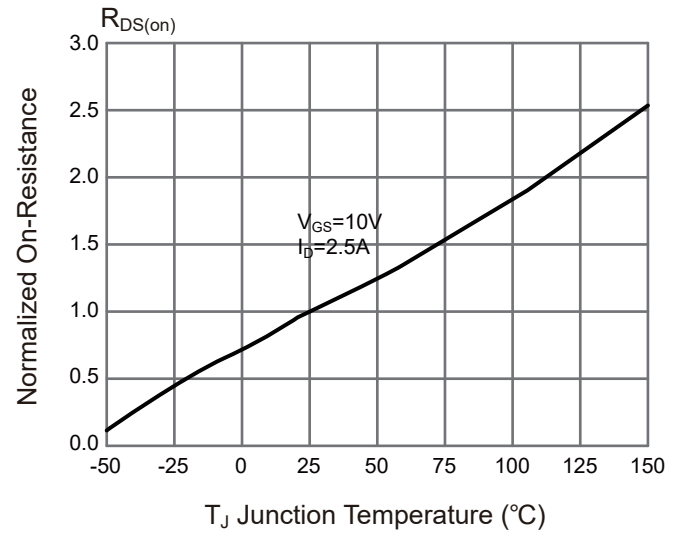
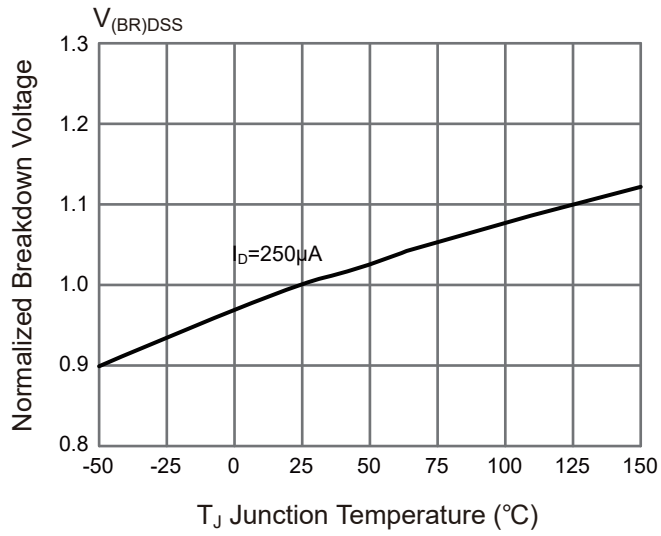
Typical Characteristic Curves





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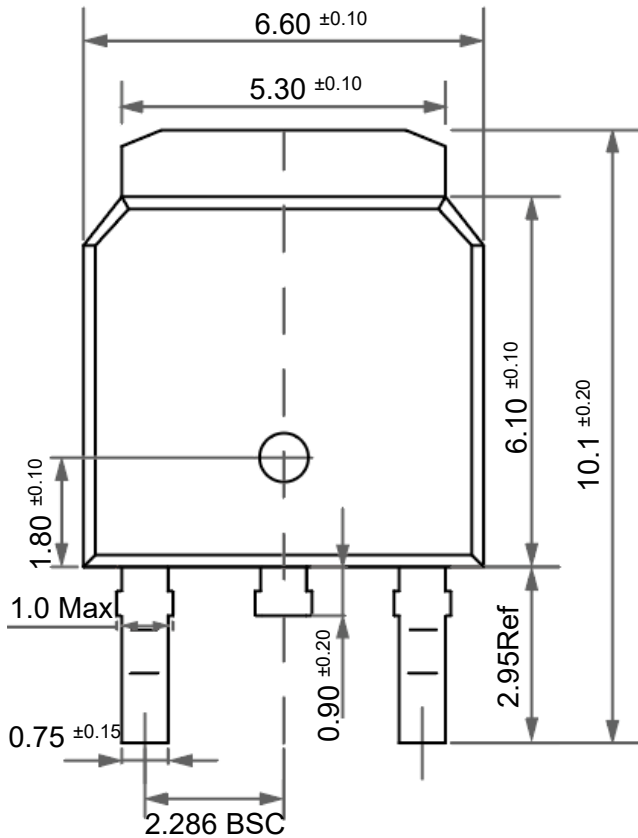
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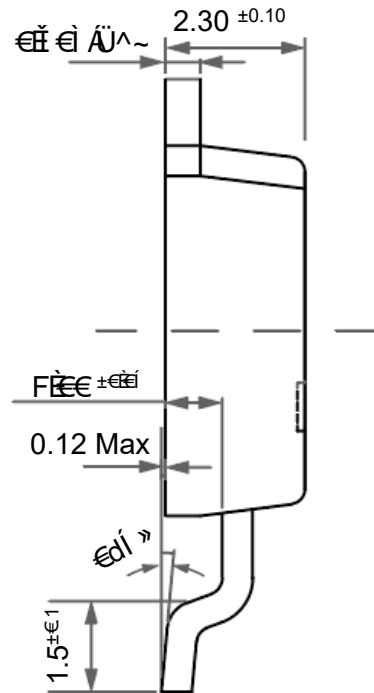
Package Outline

TO-252

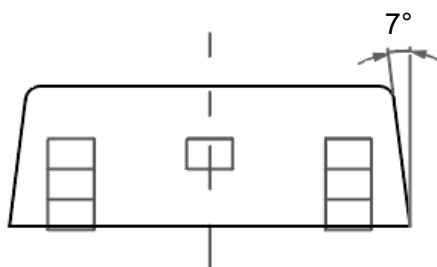
Dimensions in mm



Front View



Side View



Bottom View

Ordering Information


Device	Package	Shipping
TN50H05NTE	TO-252	2,500PCS/Reel&13inches



Contact Information

TANI website: <http://www.tanisemi.com> Email: tani@tanisemi.com

For additional information, please contact your local Sales Representative.

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