



N-Channel 30-V (D-S) MOSFET

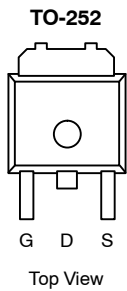
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A) ^a
30	0.016 @ $V_{GS} = 10$ V	15
	0.024 @ $V_{GS} = 4.5$ V	12

FEATURES

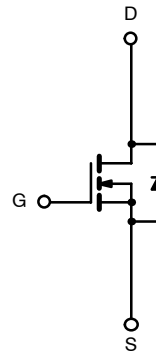
- TrenchFET® Power MOSFET
- PWM Optimized
- 100% R_g Tested

APPLICATIONS

- High-Side DC/DC
 - Desktop
 - Server
- DDR DC/DC Converter



Drain Connected to Tab



N-Channel MOSFET

Ordering Information: SUD50N03-16P—E3 (Lead Free)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ^a	$T_C = 25^\circ\text{C}$	I_D	37	A
	$T_A = 25^\circ\text{C}$		15	
	$T_A = 100^\circ\text{C}$		10.6	
Pulsed Drain Current		I_{DM}	40	
Continuous Source Current (Diode Conduction) ^a		I_S	5	
Avalanche Current	L = 0.1 mH	I_{AS}	25	mJ
Single Pulse Avalanche Energy		E_{AS}	31.25	
Maximum Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	40.8	W
	$T_A = 25^\circ\text{C}$		6.5 ^a	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 175	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	R_{thJA}	18	23	$^\circ\text{C/W}$
	Steady State		40	50	
Maximum Junction-to-Case		R_{thJC}	3.0	3.7	

Notes

a. Surface Mounted on FR4 Board, $t \leq 10$ sec.

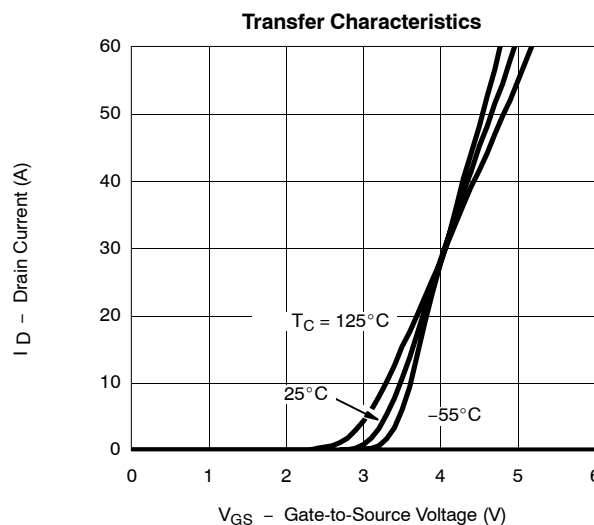
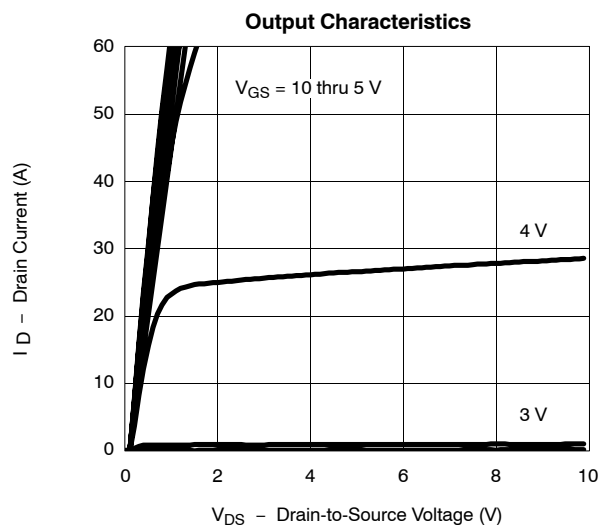
SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 250 μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	1.0		3.0	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V			1	μA
		V _{DS} = 30 V, V _{GS} = 0 V, T _J = 125°C			50	
On-State Drain Current ^b	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 10 V	40			A
Drain-Source On-State Resistance ^b	r _{DS(on)}	V _{GS} = 10 V, I _D = 15 A		0.0128	0.016	Ω
		V _{GS} = 10 V, I _D = 20 A, T _J = 125°C			0.025	
		V _{GS} = 4.5 V, I _D = 10 A		0.019	0.024	
Forward Transconductance ^b	g _{fs}	V _{DS} = 15 V, I _D = 20 A	10			S
Dynamic^a						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		1150		pF
Output Capacitance	C _{oss}			215		
Reverse Transfer Capacitance	C _{rss}			70		
Total Gate Charge ^c	Q _g	V _{DS} = 15 V, V _{GS} = 4.5 V, I _D = 50 A		8.5	13	nC
Gate-Source Charge ^c	Q _{gs}			5		
Gate-Drain Charge ^c	Q _{gd}			2.5		
Gate Resistance	R _g			2.7	5.5	
Turn-On Delay Time ^c	t _{d(on)}	V _{DD} = 15 V, R _L = 0.3 Ω I _D ≅ 50 A, V _{GEN} = 10 V, R _g = 2.5 Ω		7	15	ns
Rise Time ^c	t _r			20	30	
Turn-Off Delay Time ^c	t _{d(off)}			25	40	
Fall Time ^c	t _f			12	20	
Source-Drain Diode Ratings and Characteristic (T_C = 25°C)						
Pulsed Current	I _{SM}				40	A
Diode Forward Voltage ^b	V _{SD}	I _F = 20 A, V _{GS} = 0 V		1.0	1.5	V
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 40 A, di/dt = 100 A/μs		25	70	ns

Notes

- a. Guaranteed by design, not subject to production testing.
- b. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- c. Independent of operating temperature.

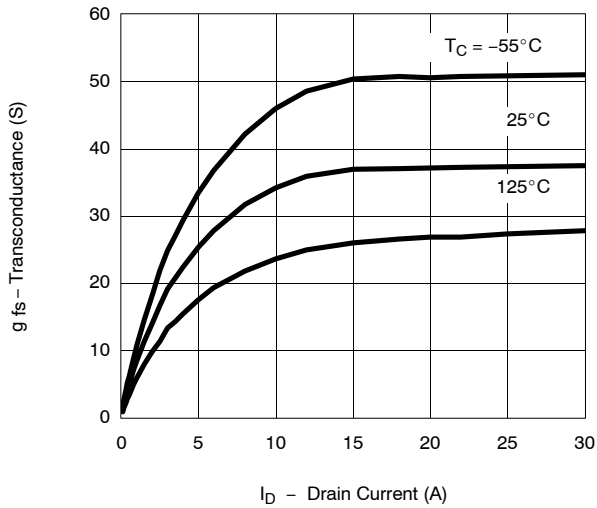
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



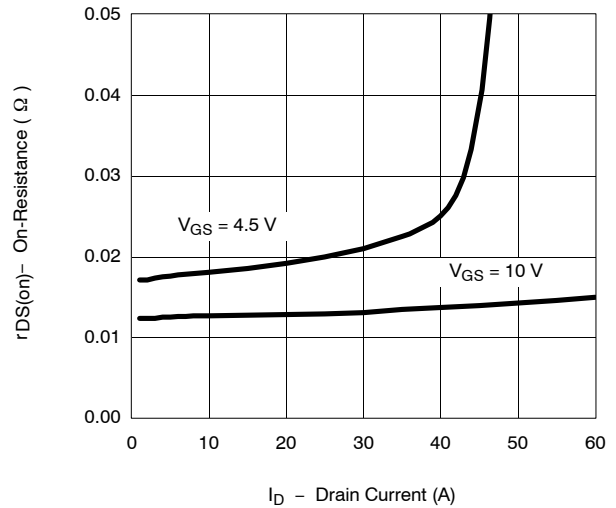


TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

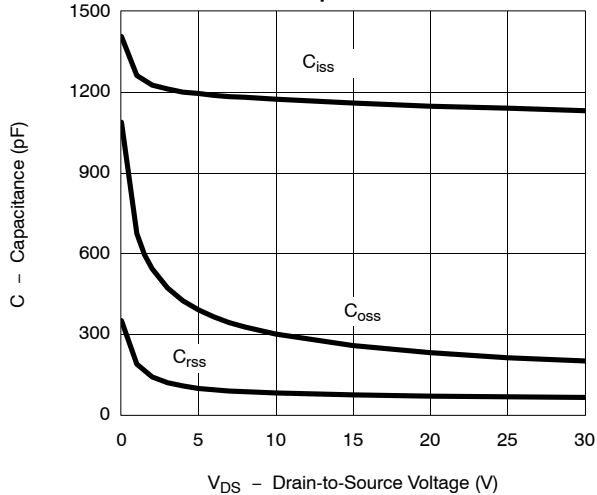
Transconductance



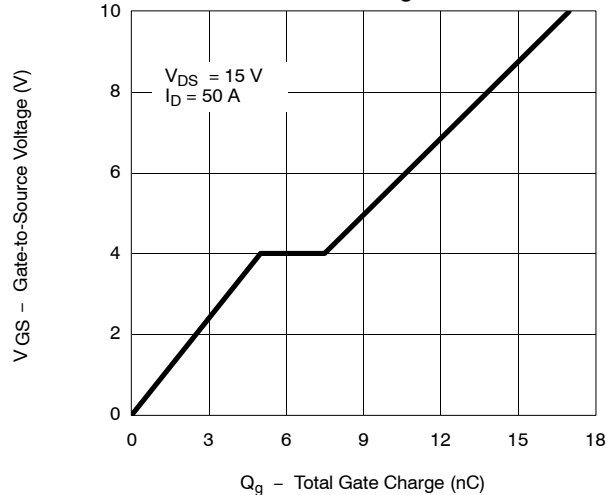
On-Resistance vs. Drain Current



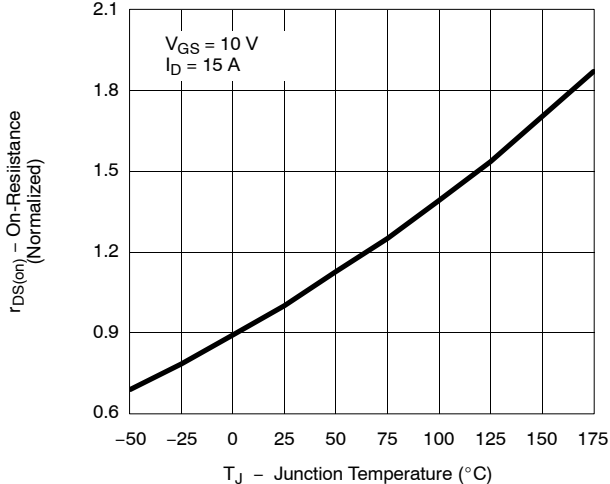
Capacitance



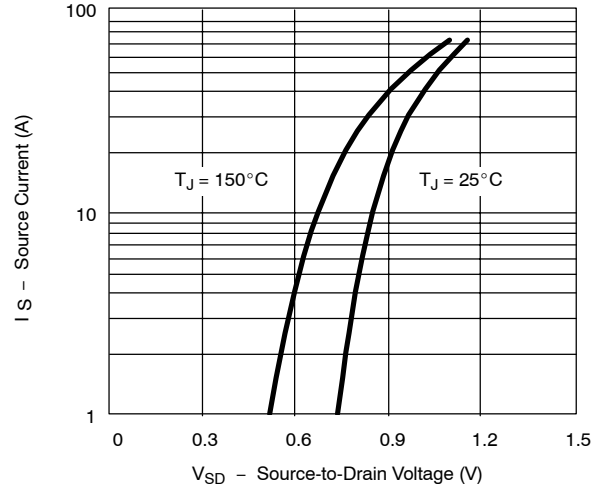
Gate Charge



On-Resistance vs. Junction Temperature

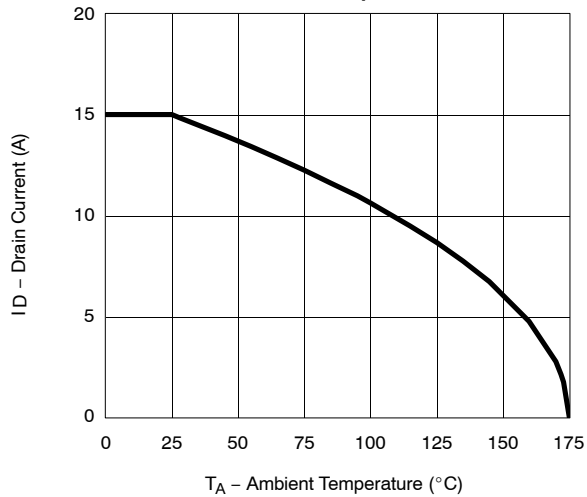


Source-Drain Diode Forward Voltage

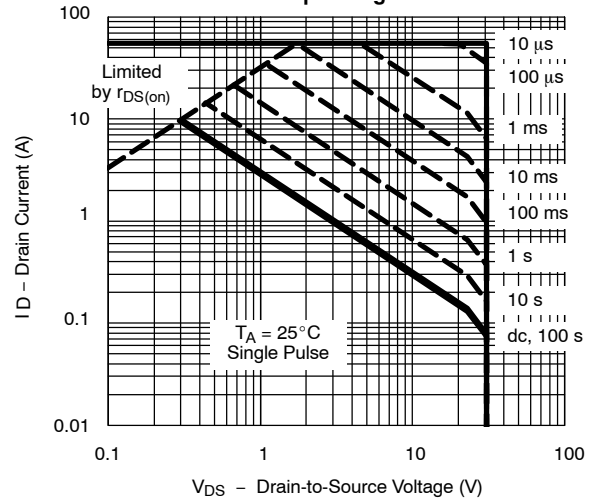


THERMAL RATINGS

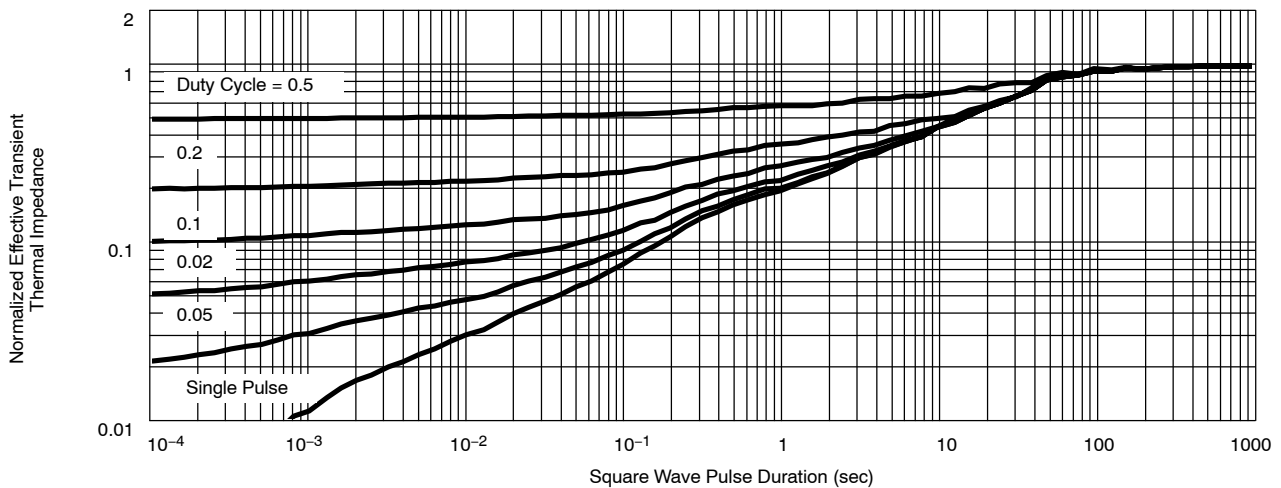
Maximum Drain Current vs. Ambient Temperature



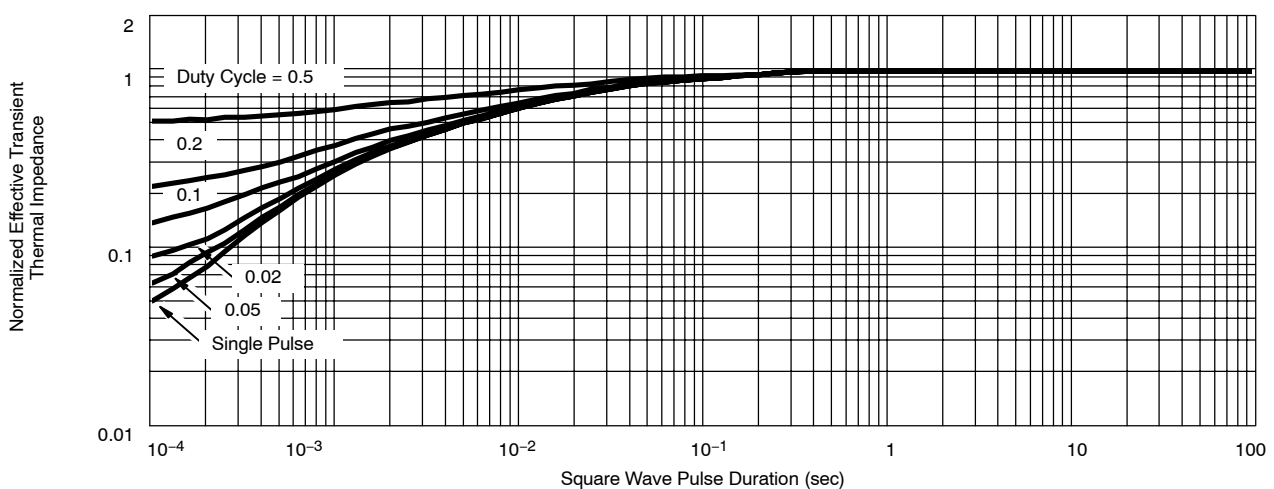
Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case





Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.

单击下面可查看定价，库存，交付和生命周期等信息

[>>Vishay\(威世\)](#)