www.DataSheet4U.com

N-Channel 16-V (D-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
16	0.0033 @ V_{GS} = 4.5 V	25
	0.0055 @ V_{GS} = 2.5 V	20

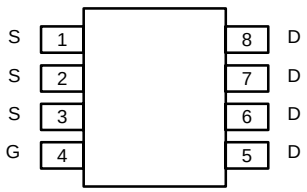
FEATURES

- TrenchFET® Power MOSFETS: 2.5-V Rated
- Low 3.3-mΩ $r_{DS(on)}$
- Low Gate Resistance
- 100% R_G Tested

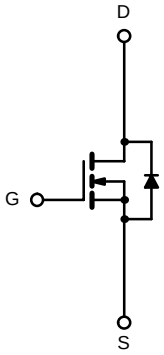
APPLICATIONS

- Synchronous Rectification
- Low Output Voltage Synchronous Rectification

SO-8



Top View



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V_{DS}	16		V
Gate-Source Voltage		V_{GS}	±8		
Continuous Drain Current (T_J = 150°C)[a]	T_A = 25°C	I_D	25	17	A
	T_A = 70°C		20	13	
Pulsed Drain Current (10 μs Pulse Width)		I_{DM}	60		
Continuous Source Current (Diode Conduction)[a]		I_S	2.9	1.3	
Maximum Power Dissipation[a]	T_A = 25°C	P_D	3.5	1.6	W
	T_A = 70°C		2.2	1	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient[a]	t ≤ 10 sec	R_{thJA}	29	35	°C/W
	Steady State		67	80	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	13	16	

Notes
a. Surface Mounted on 1" x 1" FR4 Board.

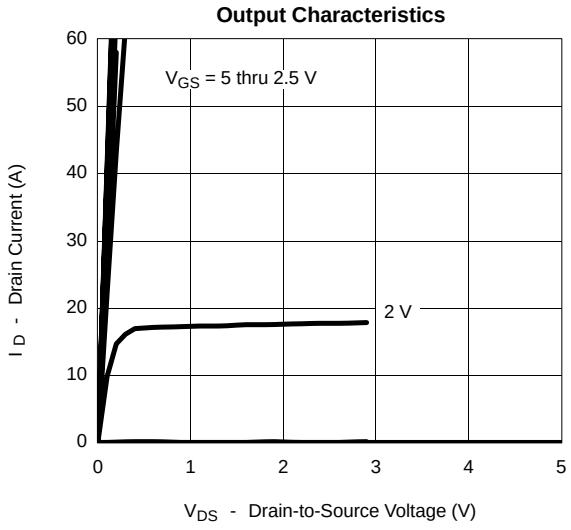
Downloaded from Elcodis.com electronic components distributor

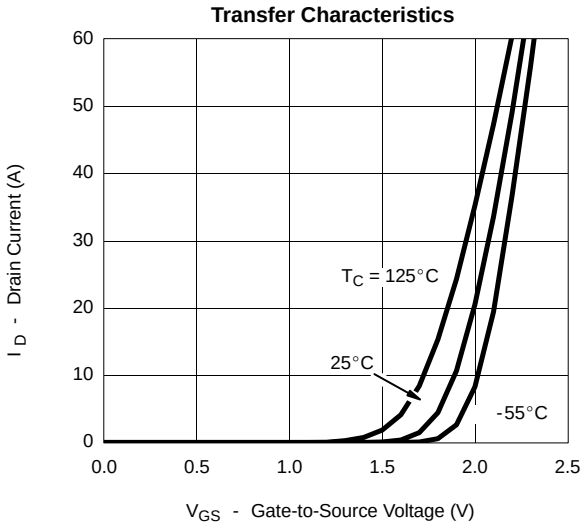
SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	0.6			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 12.8 V, V_{GS} = 0 V			1	μA
		V_{DS} = 12.8 V, V_{GS} = 0 V, T_J = 55°C			5	
On-State Drain Current[a]	$I_{D(on)}$	V_{DS} ≥ 5 V, V_{GS} = 4.5 V	30			A
Drain-Source On-State Resistance[a]	$r_{DS(on)}$	V_{GS} = 4.5 V, I_D = 25 A		0.0027	0.0033	Ω
		V_{GS} = 2.5 V, I_D = 20 A		0.0045	0.0055	
Forward Transconductance[a]	g_{fs}	V_{DS} = 6 V, I_D = 25 A		140		S
Diode Forward Voltage[a]	V_{SD}	I_S = 2.9 A, V_{GS} = 0 V		0.75	1.1	V
Dynamic[b]						
Total Gate Charge	Q_g	V_{DS} = 6 V, V_{GS} = 4.5 V, I_D = 25 A		48	70	nC
Gate-Source Charge	Q_{gs}			11.8		
Gate-Drain Charge	Q_{gd}			8.9		
Gate Resistance	R_g		0.5	1.3	2.2	Ω
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 6 V, R_L = 6 Ω I_D ≅ 1 A, V_{GEN} = 4.5 V, R_G = 6 Ω		42	60	ns
Rise Time	t_r			38	60	
Turn-Off Delay Time	$t_{d(off)}$			120	180	
Fall Time	t_f			50	75	
Source-Drain Reverse Recovery Time	t_{rr}	I_F = 2.9 A, di/dt = 100 A/μs		80	120	

Notes
a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



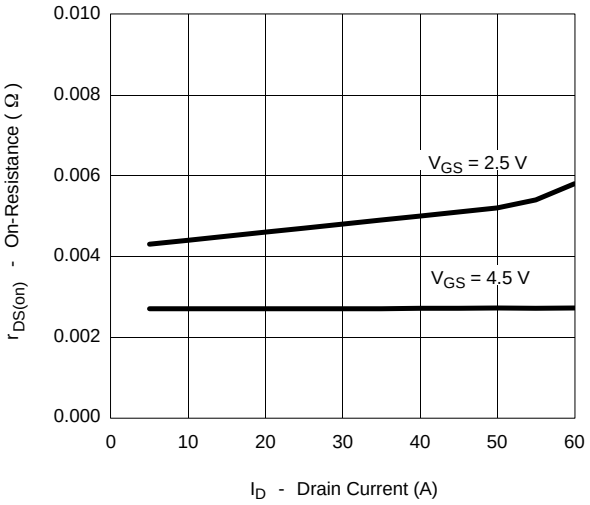


Document Number: 71439
S-03662—Rev. B, 14-Apr-03

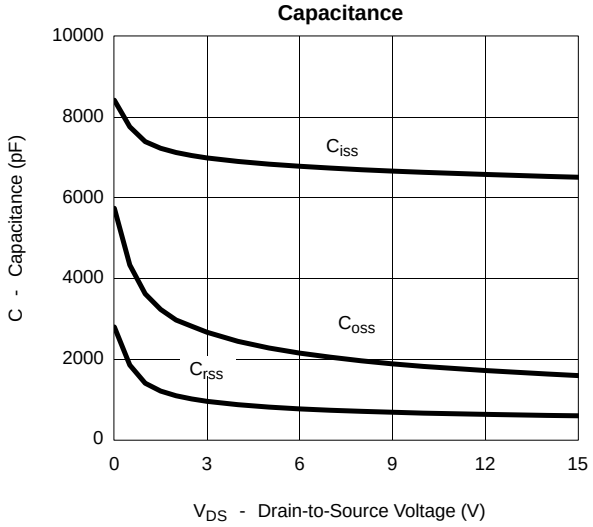
Downloaded from Elcodis.com electronic components distributor

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

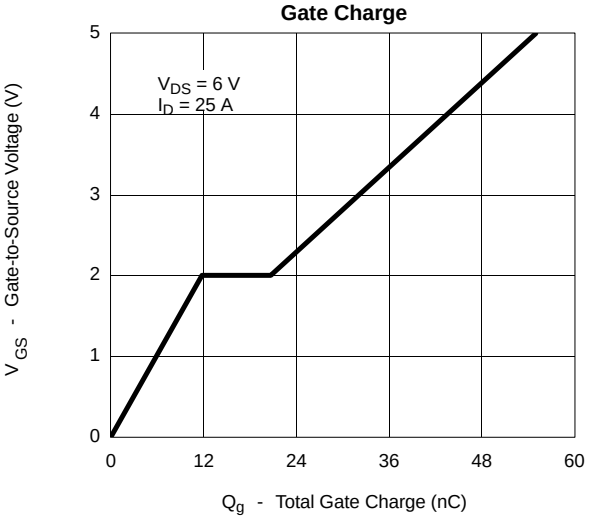
On-Resistance vs. Drain Current



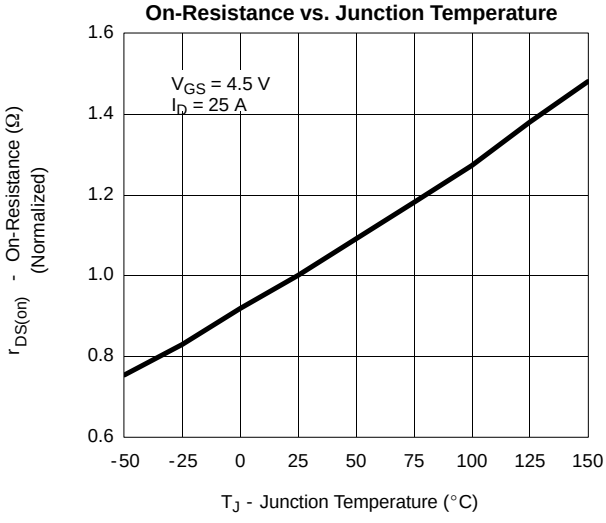
Capacitance



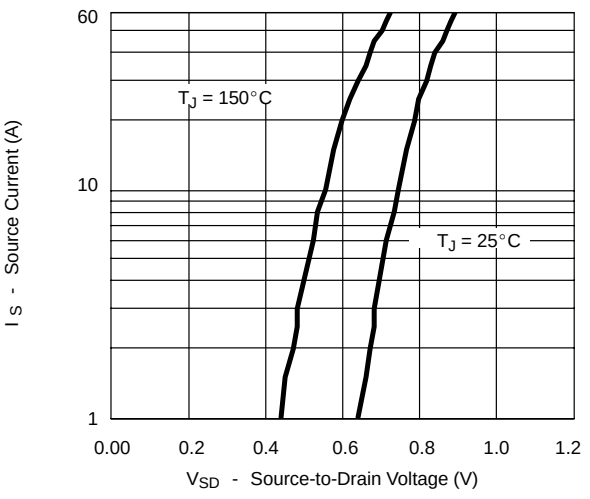
Gate Charge



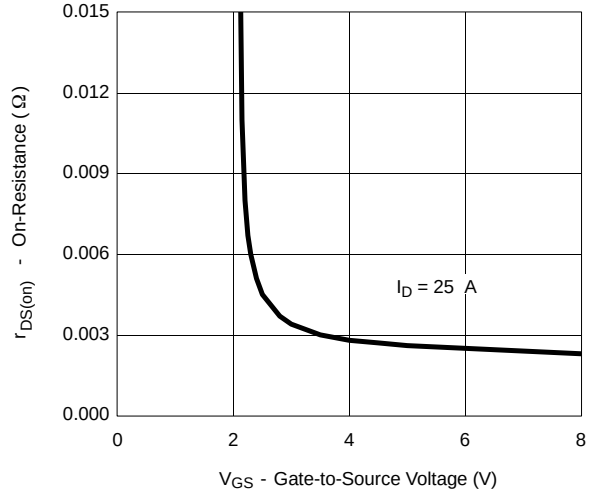
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



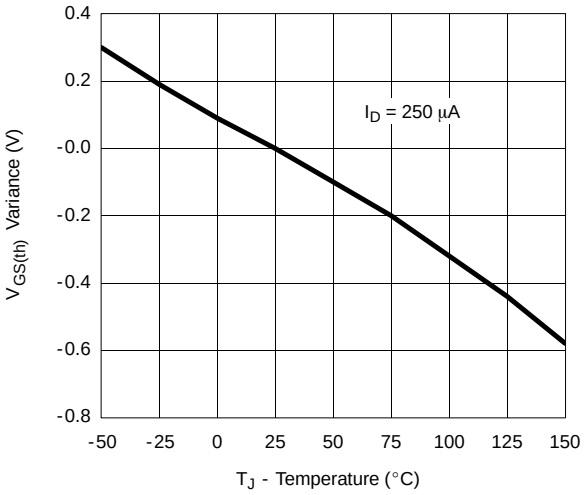
On-Resistance vs. Gate-to-Source Voltage



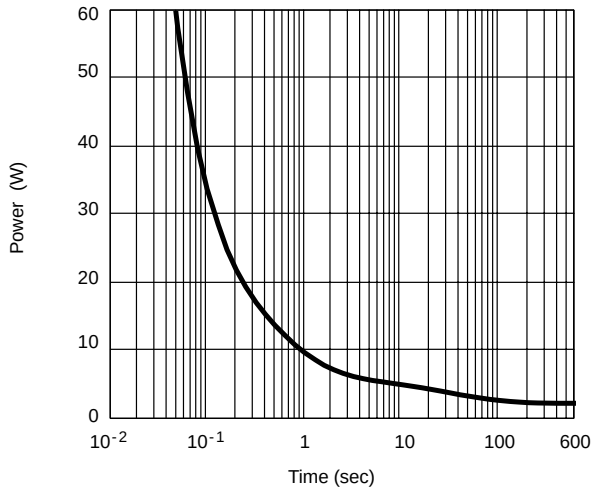
Downloaded from Elcodis.com electronic components distributor

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

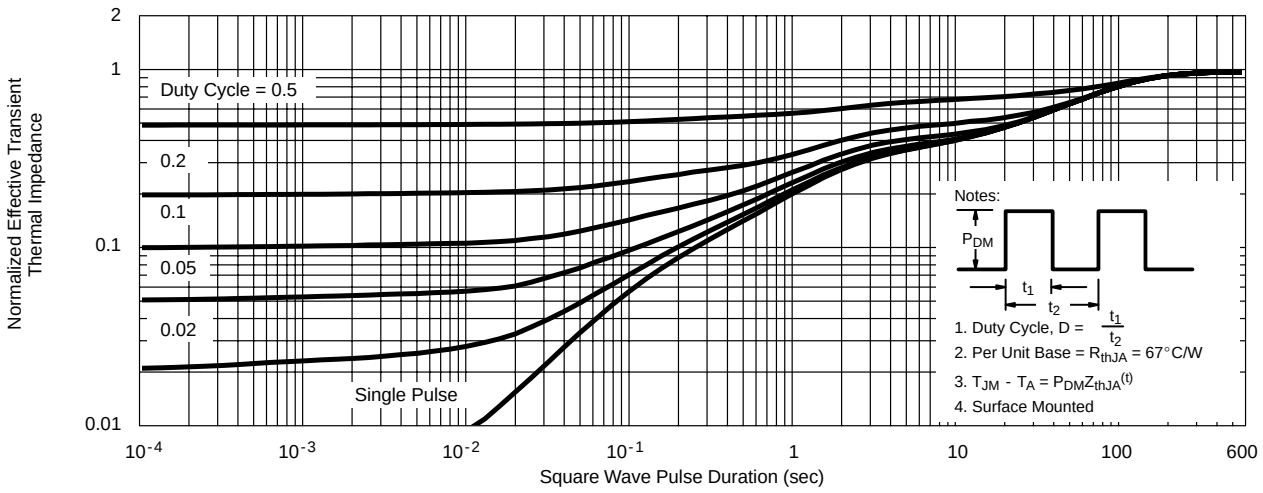
Threshold Voltage



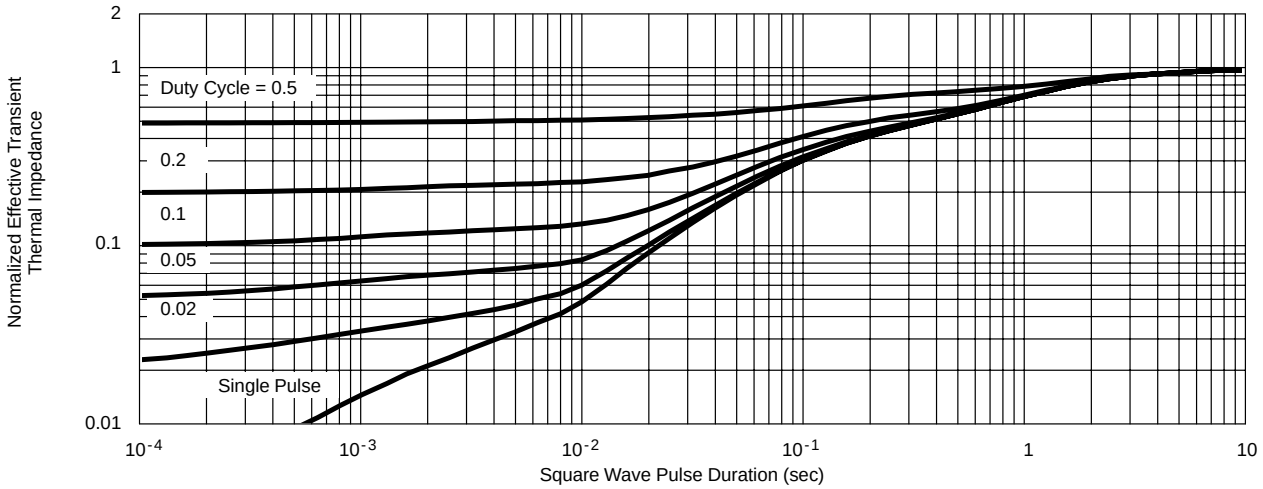
Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot



Downloaded from Elcodis.com electronic components distributor

Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.

Downloaded from Elcodis.com electronic components distributor