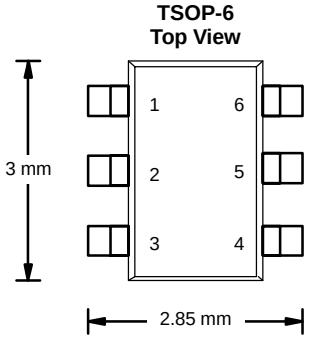
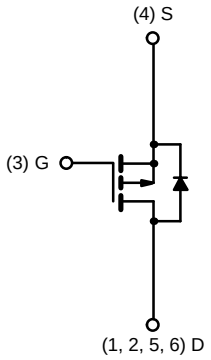
P-Channel 2.5-V (G-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.090 @ V_{GS} = -4.5 V	-2.9
	0.130 @ V_{GS} = -2.5 V	-2.45

TrenchFET® Power MOSFETs





P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		V_{DS}	-20		V
Gate-Source Voltage		V_{GS}	±8		
Continuous Drain Current (T_J = 150°C)[a]	T_A = 25°C	I_D	-2.9	-2.45	A
	T_A = 70°C		-2.35	-1.95	
Pulsed Drain Current		I_{DM}	-16		
Continuous Diode Current (Diode Conduction)[a]		I_S	-1.0	-0.72	
Maximum Power Dissipation[a]	T_A = 25°C	P_D	1.25	0.86	W
	T_A = 70°C		0.8	0.55	
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 ≤ 5 sec	R_{thJA}	80	100	°C/W
	Steady State		120	145	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	70	85	

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

For SPICE model information via the Worldwide Web: http://www. vishay.com/www/product/spice.htm.

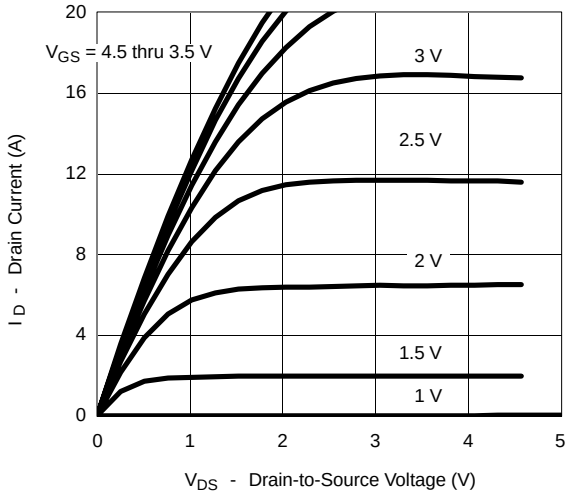
SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250 μA	-0.45		-0.85	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} = -20 V, V_{GS} = 0 V			-1	μA
		V_{DS} = -20 V, V_{GS} = 0 V, T_J = 70°C			-5	
On-State Drain Current[a]	$I_{D(on)}$	V_{DS} = -5 V, V_{GS} = -4.5 V	-10			A
		V_{DS} = -5 V, V_{GS} = -2.5 V	-4			
Drain-Source On-State Resistance[a]	$r_{DS(on)}$	V_{GS} = -4.5 V, I_D = -3.3 A		0.070	0.090	Ω
		V_{GS} = -2.5 V, I_D = -2.9 A		0.098	0.130	
Forward Transconductance[a]	g_{fs}	V_{DS} = -10 V, I_D = -3.3 A		8.0		S
Diode Forward Voltage[a]	V_{SD}	I_S = -1.6 A, V_{GS} = 0 V		-0.8	-1.2	V
Dynamic[b]						
Total Gate Charge	Q_g	V_{DS} = -10 V, V_{GS} = -4.5 V, I_D = -3.3 A		5.2	8.0	nC
Gate-Source Charge	Q_{gs}			0.8		
Gate-Drain Charge	Q_{gd}			1.5		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -10 V, R_L = 10 Ω I_D ≅ -1.0 A, V_{GEN} = -4.5 V, R_G = 6 Ω		15	25	ns
Rise Time	t_r			55	85	
Turn-Off Delay Time	$t_{d(off)}$			30	45	
Fall Time	t_f			40	60	
Source-Drain Reverse Recovery Time	t_{rr}	I_F = -1.6 A, di/dt = 100 A/μs		50	80	

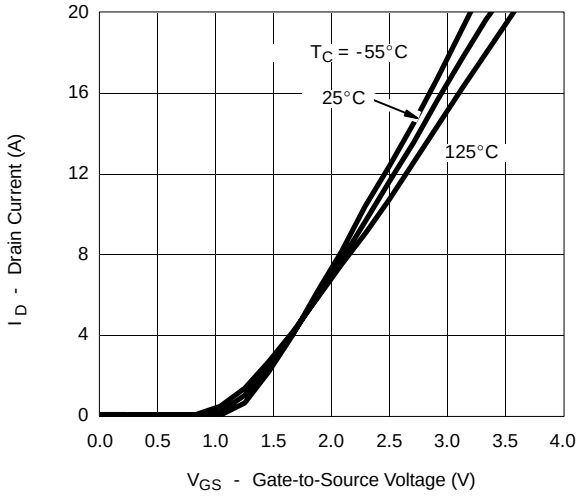
Notes
a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

Output Characteristics

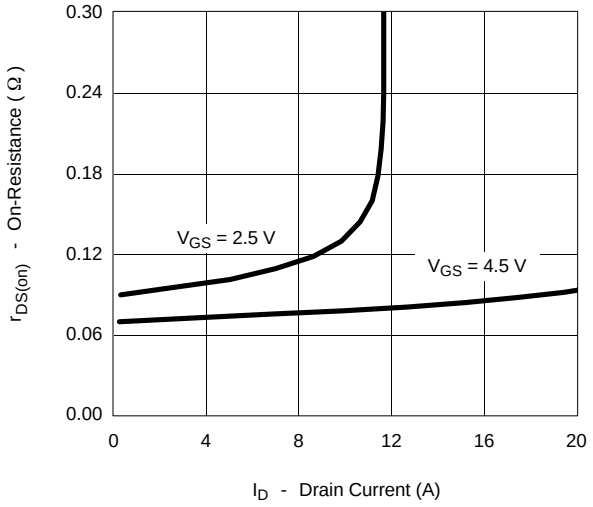


Transfer Characteristics

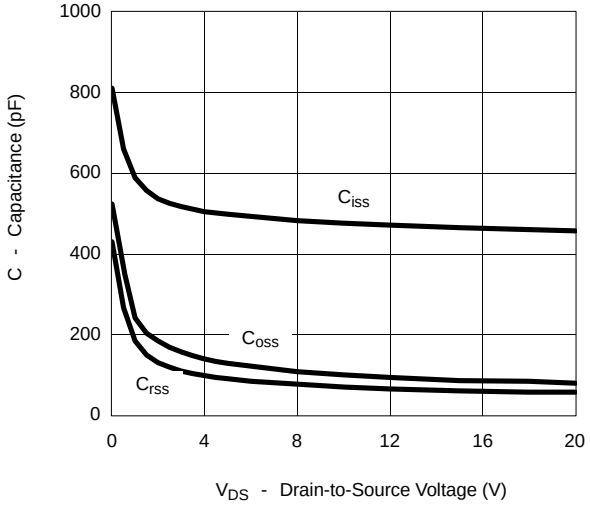


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

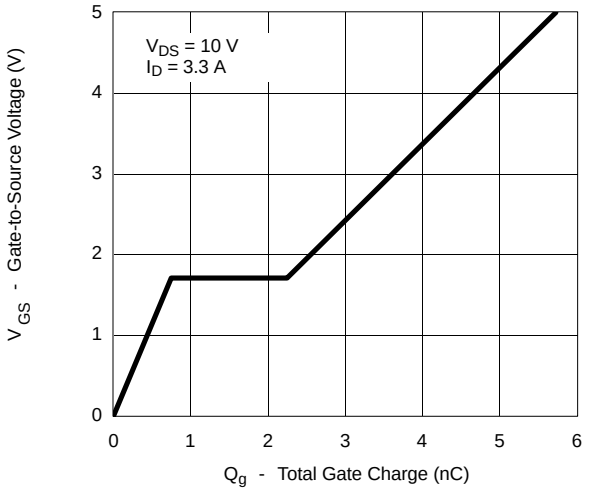
On-Resistance vs. Drain Current



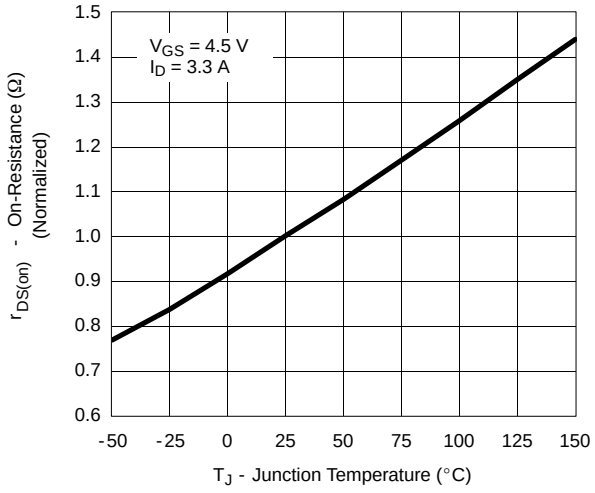
Capacitance



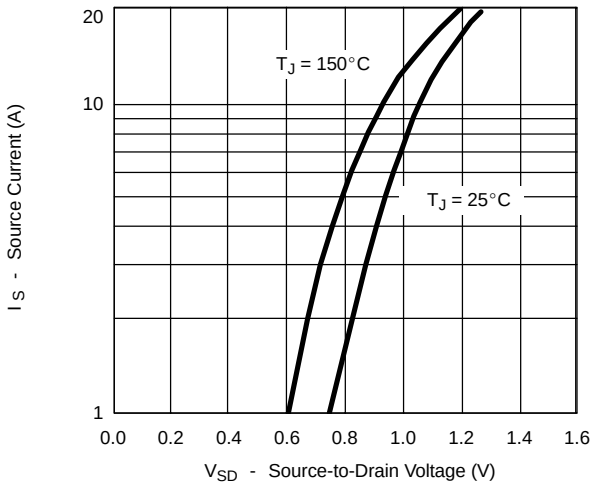
Gate Charge



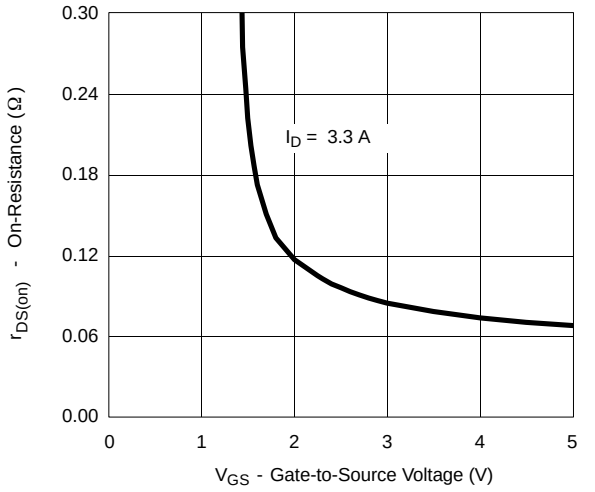
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage

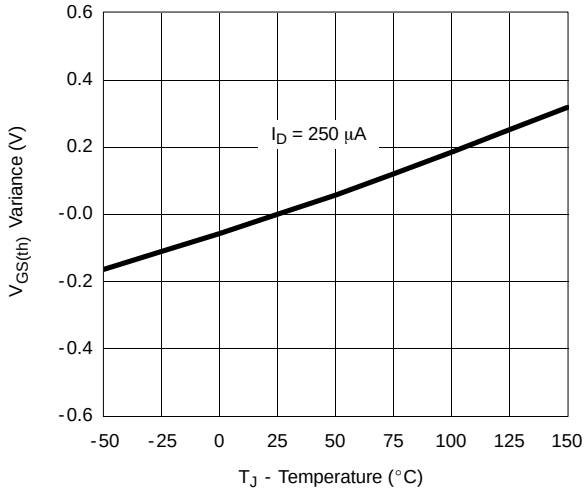


On-Resistance vs. Gate-to-Source Voltage

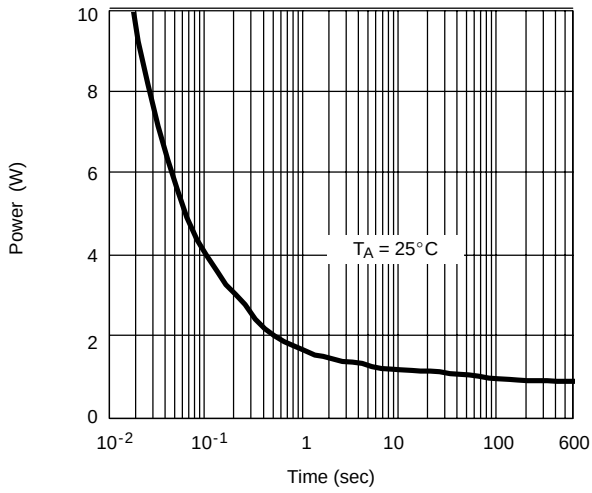


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

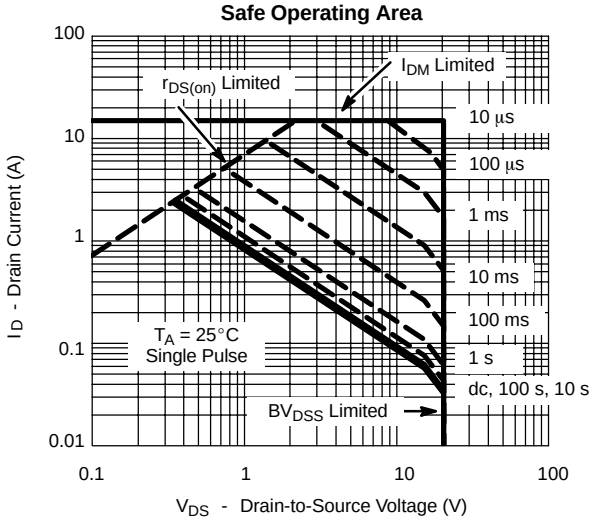
Threshold Voltage



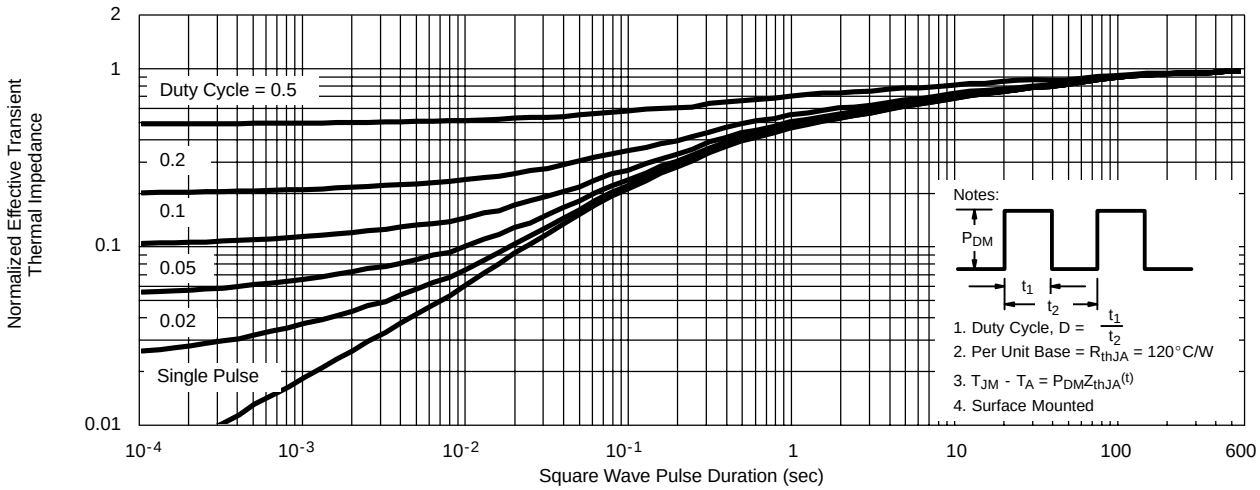
Single Pulse Power



Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Ambient



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

Normalized Thermal Transient Impedance, Junction-to-Foot