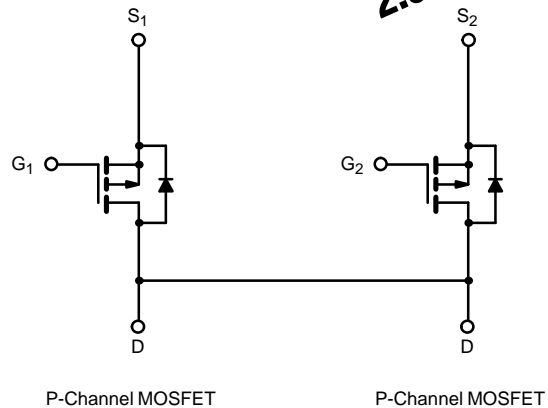
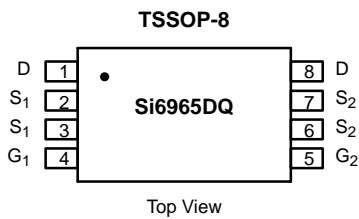


## P-Channel 2.5-V (G-S) Battery Switch

PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
-20	0.035 @ $V_{GS} = -4.5$ V	$\pm 5.0$
	0.060 @ $V_{GS} = -2.5$ V	$\pm 3.9$

**TrenchFET<sup>®</sup>**  
Power MOSFETs  
**2.5-V Rated**



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		$V_{DS}$	-20	V
Gate-Source Voltage		$V_{GS}$	$\pm 12$	
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a, b</sup>	$T_A = 25^\circ\text{C}$	$I_D$	$\pm 5.0$	A
	$T_A = 70^\circ\text{C}$		$\pm 4.0$	
Pulsed Drain Current		$I_{DM}$	$\pm 30$	
Continuous Source Current (Diode Conduction) <sup>a, b</sup>		$I_S$	-1.5	
Maximum Power Dissipation <sup>a, b</sup>	$T_A = 25^\circ\text{C}$	$P_D$	1.5	W
	$T_A = 70^\circ\text{C}$		0.96	
Operating Junction and Storage Temperature Range		$T_J, T_{stg}$	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient <sup>a</sup>	$t \leq 10$ sec	$R_{thJA}$		83	$^\circ\text{C/W}$
	Steady State		85		

**Notes**

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

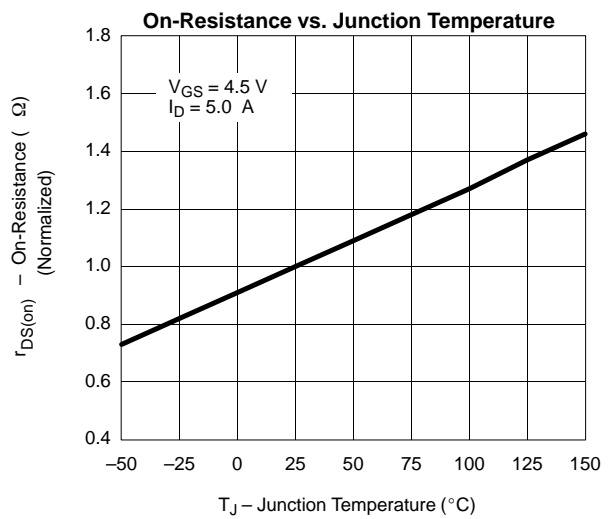
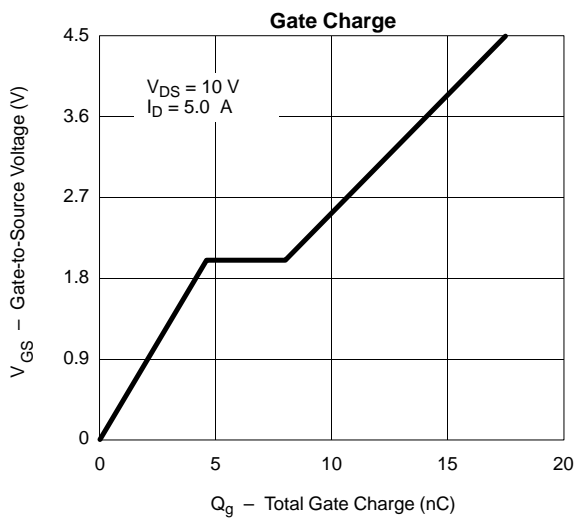
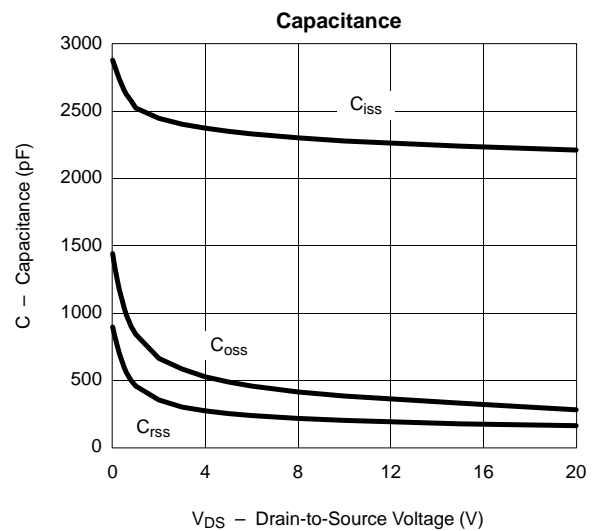
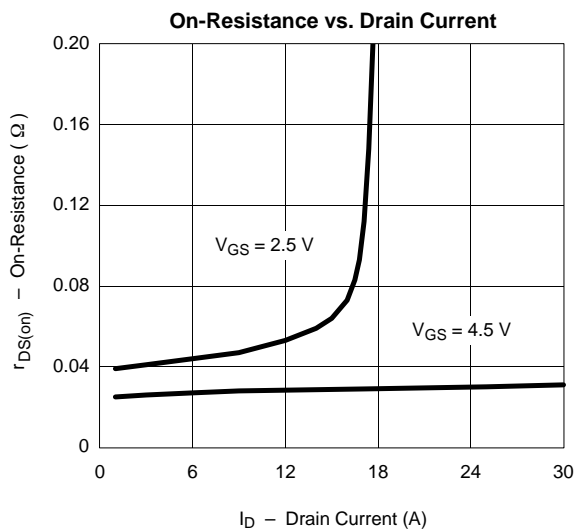
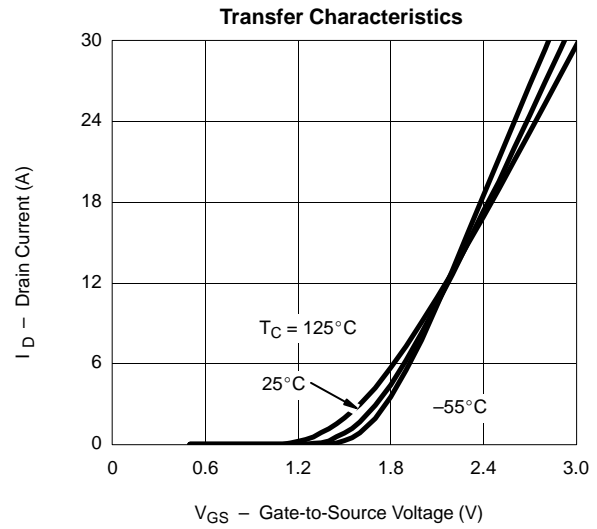
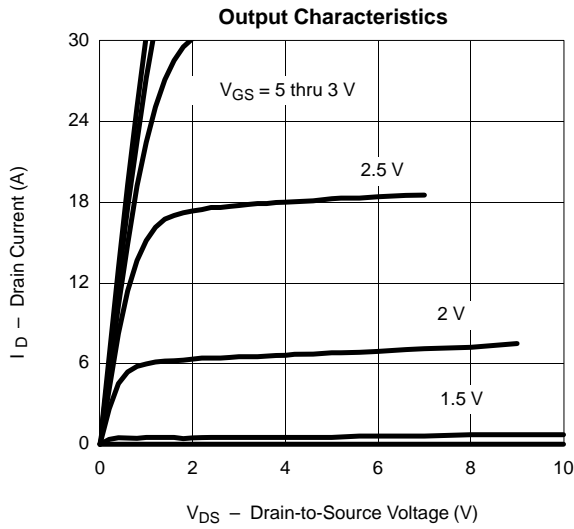
For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>

SPECIFICATIONS (T <sub>J</sub> = 25°C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	-0.6			V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±12 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -16 V, V <sub>GS</sub> = 0 V			-1	μA
		V <sub>DS</sub> = -16 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55°C			-5	
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ -5 V, V <sub>GS</sub> = -4.5 V	-30			A
Drain-Source On-State Resistance <sup>a</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -5.0 A		0.028	0.035	Ω
		V <sub>GS</sub> = -2.5 V, I <sub>D</sub> = -3.9 A		0.043	0.060	
Forward Transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -10 V, I <sub>D</sub> = -5.0 A		15		S
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	I <sub>S</sub> = -1.5 A, V <sub>GS</sub> = 0 V		-0.72	-1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -10 V, V <sub>GS</sub> = -10 V, I <sub>D</sub> = -5.0 A		17.5	30	nC
Gate-Source Charge	Q <sub>gs</sub>			4.6		
Gate-Drain Charge	Q <sub>gd</sub>			3.4		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -10 V, R <sub>L</sub> = 10 Ω I <sub>D</sub> ≅ -1 A, V <sub>GEN</sub> = -4.5 V, R <sub>G</sub> = 6 Ω		25	50	ns
Rise Time	t <sub>r</sub>			30	60	
Turn-Off Delay Time	t <sub>d(off)</sub>			110	200	
Fall Time	t <sub>f</sub>			65	120	
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = -1.5 A, di/dt = 100 A/μs		30	60	

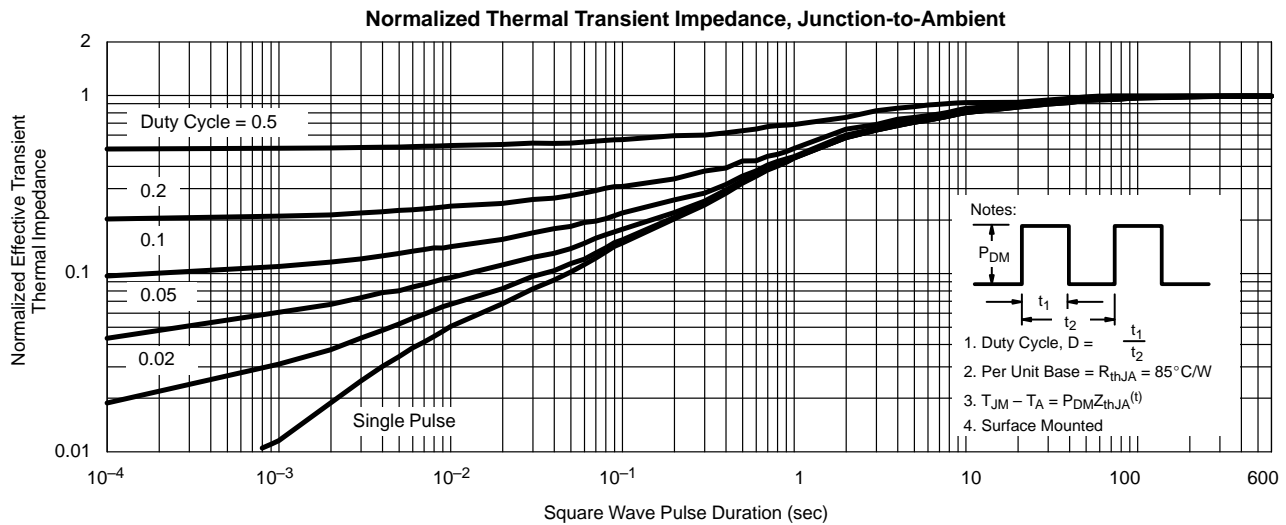
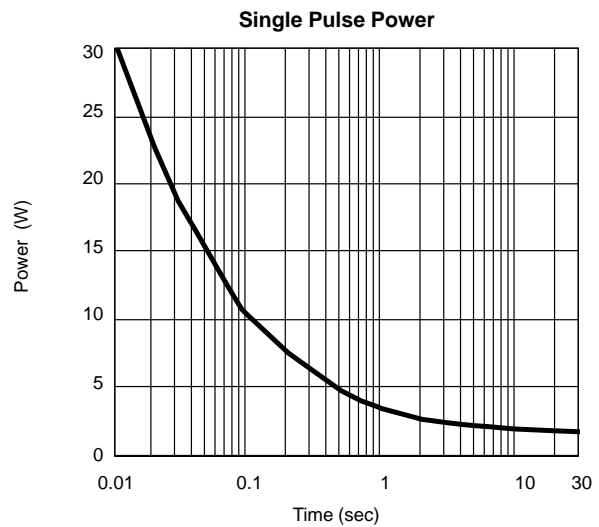
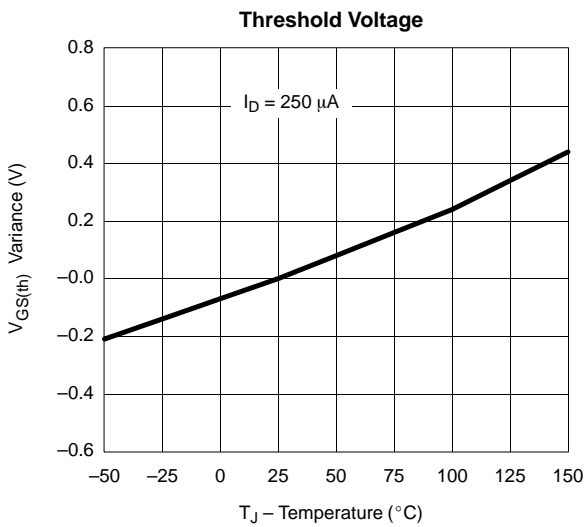
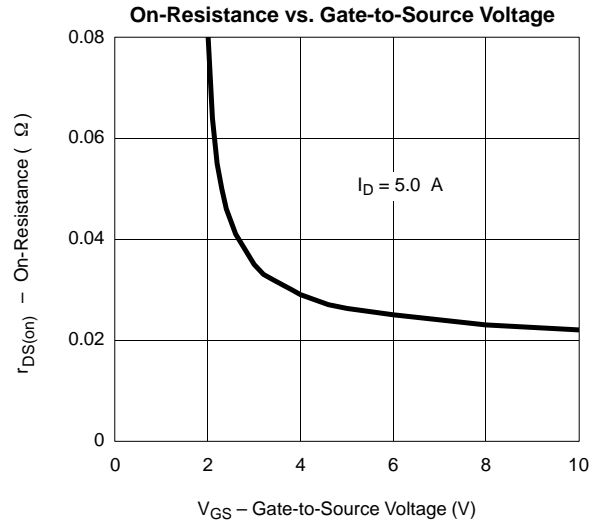
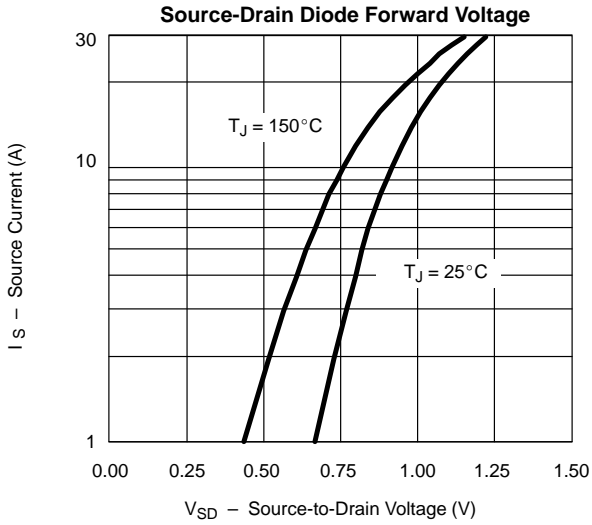
Notes

- 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)**



**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**





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