

## Dual P-Channel 30-V (D-S) MOSFET

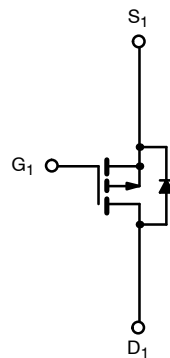
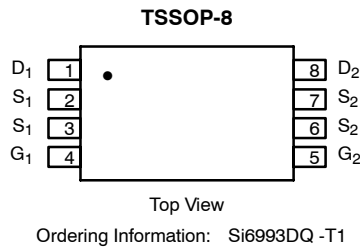
PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
-30	0.031 @ $V_{GS} = -10$ V	-4.7
	0.048 @ $V_{GS} = -4.5$ V	-3.8

### FEATURES

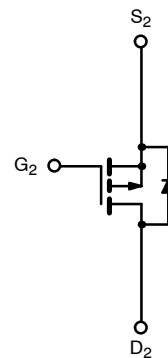
- TrenchFET® Power MOSFETS

### APPLICATIONS

- Load Switch
- Battery Switch



P-Channel MOSFET



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		$V_{DS}$	-30		V
Gate-Source Voltage		$V_{GS}$	$\pm 20$		
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a</sup>	$T_A = 25^\circ\text{C}$	$I_D$	-4.7	-3.6	A
	$T_A = 70^\circ\text{C}$		-3.8	-3.2	
Pulsed Drain Current (10 $\mu\text{s}$ Pulse Width)		$I_{DM}$	-30		
Continuous Source Current (Diode Conduction) <sup>a</sup>		$I_S$	-1.0	-0.70	W
Maximum Power Dissipation <sup>a</sup>	$T_A = 25^\circ\text{C}$	$P_D$	1.14	0.83	
	$T_A = 70^\circ\text{C}$		0.73	0.53	
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	$R_{thJA}$	86	110	$^\circ\text{C}/\text{W}$
	Steady State		124	150	
Maximum Junction-to-Foot	Steady State	$R_{thJF}$	52	65	

Notes

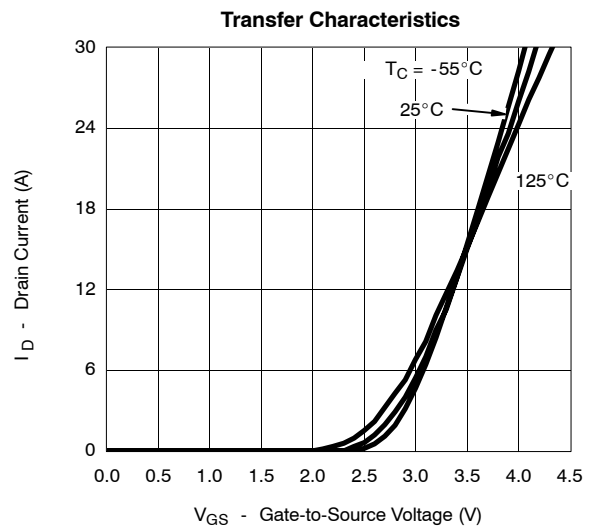
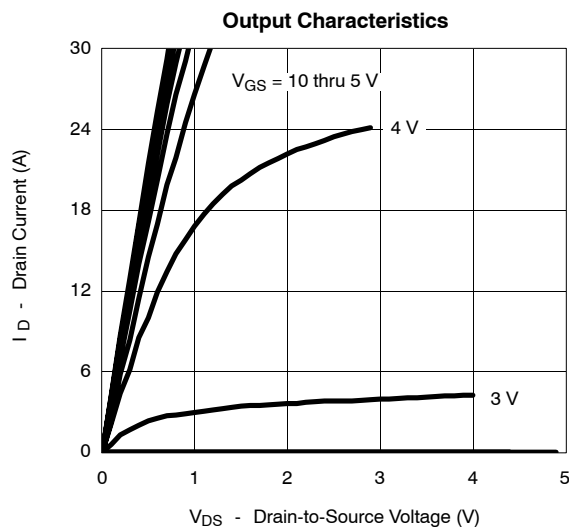
a. Surface Mounted on 1" x 1" FR4 Board.

**SPECIFICATIONS ( $T_J = 25^\circ\text{C}$  UNLESS OTHERWISE NOTED)**

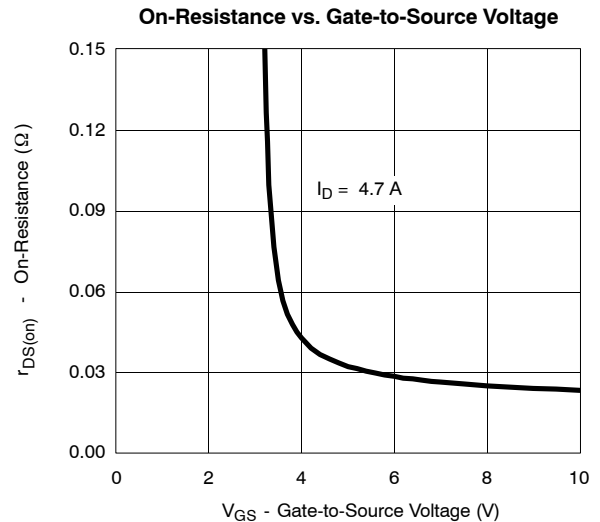
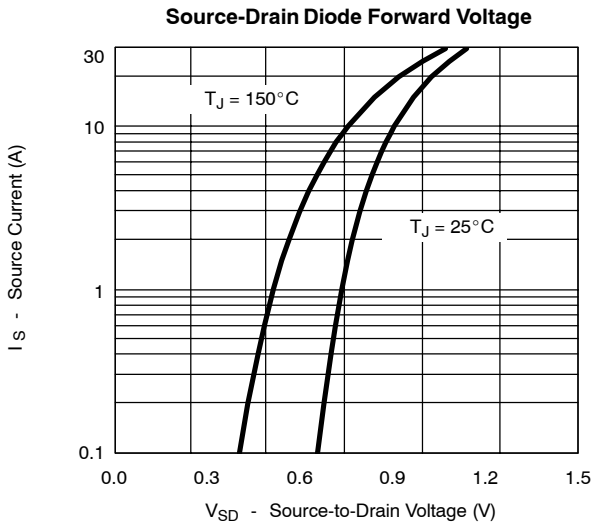
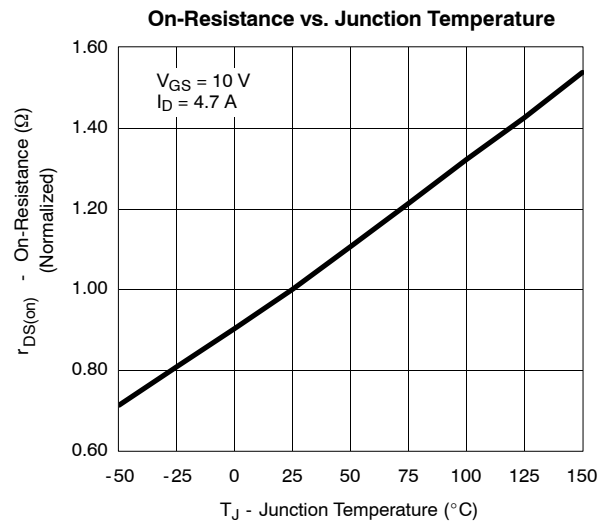
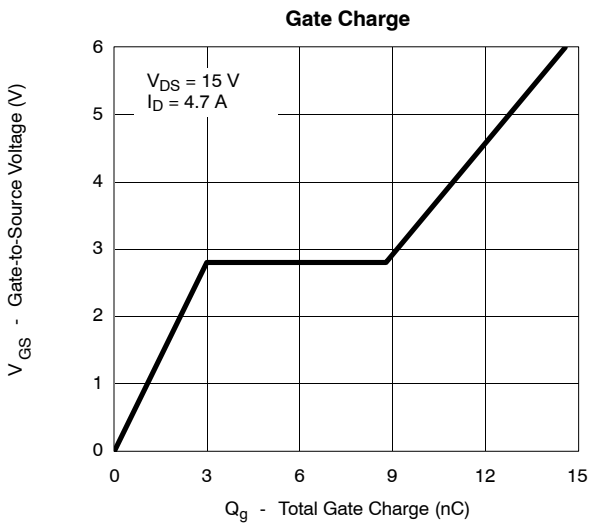
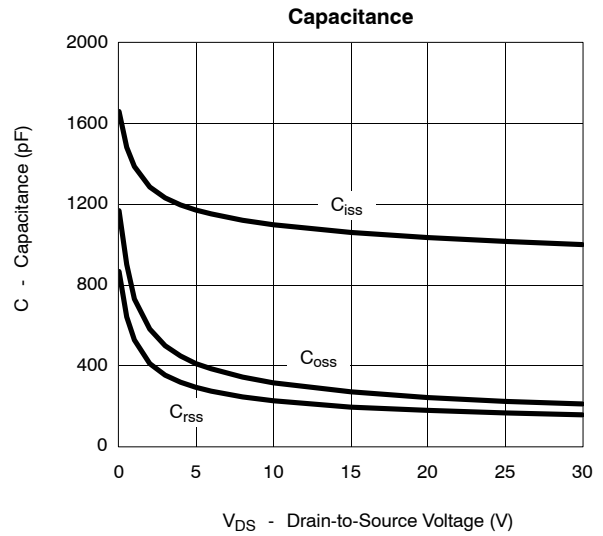
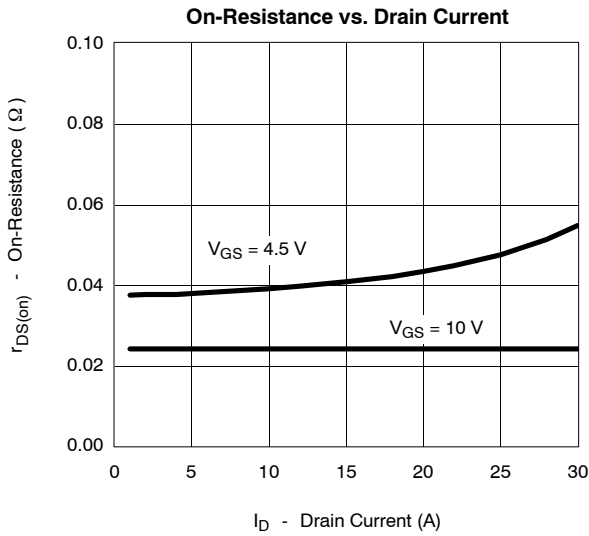
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-1.0		-3.0	V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\ \text{V}, V_{GS} = \pm 20\ \text{V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -30\ \text{V}, V_{GS} = 0\ \text{V}$			-1	$\mu\text{A}$
		$V_{DS} = -30\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 55^\circ\text{C}$			-10	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} \geq -5\ \text{V}, V_{GS} = -10\ \text{V}$	-15			A
Drain-Source On-State Resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = -10\ \text{V}, I_D = -4.7\ \text{A}$		0.024	0.031	$\Omega$
		$V_{GS} = -4.5\ \text{V}, I_D = -3.8\ \text{A}$		0.038	0.048	
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = -15\ \text{V}, I_D = -4.7\ \text{A}$		14		S
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = -1.0\ \text{A}, V_{GS} = 0\ \text{V}$		-0.74	-1.1	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = -15\ \text{V}, V_{GS} = -4.5\ \text{V}, I_D = -4.7\ \text{A}$		13	20	nC
Gate-Source Charge	$Q_{gs}$		3			
Gate-Drain Charge	$Q_{gd}$		5.8			
Gate Resistance	$R_g$	$f = 1.0\ \text{MHz}$		4.6		$\Omega$
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -15\ \text{V}, R_L = 15\ \Omega$ $I_D \cong -1\ \text{A}, V_{GEN} = -10\ \text{V}, R_G = 6\ \Omega$		13	20	ns
Rise Time	$t_r$		14	22		
Turn-Off Delay Time	$t_{d(off)}$		52	80		
Fall Time	$t_f$		26	40		
Source-Drain Reverse Recovery Time	$t_{rr}$	$I_F = -1.0\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		40	60	

## Notes

- a. Pulse test; pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$ .  
b. Guaranteed by design, not subject to production testing.

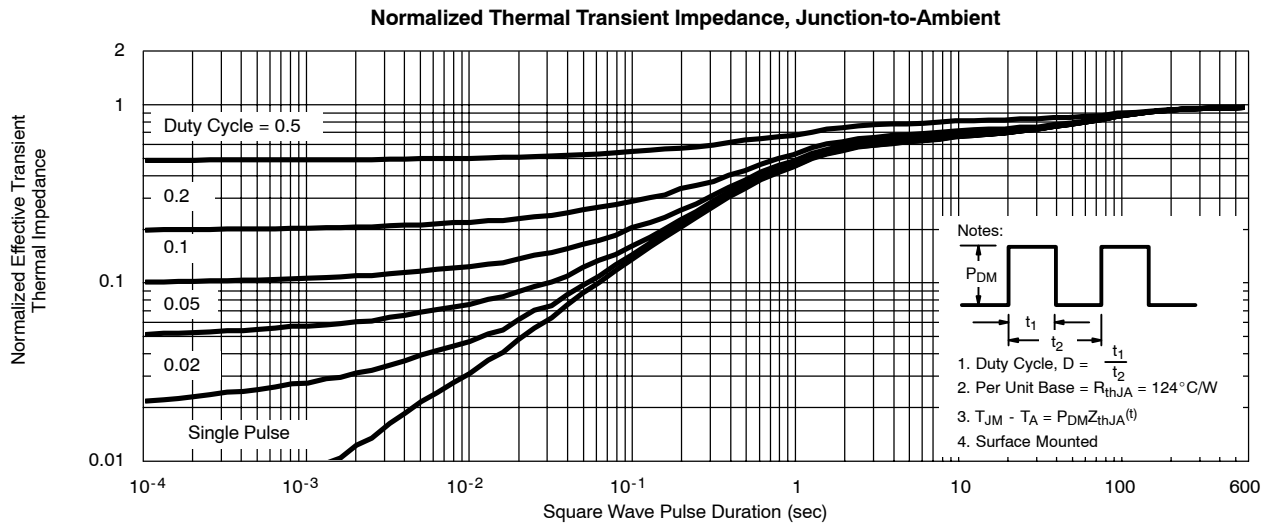
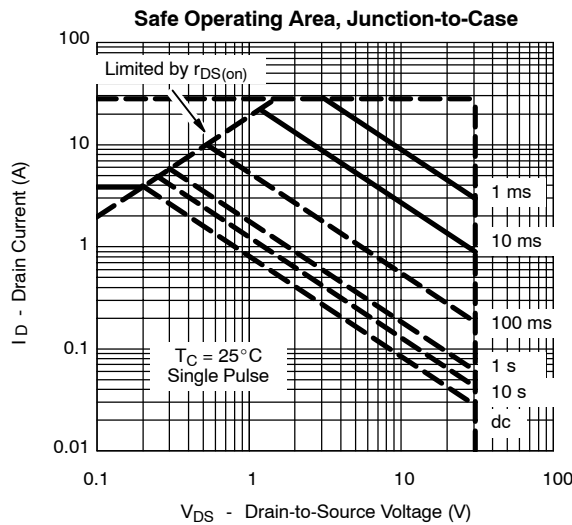
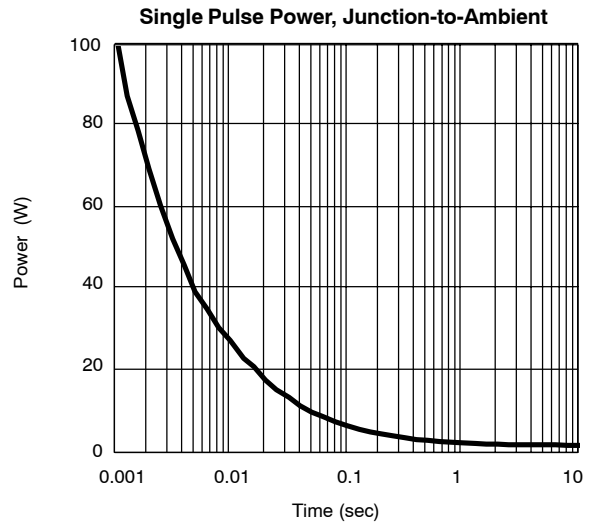
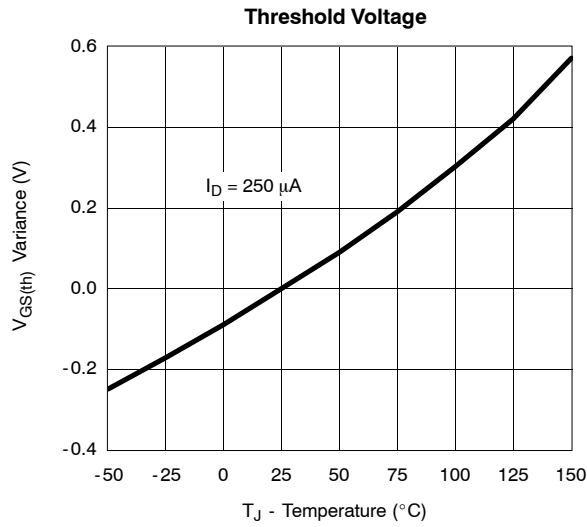
**TYPICAL CHARACTERISTICS ( $25^\circ\text{C}$  UNLESS NOTED)**

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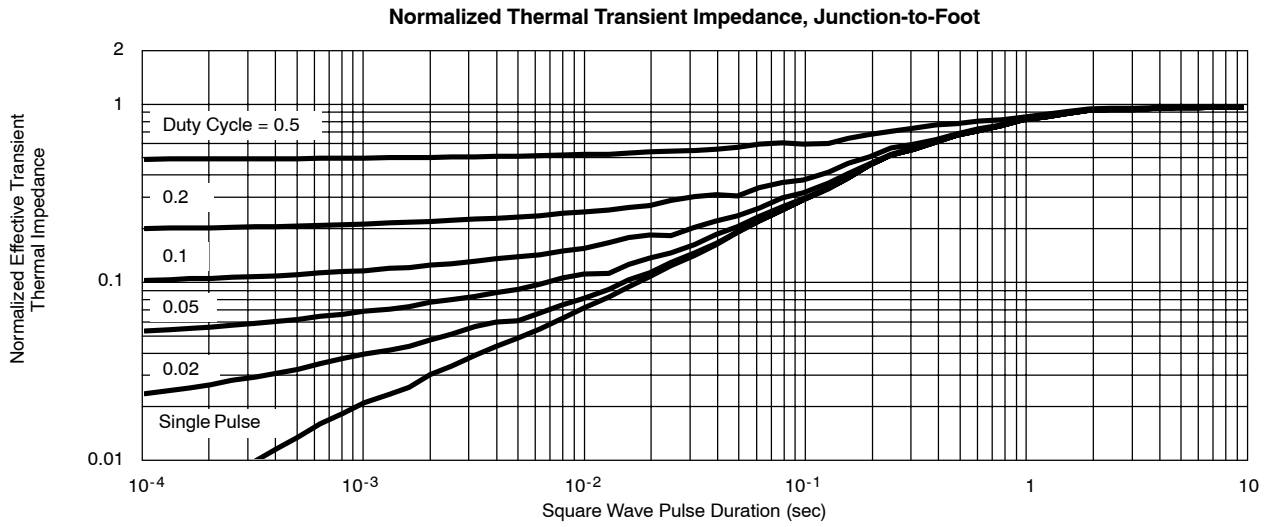


**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**





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