

P-Channel 20-V (D-S) MOSFET

PRODUCT SUMMARY

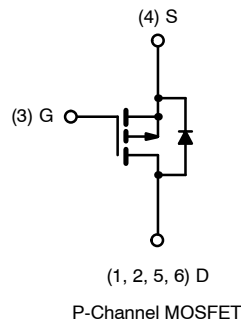
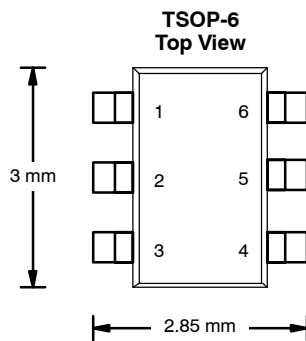
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.030 @ $V_{GS} = -10$ V	-6.7
	0.051 @ $V_{GS} = -4.5$ V	-5.1

FEATURES

- TrenchFET® Power MOSFET

APPLICATIONS

- Load Switch
 - Notebook PC
 - Game Machine
 - Desktop



Ordering Information: Si3469DV-T1—E3 (Lead Free)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		V _{DS}	−20		V
Gate-Source Voltage		V _{GS}	± 20		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	−6.7	−5.0	A
	T _A = 70°C		−5.3	−4.0	
Pulsed Drain Current		I _{DM}	−25		
Continuous Source Current (Diode Conduction) ^a		I _S	−1.7	−0.95	
Maximum Power Dissipation ^a	T _A = 25°C	P _D	2.0	1.14	W
	T _A = 70°C		1.3	0.73	
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	$t \leq 5$ sec	R_{thJA}	45	62.5	$^\circ\text{C/W}$
	Steady State		90	110	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	25	30	

Notes

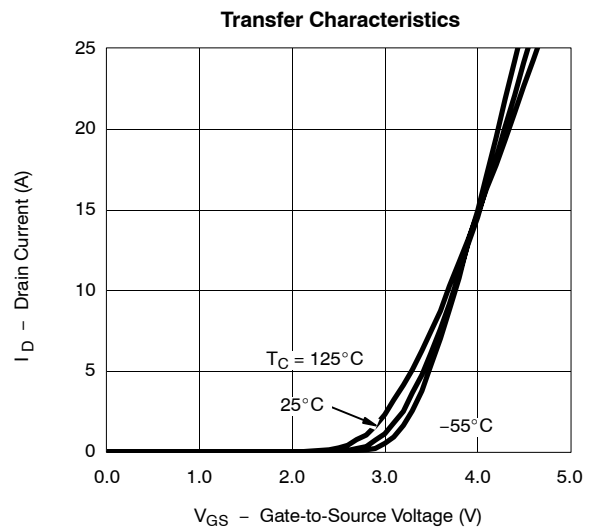
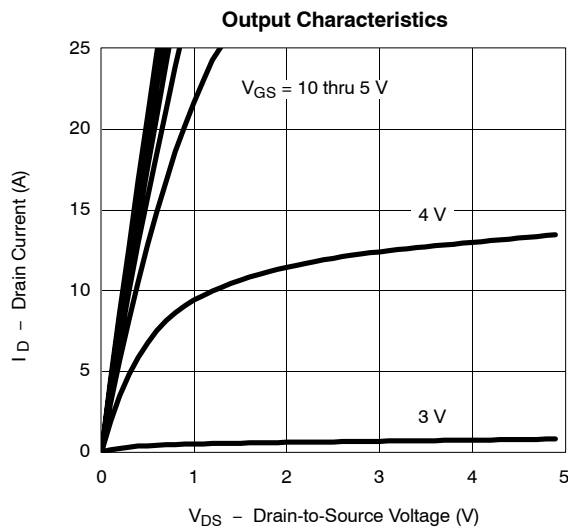
a. Surface Mounted on 1" x 1" FR4 Board.

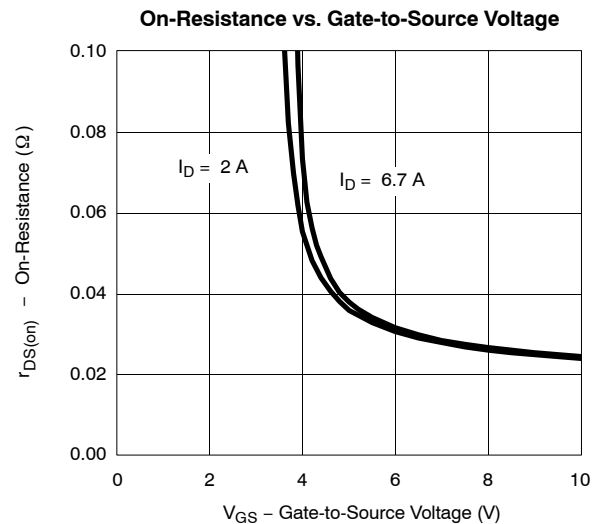
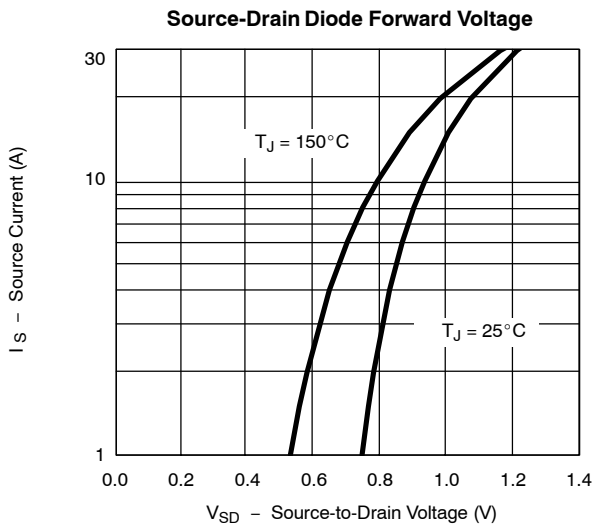
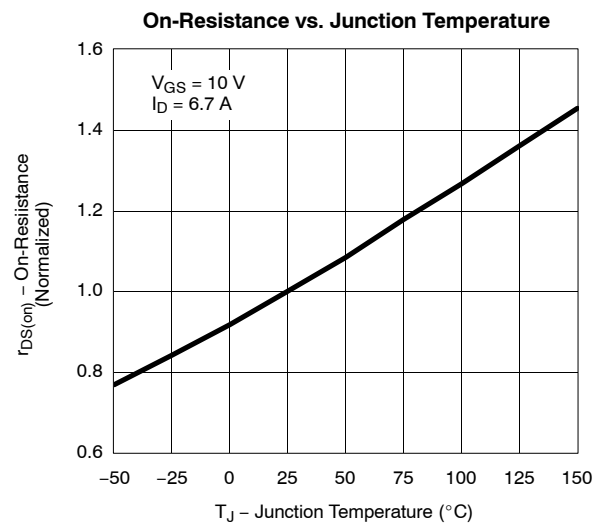
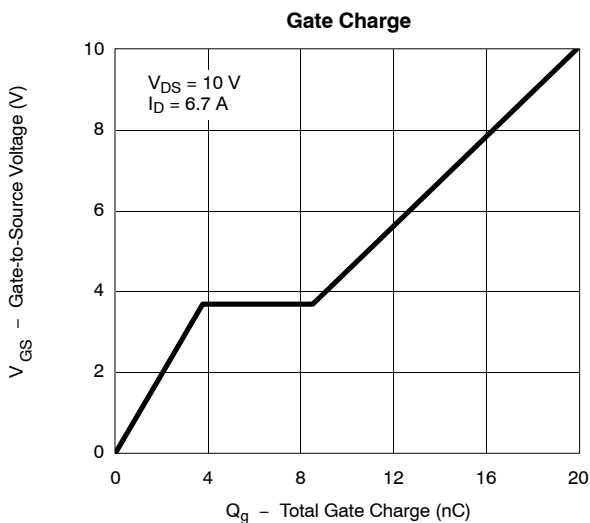
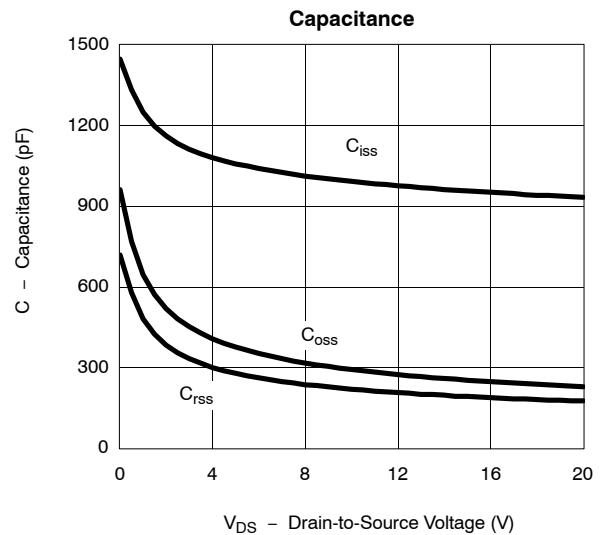
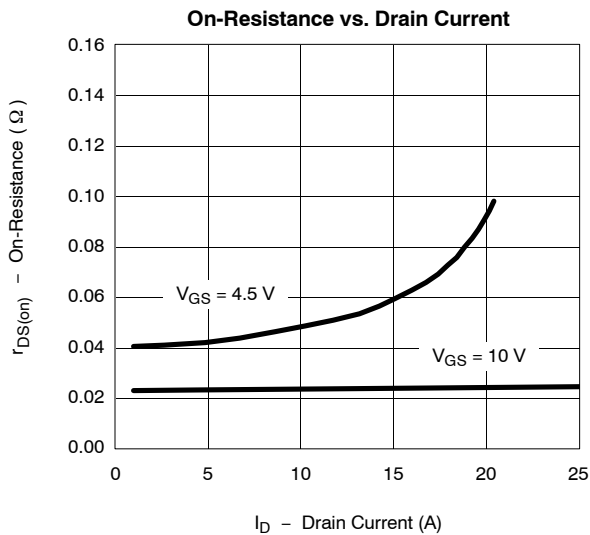
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

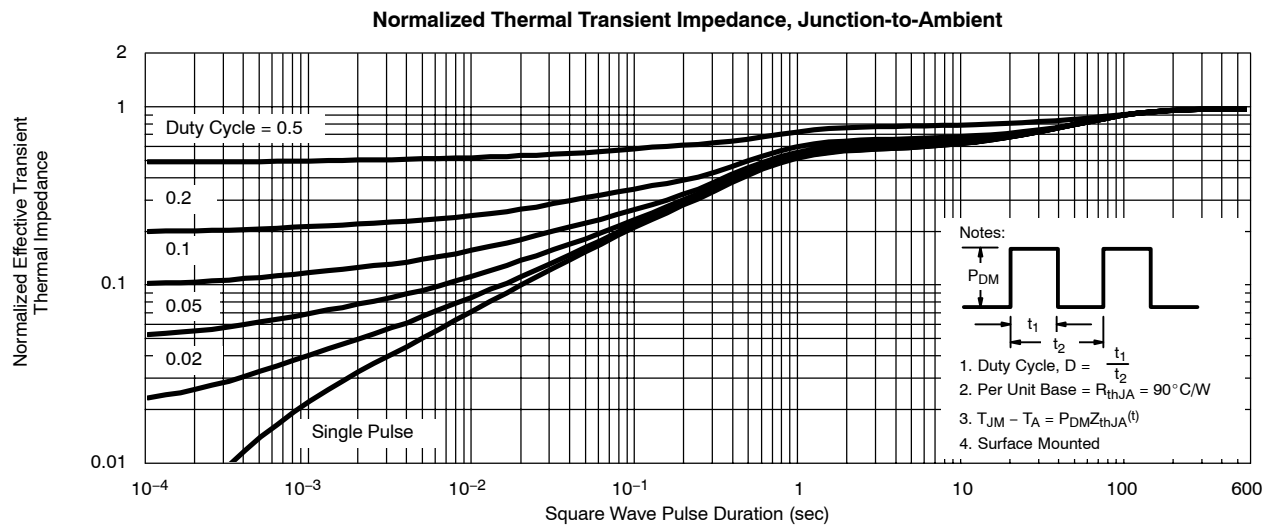
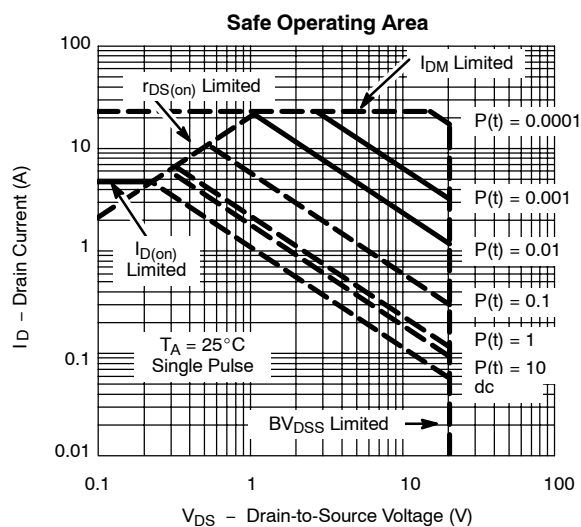
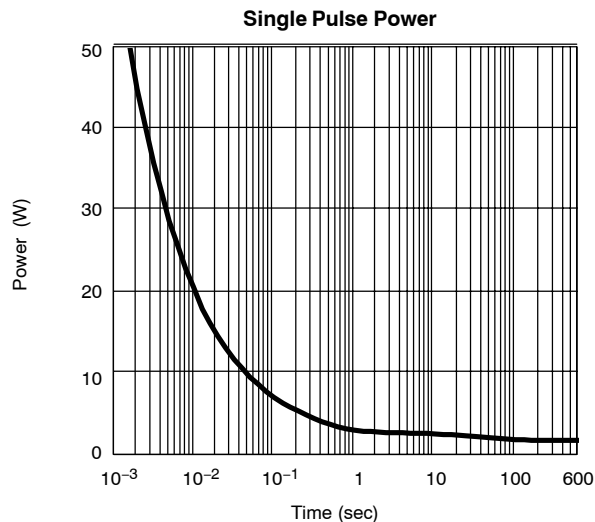
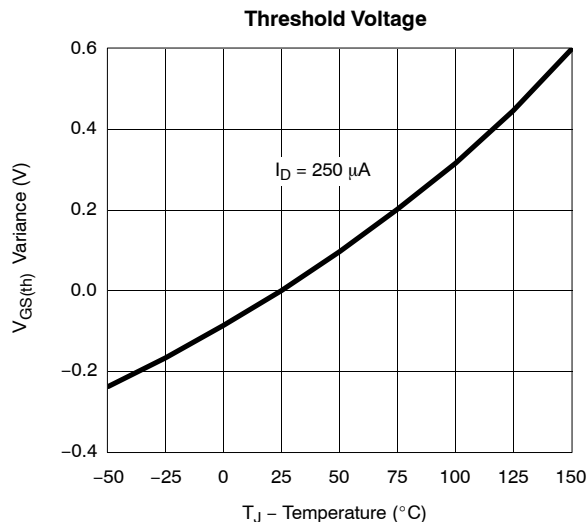
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-1.0		-3	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}, V_{GS} = \pm 20\ \text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20\ \text{V}, V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -20\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 85^\circ\text{C}$			-5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \leq -5\ \text{V}, V_{GS} = -10\ \text{V}$	-25			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -10\ \text{V}, I_D = -6.7\ \text{A}$		0.024	0.030	Ω
		$V_{GS} = -4.5\ \text{V}, I_D = -2\ \text{A}$		0.041	0.051	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -15\ \text{V}, I_D = -6.7\ \text{A}$		15		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -1.7\ \text{A}, V_{GS} = 0\ \text{V}$		-0.8	-1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -10\ \text{V}, V_{GS} = -10\ \text{V}, I_D = -6.7\ \text{A}$		20	30	nC
Gate-Source Charge	Q_{gs}			3.8		
Gate-Drain Charge	Q_{gd}			4.8		
Gate Resistance	R_g	$f = 1\ \text{MHz}$		9		Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10\ \text{V}, R_L = 10\ \Omega$ $I_D \cong -1\ \text{A}, V_{GEN} = -10\ \text{V}, R_G = 6\ \Omega$		10	15	ns
Rise Time	t_r			12	20	
Turn-Off Delay Time	$t_{d(off)}$			50	75	
Fall Time	t_f			35	55	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -1.7\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		25	50	

Notes

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

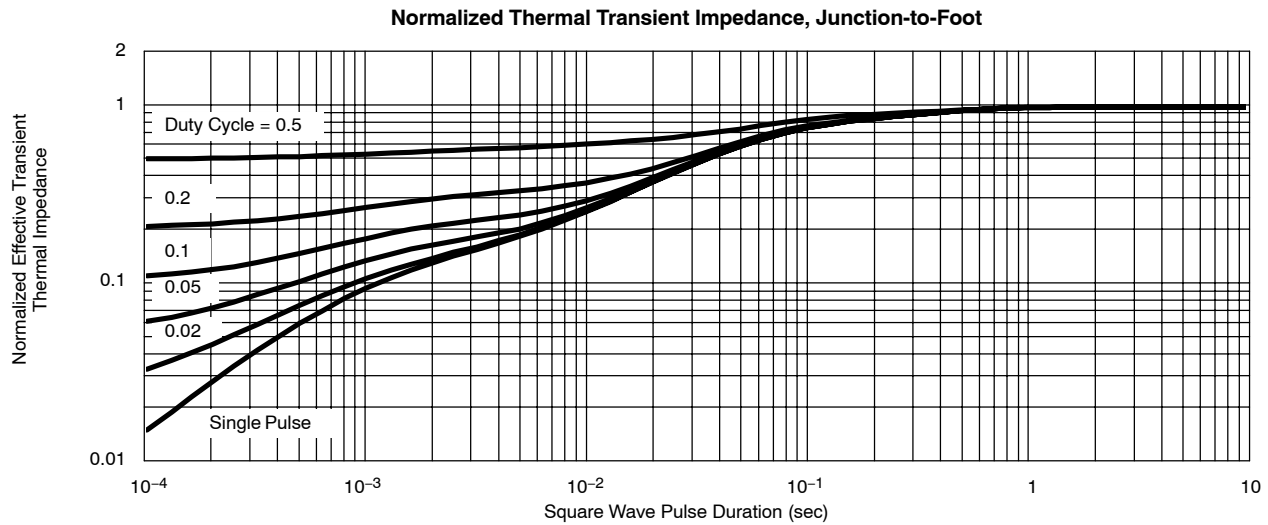
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

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