

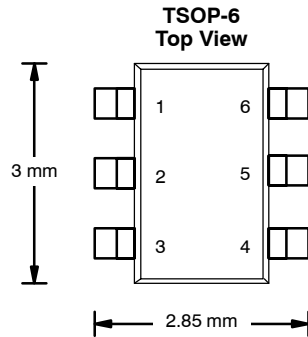
N-Channel 20-V (D-S) MOSFET

PRODUCT SUMMARY

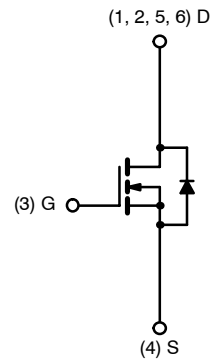
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
20	0.027 @ $V_{GS} = 4.5$ V	6.8
	0.032 @ $V_{GS} = 2.5$ V	6.3
	0.038 @ $V_{GS} = 1.8$ V	5.7

FEATURES

- TrenchFET® Power MOSFET
- 100% R_g Tested



Ordering Information: Si3460DV-T1



N-Channel MOSFET

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}	± 8		
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	I_D	6.8	5.1	A
		5.4	4.1	
Pulsed Drain Current	I_{DM}	20		
Continuous Source Current (Diode Conduction) ^a	I_S	1.7	0.9	
Maximum Power Dissipation ^a	P_D	2.0	1.1	W
		1.3	0.73	
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 ^a	R_{thJA}	45	62.5	$^\circ\text{C/W}$
		90	110	
Maximum Junction-to-Foot (Drain)	R_{thJF}	25	30	

Notes

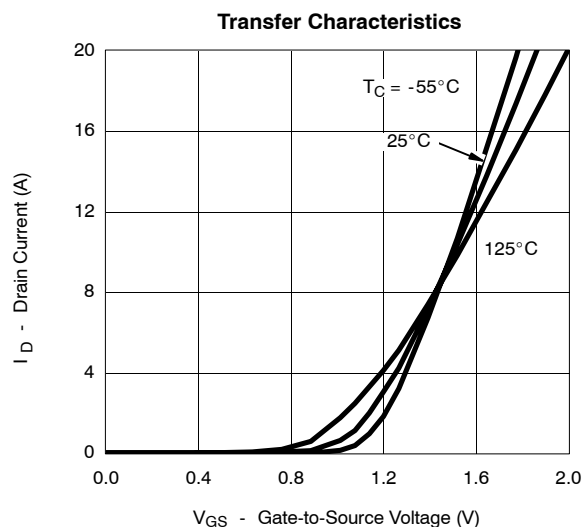
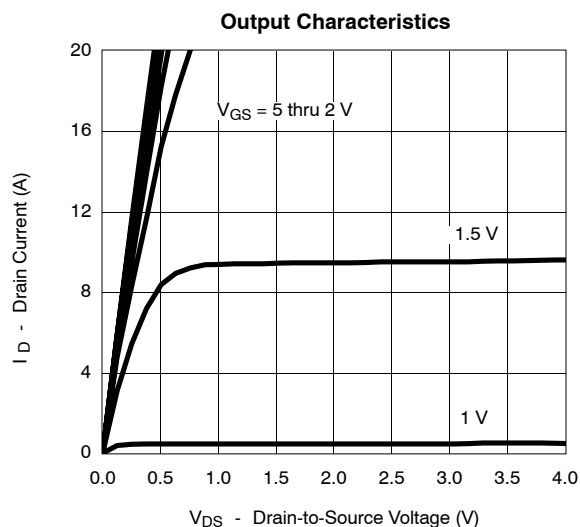
a. Surface Mounted on 1" x 1" FR4 Board.

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 1\text{ mA}$	0.45			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 8\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16\text{ V}, V_{GS} = 0\text{ V}$			1	μA
		$V_{DS} = 16\text{ V}, V_{GS} = 0\text{ V}, T_J = 70^\circ\text{C}$			5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 5\text{ V}, V_{GS} = 10\text{ V}$	20			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = 4.5\text{ V}, I_D = 5.1\text{ A}$		0.023	0.027	Ω
		$V_{GS} = 2.5\text{ V}, I_D = 4.7\text{ A}$		0.027	0.032	
		$V_{GS} = 1.8\text{ V}, I_D = 2\text{ A}$		0.032	0.038	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 10\text{ V}, I_D = 5.1\text{ A}$		25		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	$V_{DS} = 10\text{ V}, V_{GS} = 4.5\text{ V}, I_D = 5.1\text{ A}$		13.5	20	nC
Gate-Source Charge	Q_{gs}			2.3		
Gate-Drain Charge	Q_{gd}			2.2		
Gate Resistance	R_g		0.5		2.9	Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10\text{ V}, R_L = 10\ \Omega$ $I_D \cong 1\text{ A}, V_{GEN} = 4.5\text{ V}, R_G = 6\ \Omega$		15	30	ns
Rise Time	t_r			30	60	
Turn-Off Delay Time	$t_{d(off)}$			70	140	
Fall Time	t_f			30	60	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 1.7\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$		40	80	

Notes

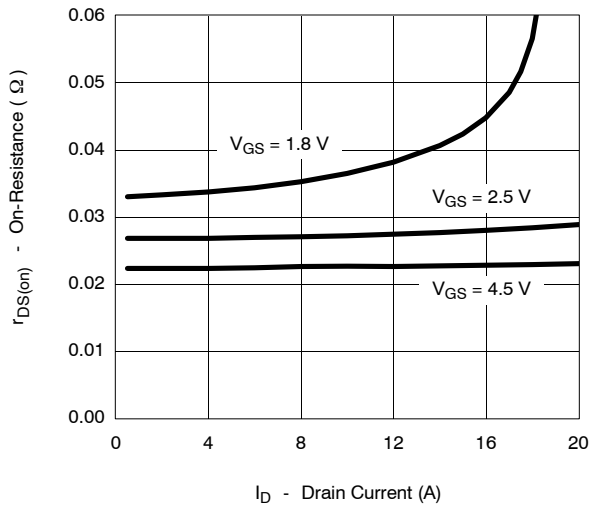
- a. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

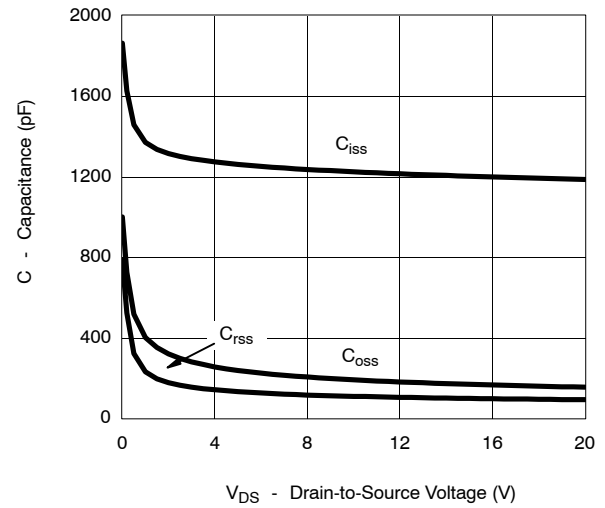


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

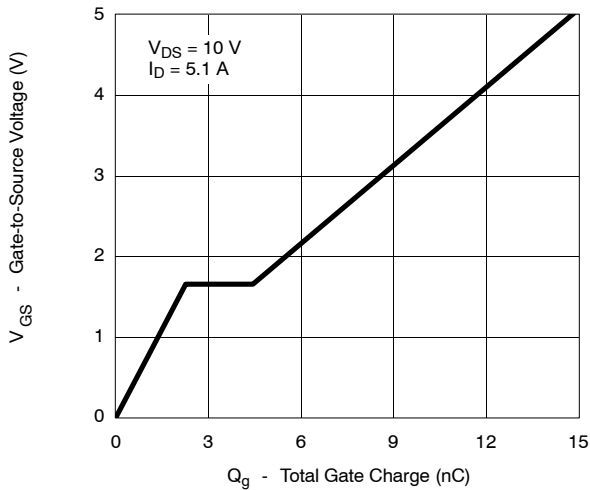
On-Resistance vs. Drain Current



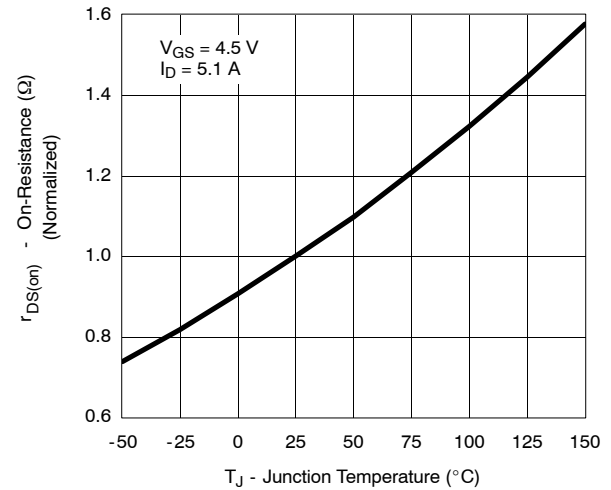
Capacitance



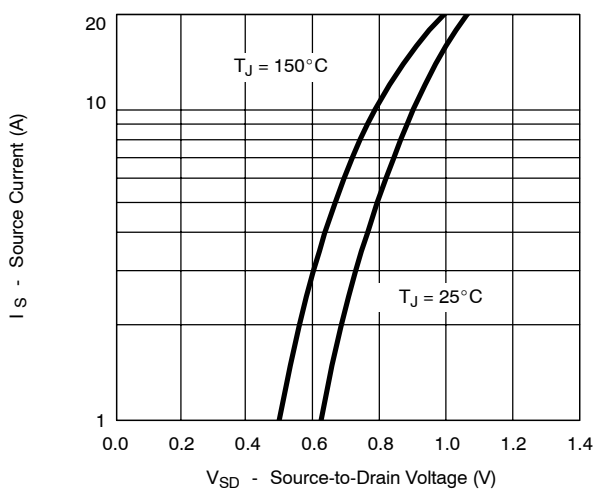
Gate Charge



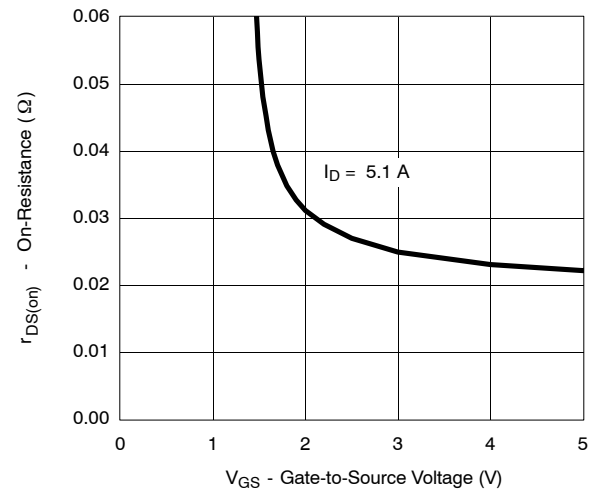
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

