



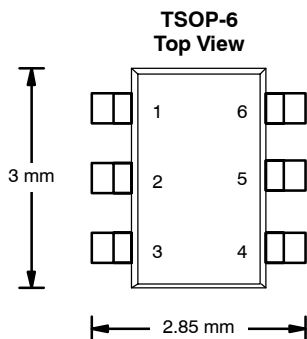
N-Channel 200-V (D-S) MOSFET

PRODUCT SUMMARY

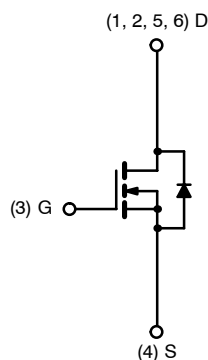
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
200	3.7 @ $V_{GS} = 10$ V	0.5

FEATURES

- 100% R_g Tested



Ordering Information: Si3420DV-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}	200		V
Gate-Source Voltage		V_{GS}	± 20		
Continuous Drain Current ($T_J = 150^{\circ}\text{C}$) ^a	$T_A = 25^{\circ}\text{C}$	I_D	0.5	0.37	A
	$T_A = 70^{\circ}\text{C}$		0.4	0.29	
Pulsed Drain Current (10 μs Pulse Width)		I_{DM}	1		
Avalanche Current	$L = 0.1\text{ mH}$	I_{AS}	1		mJ
Single Avalanche Energy		E_{AS}	0.05		
Continuous Source Current (Diode Conduction) ^a		I_S	1		A
Maximum Power Dissipation ^a	$T_A = 25^{\circ}\text{C}$	P_D	2.1	1.14	W
	$T_A = 70^{\circ}\text{C}$		1.34	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	$t \leq 5$ sec	R_{thJA}	50	60	$^\circ\text{C/W}$
	Steady State		90	110	
Maximum Junction-to-Foot	Steady State	R_{thJF}	35	42	

Notes

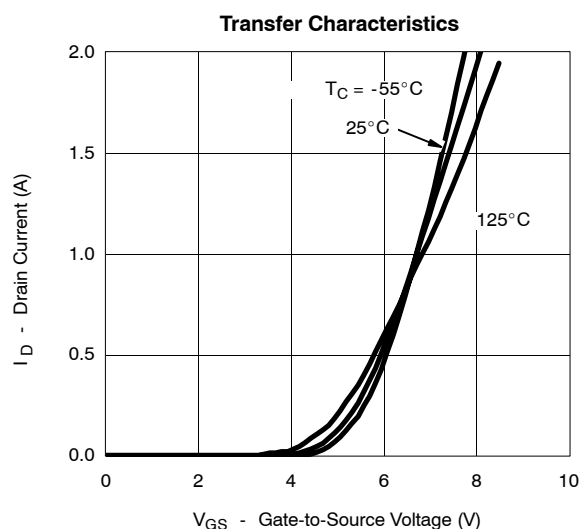
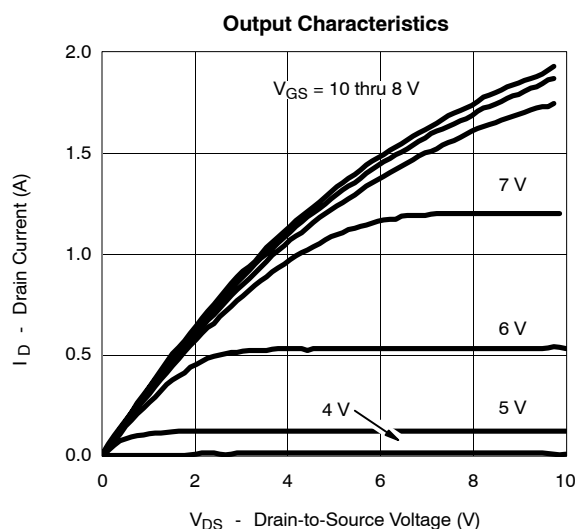
a. Surface Mounted on 1" x 1" FR4 Board.

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\ \mu\text{A}$	2.0			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}	$V_{DS} = 160\ \text{V}$, $V_{GS} = 0\ \text{V}$			1	μA
		$V_{DS} = 160\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 55^\circ\text{C}$			25	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = 5\ \text{V}$, $V_{GS} = 10\ \text{V}$	1			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = 10\ \text{V}$, $I_D = 0.35\ \text{A}$			3.7	Ω
Forward Transconductance ^a	g_{fs}	$V_{DS} = 15\ \text{V}$, $I_D = 1\ \text{A}$		9		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 1\ \text{A}$, $V_{GS} = 0\ \text{V}$			1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 100\ \text{V}$, $V_{GS} = 10\ \text{V}$, $I_D = 0.5\ \text{A}$		2.2	3.5	nC
Gate-Source Charge	Q_{gs}			0.65		
Gate-Drain Charge	Q_{gd}			0.95		
Gate Resistance	R_g		0.5		2.5	Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 100\ \text{V}$, $R_L = 100\ \Omega$ $I_D \cong 1\ \text{A}$, $V_{GEN} = 10\ \text{V}$, $R_G = 6\ \Omega$		7	12	ns
Rise Time	t_r			8	13	
Turn-Off Delay Time	$t_{d(off)}$			10	15	
Fall Time	t_f			30	50	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 1\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$		140	225	

Notes

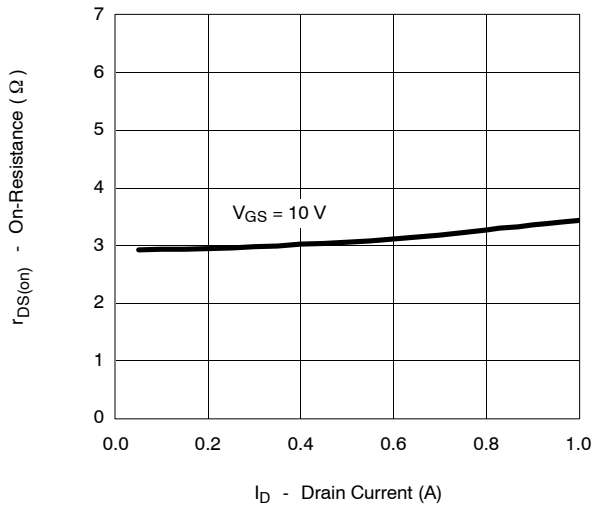
- a. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

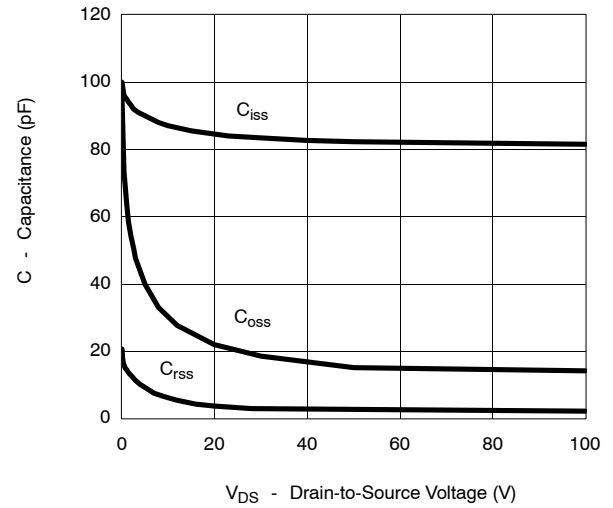


TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

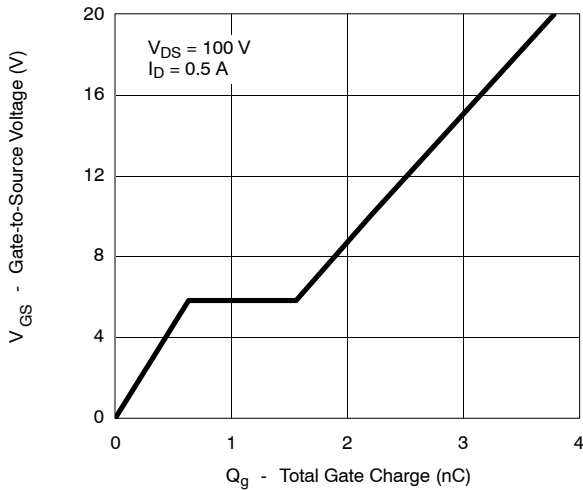
On-Resistance vs. Drain Current



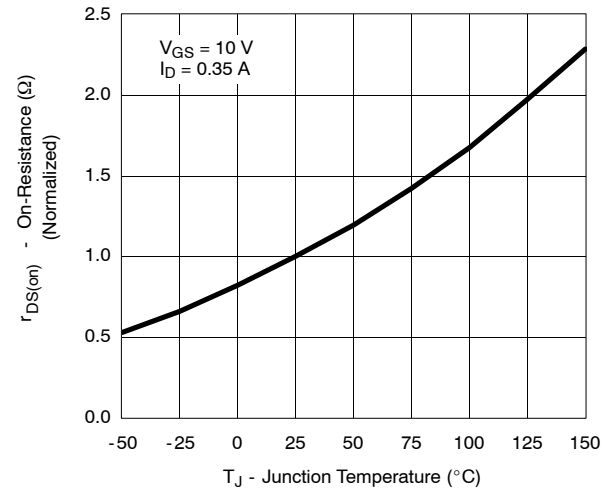
Capacitance



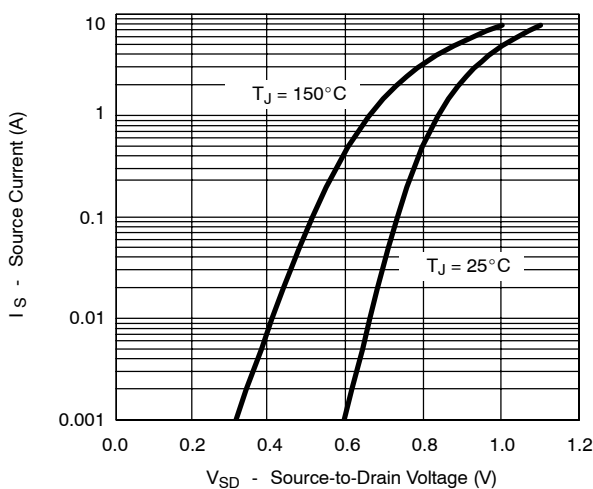
Gate Charge



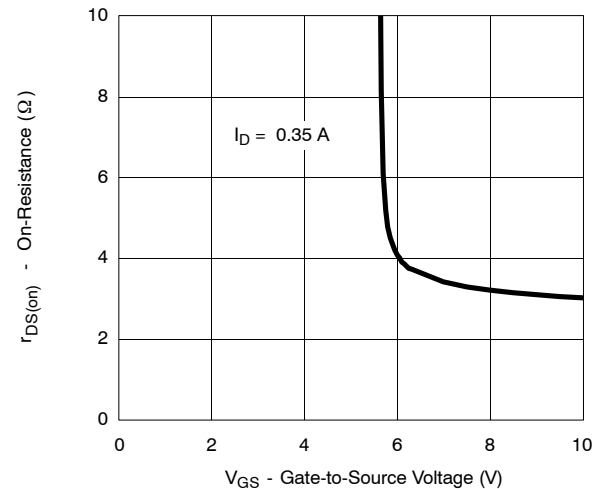
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage





TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

