



Si3420DV
Vishay Siliconix

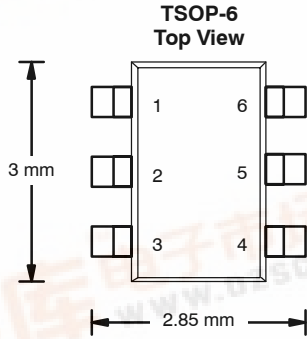
N-Channel 200-V (D-S) MOSFET

PRODUCT SUMMARY

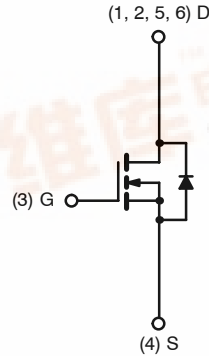
V_{DS} (V)	r_{DS(on)} (Ω)	I_D (A)
200	3.7 @ V _{GS} = 10 V	0.5

FEATURES

- 100% R_g Tested



Ordering Information: SI3420DV-T1



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25°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°C) ^a	I _D	T _A = 25°C	0.5	0.37	A
		T _A = 70°C	0.4	0.29	
Pulsed Drain Current (10 μs Pulse Width)	I _{DM}	1			
Avalanche Current	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	P _D	T _A = 25°C	2.1	1.14	W
		T _A = 70°C	1.34	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	R _{thJA}	t ≤ 5 sec	50	60	°C/W
		Steady State	90	110	
Maximum Junction-to-Foot	R _{thJF}	35	42		

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

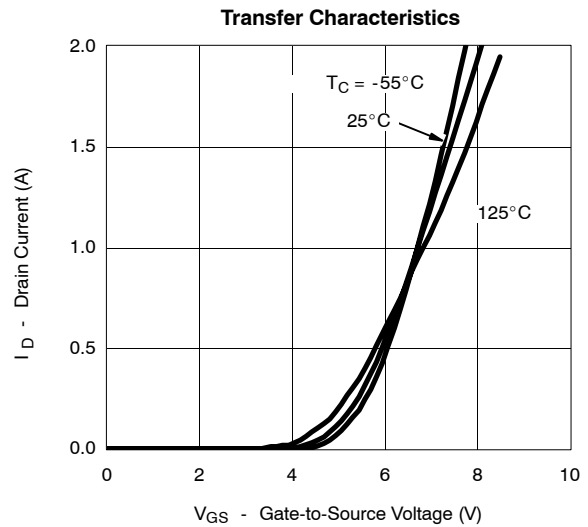
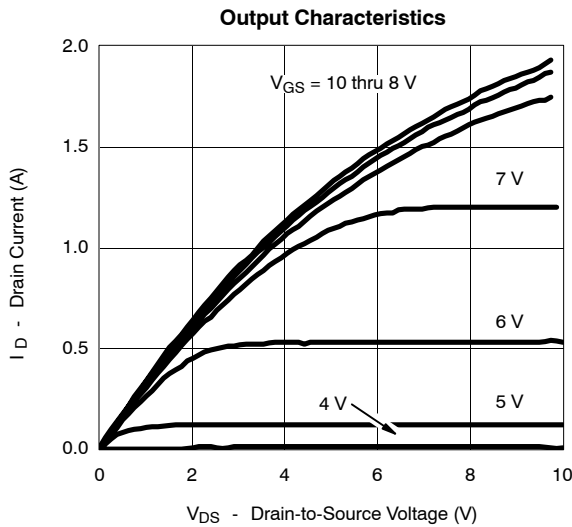


SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	2.0			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 160 V, V _{GS} = 0 V			1	μA
		V _{DS} = 160 V, V _{GS} = 0 V, T _J = 55 °C			25	
On-State Drain Current ^a	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 10 V	1			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 0.35 A			3.7	Ω
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 1 A		9		S
Diode Forward Voltage ^a	V _{SD}	I _S = 1 A, V _{GS} = 0 V			1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 100 V, V _{GS} = 10 V, I _D = 0.5 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 V, R _L = 100 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω		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 A, di/dt = 100 A/μs		140	

Notes

- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

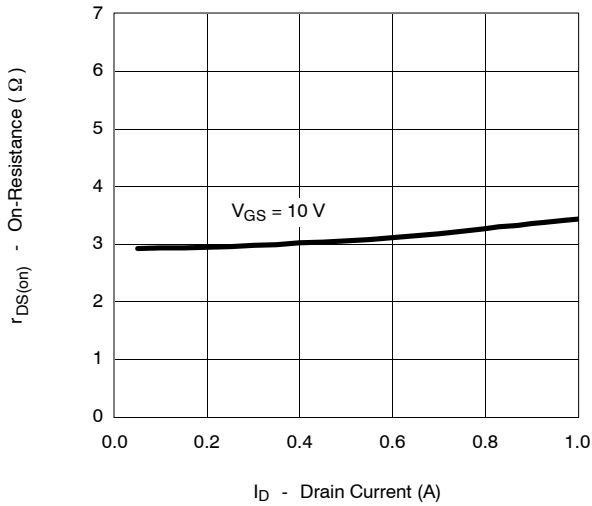
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



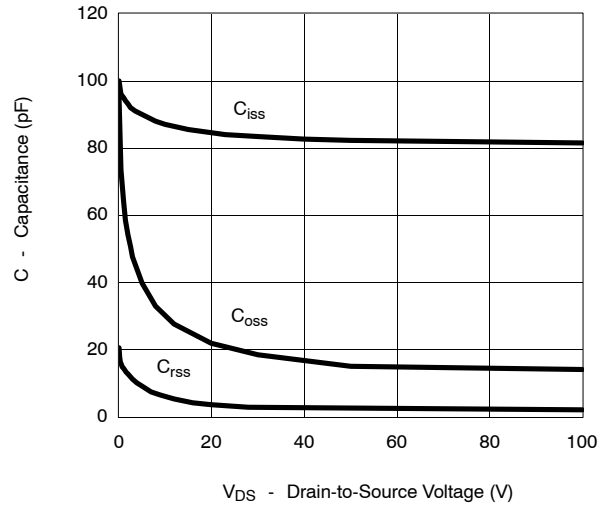


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

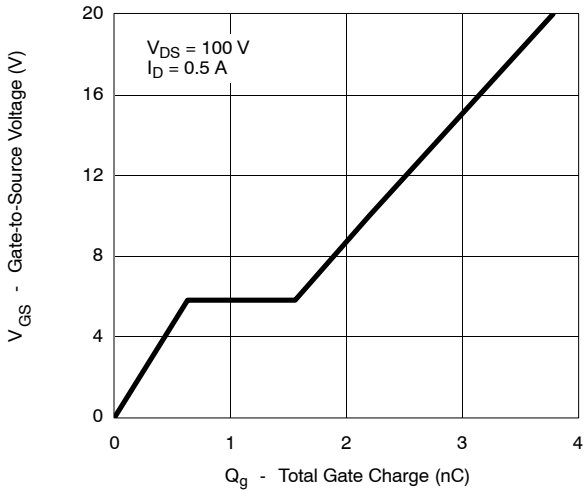
On-Resistance vs. Drain Current



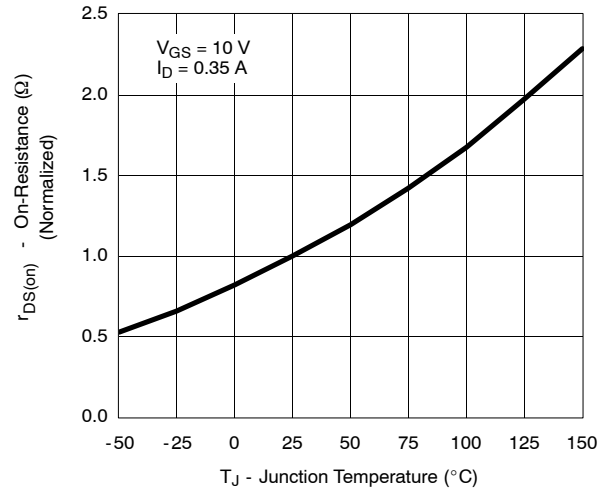
Capacitance



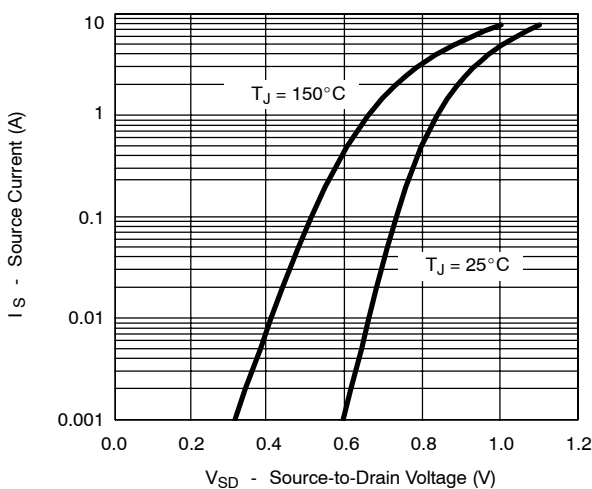
Gate Charge



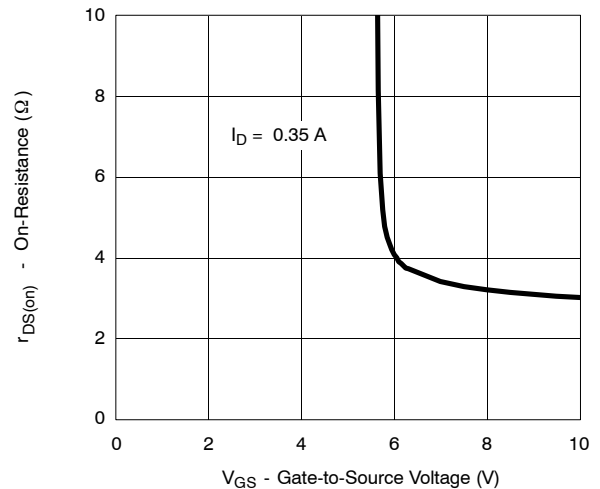
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

