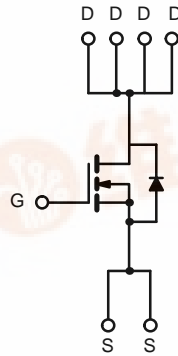
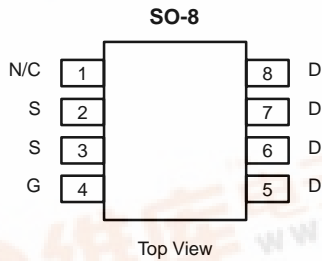




**Si9420DY**  
Siliconix

**N-Channel Enhancement-Mode MOSFET**

PRODUCT SUMMARY		
V <sub>DS</sub> (V)	R <sub>DS(ON)</sub> (Ω)	I <sub>D</sub> (A)
200	1.0 @ V <sub>GS</sub> = 10 V	± 1.0



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)			
PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V <sub>DS</sub>	200	V
Gate-Source Voltage	V <sub>GS</sub>	±20	
Continuous Drain Current (T <sub>J</sub> = 150°C) <sup>A</sup>	I <sub>D</sub>	T <sub>A</sub> = 25°C	± 1.0
		T <sub>A</sub> = 70°C	± 0.8
Pulsed Drain Current	I <sub>DM</sub>	± 10	A
Avalanche Current	I <sub>AS</sub>	5	
Single Avalanche Energy	E <sub>AS</sub>	1.3	mJ
Continuous Source Current (Diode Conduction) <sup>A</sup>	I <sub>S</sub>	1.0	A
Maximum Power Dissipation <sup>A</sup>	P <sub>D</sub>	T <sub>A</sub> = 25°C	2.5
		T <sub>A</sub> = 70°C	1.6
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150	°C

THERMAL RESISTANCE RATINGS			
PARAMETER	SYMBOL	LIMIT	UNIT
Maximum Junction-to-Ambient <sup>A</sup>	R <sub>thJA</sub>	50	°C/W

Notes  
<sup>A</sup> Surface Mounted on FR4 Board, t ≤ 10 sec.

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70123.

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SPECIFICATIONS (T <sub>J</sub> = 25°C UNLESS OTHERWISE NOTED)						
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP <sup>A</sup>	MAX	UNIT
<b>STATIC</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	2			V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V	2		±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 160 V, V <sub>GS</sub> = 0 V			2	μA
		V <sub>DS</sub> = 160 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55°C			25	
On-State Drain Current <sup>B</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 10 V, V <sub>GS</sub> = 10 V	5.0			A
Drain-Source On-State Resistance <sup>B</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 1.0 A		0.8	1.0	Ω
Forward Transconductance <sup>B</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 1.0 A		1.5		S
Diode Forward Voltage <sup>B</sup>	V <sub>SD</sub>	I <sub>S</sub> = 1.0 A, V <sub>GS</sub> = 0 V		0.7	1.2	V
<b>DYNAMIC<sup>A</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 100 V, V <sub>GS</sub> = 10 V, I <sub>D</sub> = 1.0 A		8.6	16	nC
Gate-Source Charge	Q <sub>gs</sub>			1.5		
Gate-Drain Charge	Q <sub>gd</sub>			3.2		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 100 V, R <sub>L</sub> = 100 Ω I <sub>D</sub> ≅ 1.0 A, V <sub>GEN</sub> = 10 V, R <sub>G</sub> = 6 Ω		7	14	ns
Rise Time	t <sub>r</sub>			12	24	
Turn-Off Delay Time	t <sub>d(off)</sub>			26	50	
Fall Time	t <sub>f</sub>			15	30	
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 1.0 A, di/dt = 100 A/μs		130		

**Notes**

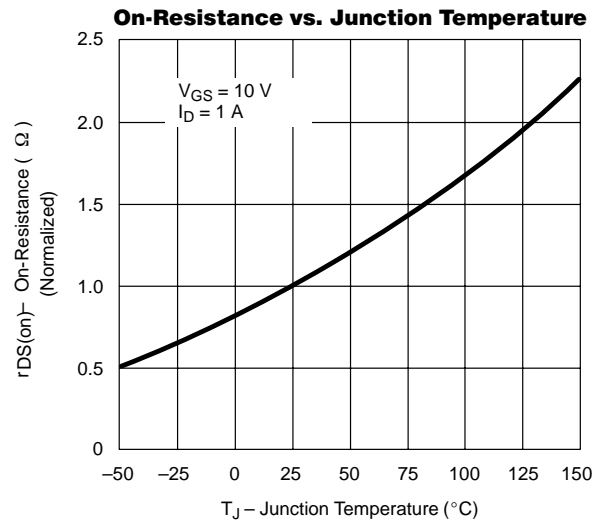
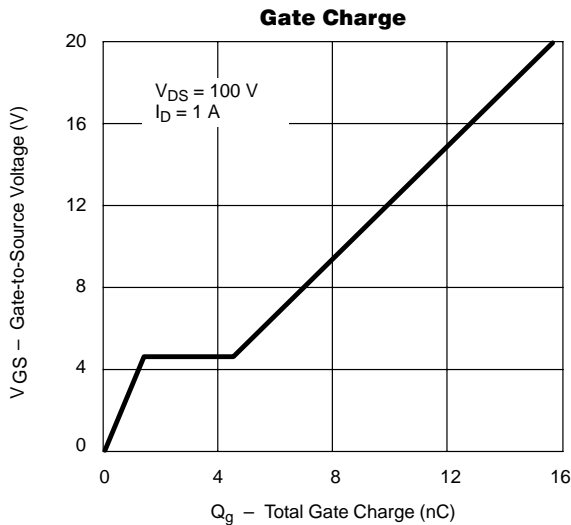
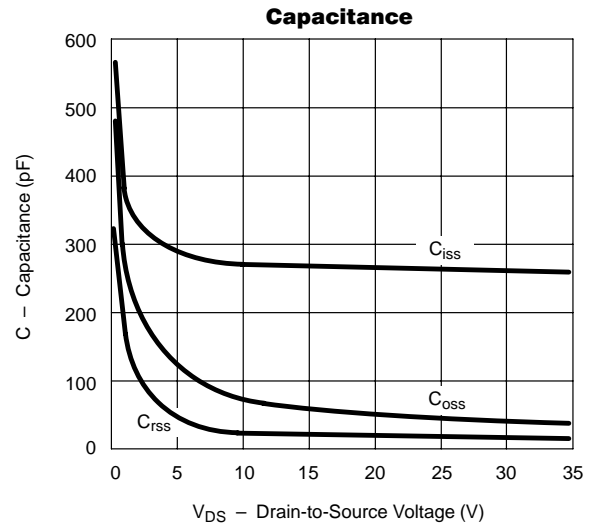
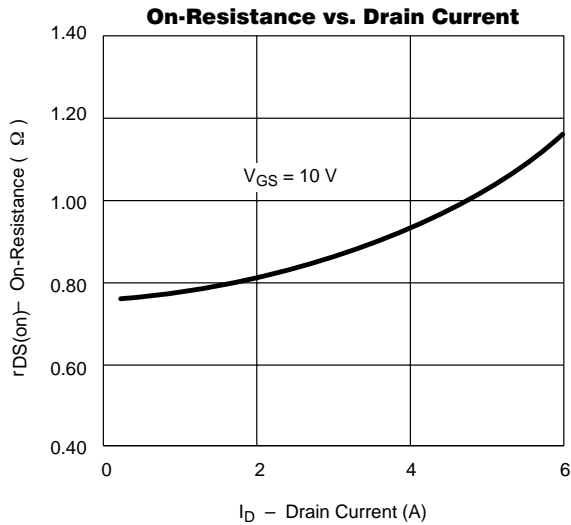
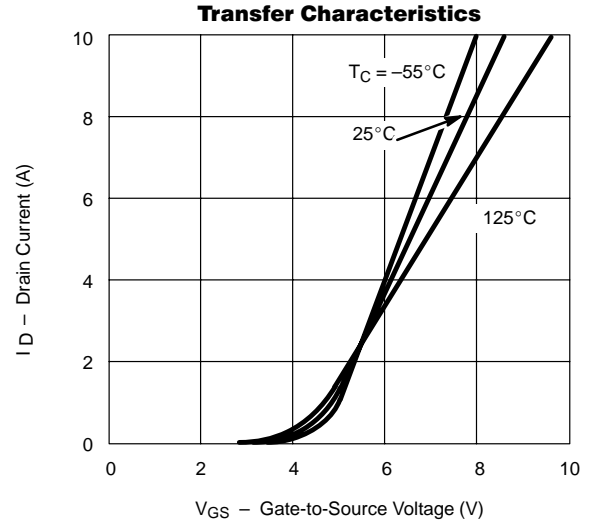
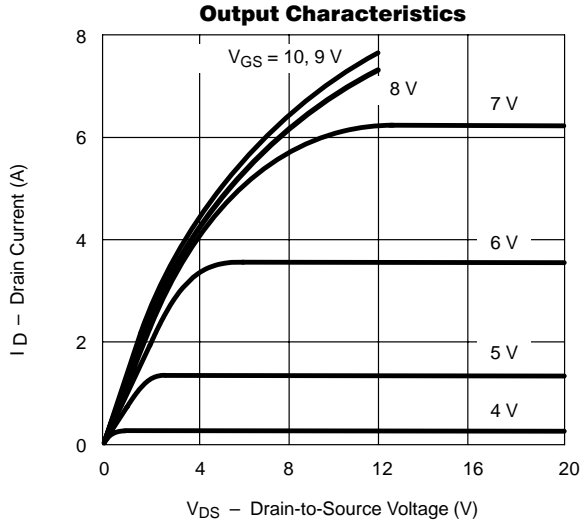
- A. Guaranteed by design, not subject to production testing.
- B. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.



# Si9420DY

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### TYPICAL CHARACTERISTICS (25°C UNLESS OTHERWISE NOTED)





### TYPICAL CHARACTERISTICS (25°C UNLESS OTHERWISE NOTED)

