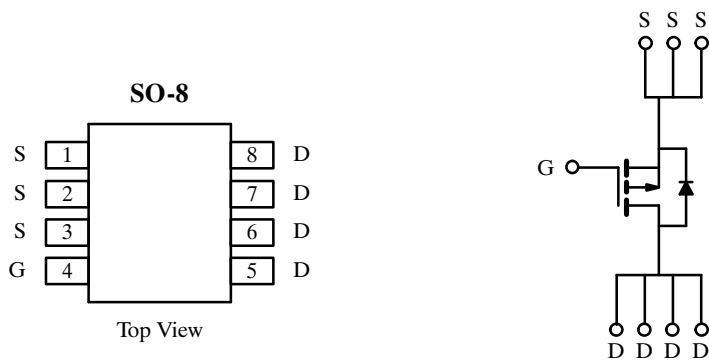


P-Channel Enhancement-Mode MOSFET

Product Summary

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.050 @ $V_{GS} = -10$ V	± 5.8
	0.065 @ $V_{GS} = -6$ V	± 4.9
	0.090 @ $V_{GS} = -4.5$ V	± 4.0



P-Channel MOSFET

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	I_D	$T_A = 25^\circ\text{C}$	± 5.8
		$T_A = 70^\circ\text{C}$	± 4.6
Pulsed Drain Current	I_{DM}	± 15	A
Continuous Source Current (Diode Conduction) ^a	I_S	-2.4	
Maximum Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	2.5
		$T_A = 70^\circ\text{C}$	1.6
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

Thermal Resistance Ratings

Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient ^a	R_{thJA}	50	$^\circ\text{C}/\text{W}$

Notes

a. Surface Mounted on FR4 Board, $t \leq 10$ sec.

Subsequent updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #1206.

Si9430DY

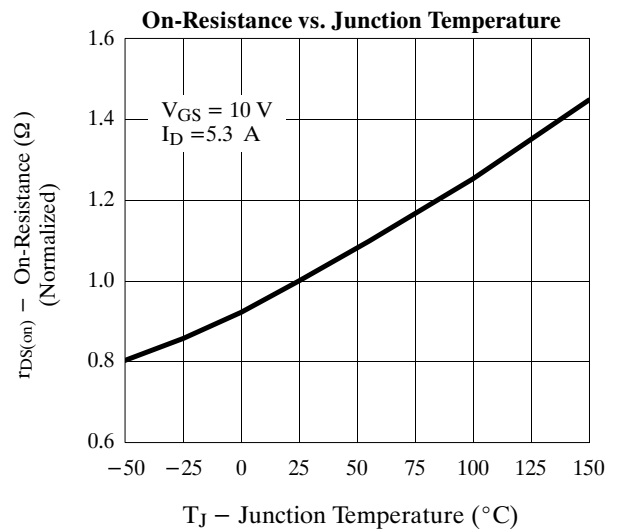
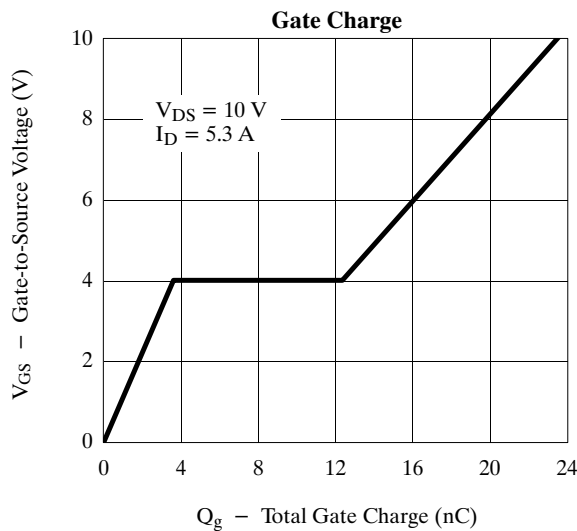
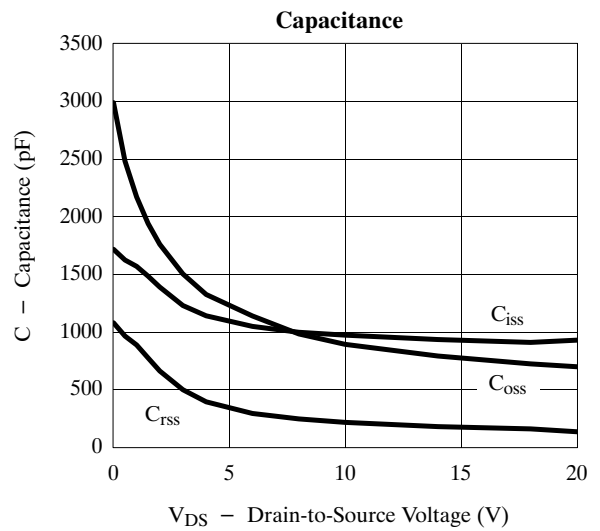
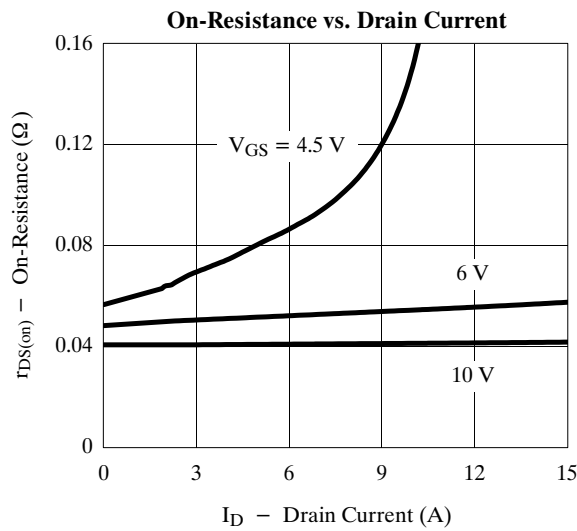
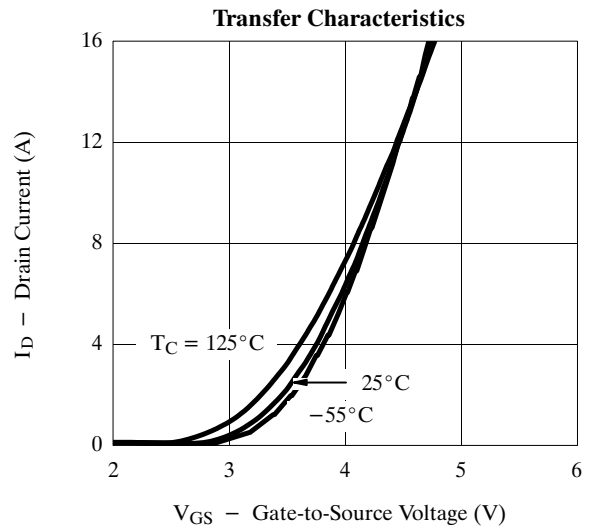
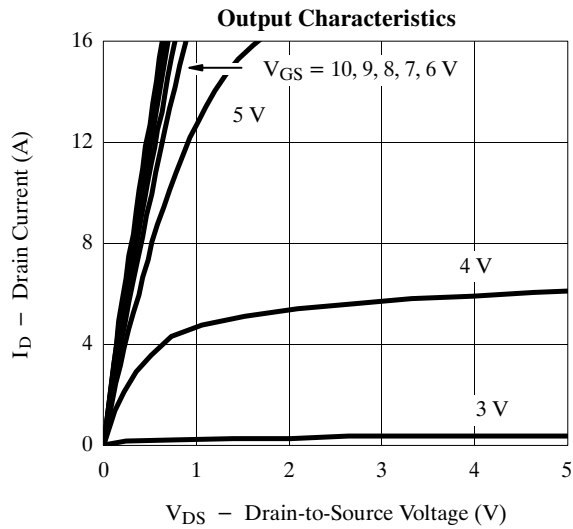
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-1.0			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}	$V_{DS} = -16\ \text{V}, V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -10\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 70^\circ\text{C}$			-5	
On-State Drain Current ^b	$I_{D(on)}$	$V_{DS} \leq -5\ \text{V}, V_{GS} = -10\ \text{V}$	-15			A
		$V_{DS} \leq -5\ \text{V}, V_{GS} = -4.5\ \text{V}$	-3.6			
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = -10\ \text{V}, I_D = -5.3\ \text{A}$		0.040	0.050	Ω
		$V_{GS} = -6\ \text{V}, I_D = -3.6\ \text{A}$		0.055	0.065	
		$V_{GS} = -4.5\ \text{V}, I_D = -2.0\ \text{A}$		0.070	0.090	
Forward Transconductance ^b	g_{fs}	$V_{DS} = -15\ \text{V}, I_D = -5.3\ \text{A}$		8.0		S
Diode Forward Voltage ^b	V_{SD}	$I_S = -2.4\ \text{A}, V_{GS} = 0\ \text{V}$		-0.9	-1.2	V
Dynamic^a						
Total Gate Charge	Q_g	$V_{DS} = -10\ \text{V}, V_{GS} = -10\ \text{V}, I_D = -5.3\ \text{A}$		25	50	nC
Gate-Source Charge	Q_{gs}			5		
Gate-Drain Charge	Q_{gd}			8		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10\ \text{V}, R_L = 10\ \Omega$ $I_D \cong -1\ \text{A}, V_{GEN} = -10\ \text{V}, R_G = 6\ \Omega$		14	30	ns
Rise Time	t_r			22	60	
Turn-Off Delay Time	$t_{d(off)}$			50	120	
Fall Time	t_f			25	100	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -2.4\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		85	100	

Notes

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

Typical Characteristics (25°C Unless Otherwise Noted)



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Typical Characteristics (25°C Unless Otherwise Noted)

