

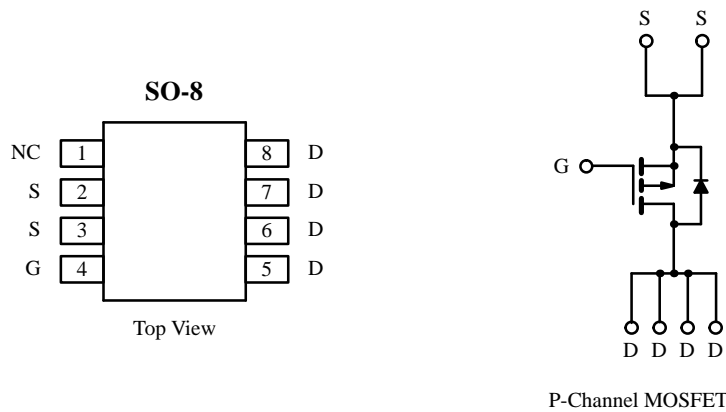
P-Channel Enhancement-Mode MOSFET

Product Summary

V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
-20	0.10 @ V _{GS} = -10 V	± 4.3
	0.16 @ V _{GS} = -4.5 V	± 3.4

Recommended upgrade: Si9430DY

Lower profile/smaller size—see LITE FOOT® equivalent: Si6447DQ



Absolute Maximum Ratings (T_A = 25° 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° C) ^a	I _D	T _A = 25° C	± 4.3
		T _A = 70° C	± 3.3
Pulsed Drain Current	I _{DM}	± 20	A
Continuous Source Current (Diode Conduction) ^a	I _S	-2.2	
Maximum Power Dissipation ^a	P _D	T _A = 25° C	2.5
		T _A = 70° C	1.6
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150	°C

Thermal Resistance Ratings

Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient ^a	R _{thJA}	50	°C/W

Notes

a. Surface Mounted on FR4 Board, t ≤ 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 #1202. A SPICE Model data sheet is available for this product (FaxBack document #5102).

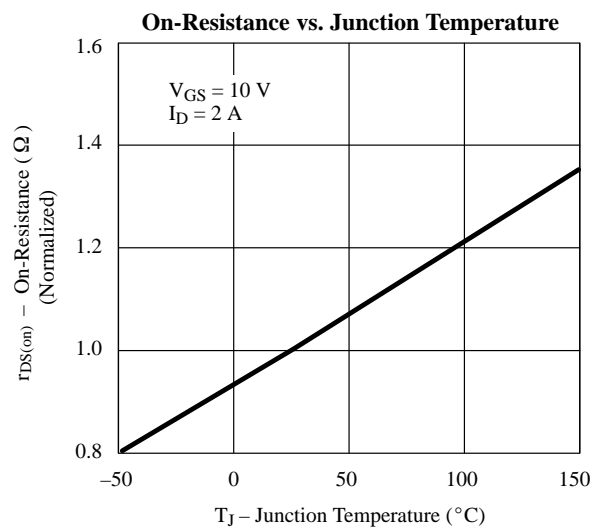
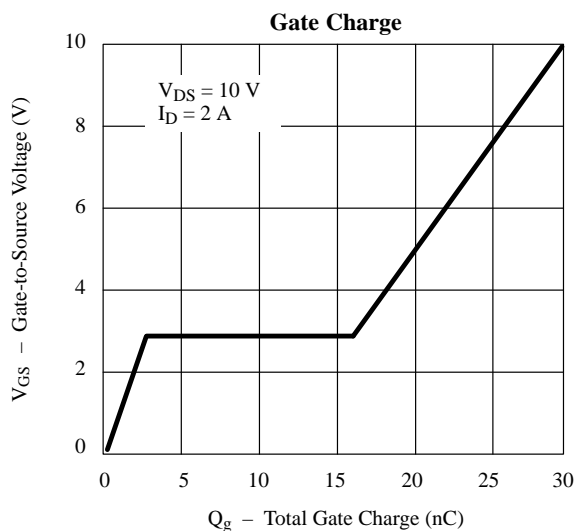
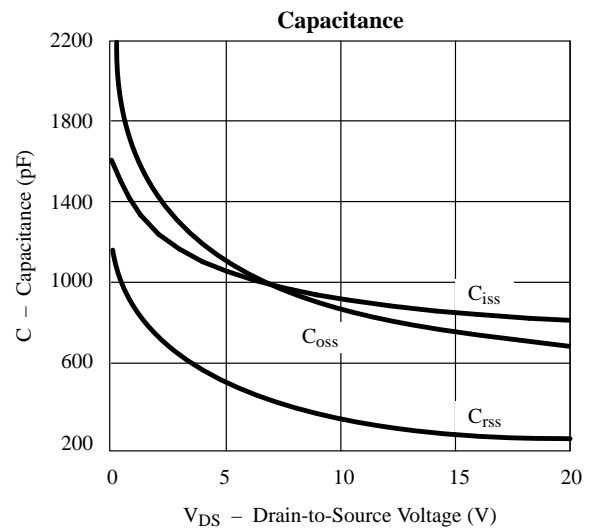
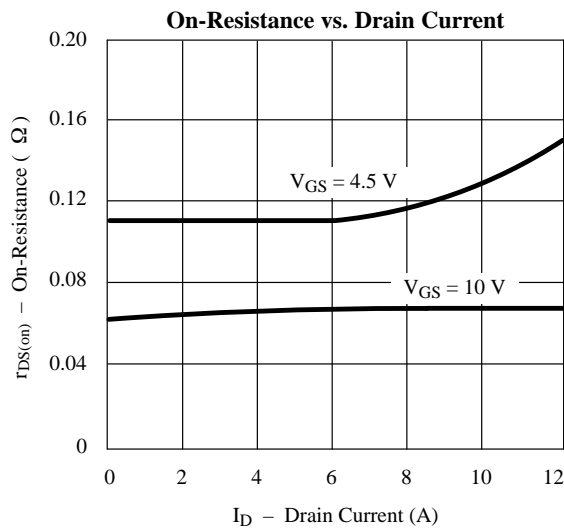
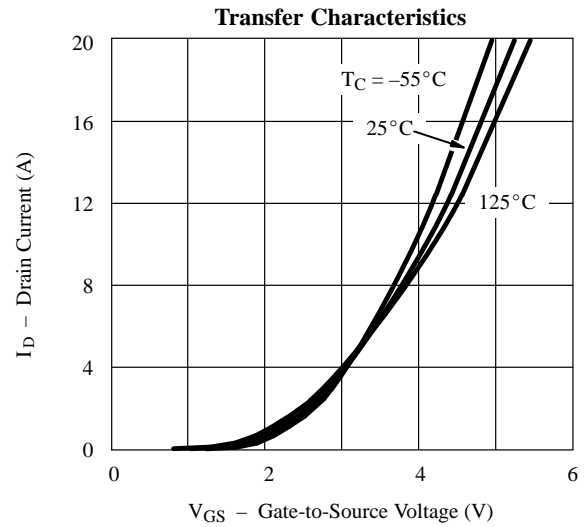
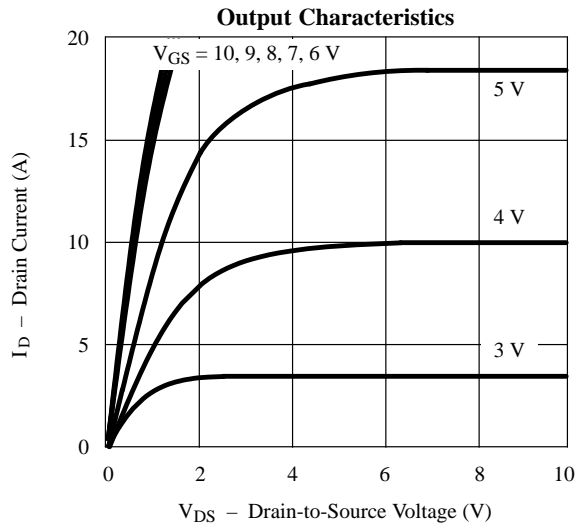
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$	-0.5			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}	$V_{DS} = -16 \text{ V}, V_{GS} = 0 \text{ V}$			-2	μA
		$V_{DS} = -16 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$			-25	
On-State Drain Current ^b	$I_{D(on)}$	$V_{DS} \leq -5 \text{ V}, V_{GS} = -10 \text{ V}$	-20			A
		$V_{DS} \leq -5 \text{ V}, V_{GS} = -4.5 \text{ V}$	-5			
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = -10 \text{ V}, I_D = 2.0 \text{ A}$		0.07	0.10	Ω
		$V_{GS} = -4.5 \text{ V}, I_D = 2.0 \text{ A}$		0.11	0.16	
Forward Transconductance ^b	g_{fs}	$V_{DS} = -15 \text{ V}, I_D = -4.3 \text{ A}$		6		S
Diode Forward Voltage ^b	V_{SD}	$I_S = -1.25 \text{ A}, V_{GS} = 0 \text{ V}$		-0.8	-1.6	V
Dynamic^a						
Total Gate Charge	Q_g	$V_{DS} = -10 \text{ V}, V_{GS} = -10 \text{ V}, I_D = -2.0 \text{ A}$		29	40	nC
Gate-Source Charge	Q_{gs}			2.7		
Gate-Drain Charge	Q_{gd}			14		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10 \text{ V}, R_L = 10 \Omega$ $I_D \cong -1 \text{ A}, V_{GEN} = -10 \text{ V}, R_G = 6 \Omega$		15	30	ns
Rise Time	t_r			30	80	
Turn-Off Delay Time	$t_{d(off)}$			142	200	
Fall Time	t_f			130	200	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 1.25 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$		70		

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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