

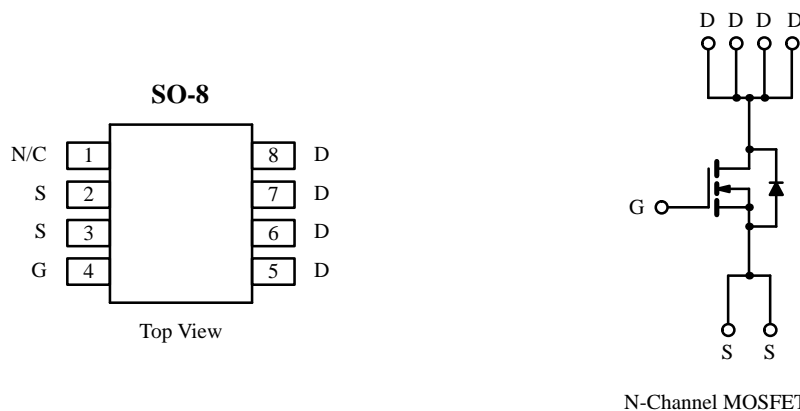
N-Channel Enhancement-Mode MOSFET

Product Summary

V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
30	0.030 @ V _{GS} = 10 V	± 7.0
	0.040 @ V _{GS} = 5 V	± 6.0
	0.050 @ V _{GS} = 4.5 V	± 5.4

Recommended upgrade: Si4410DY or Si4936DY

Lower profile/smaller size—see LITE FOOT® equivalent: Si6434DQ



Absolute Maximum Ratings (T_A = 25° C Unless Otherwise Noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	± 20	
Continuous Drain Current (T _J = 150°C) ^a	I _D	T _A = 25°C	± 7.0
		T _A = 70°C	± 5.8
Pulsed Drain Current	I _{DM}	± 20	A
Continuous Source Current (Diode Conduction) ^a	I _S	2.8	
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 #1204. A SPICE Model data sheet is available for this product (FaxBack document #5103).

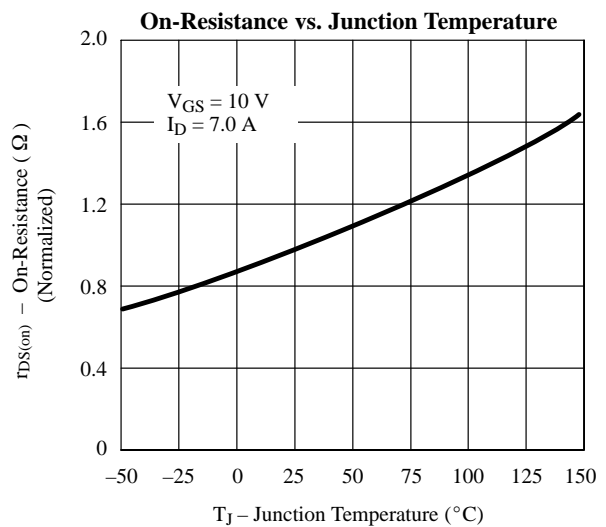
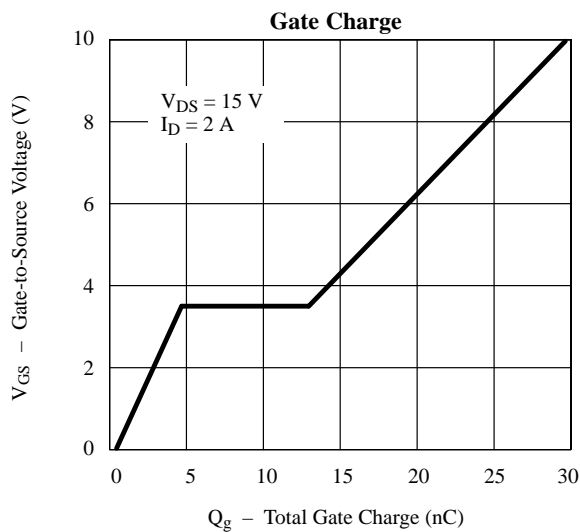
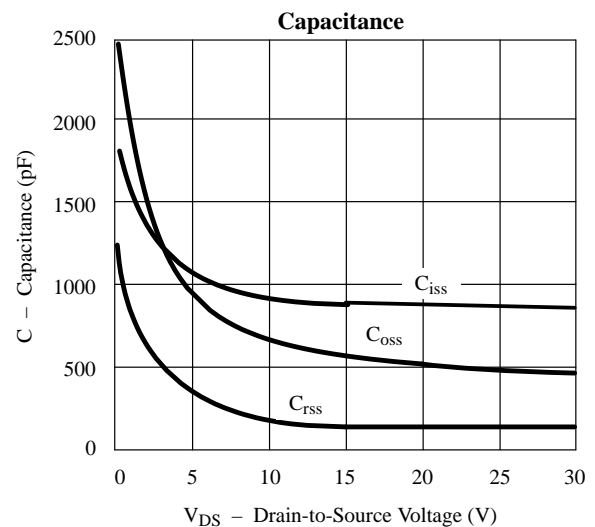
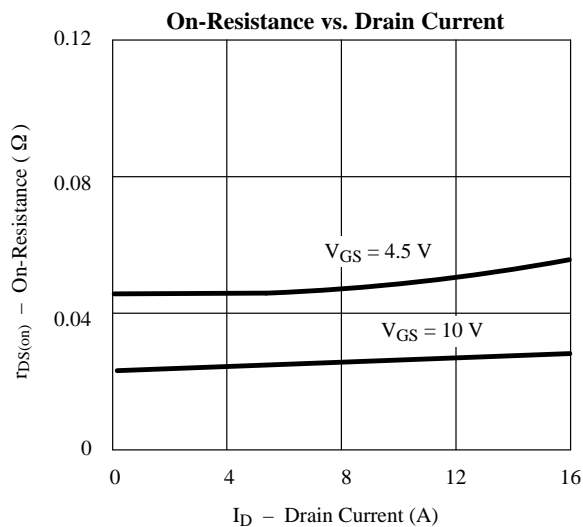
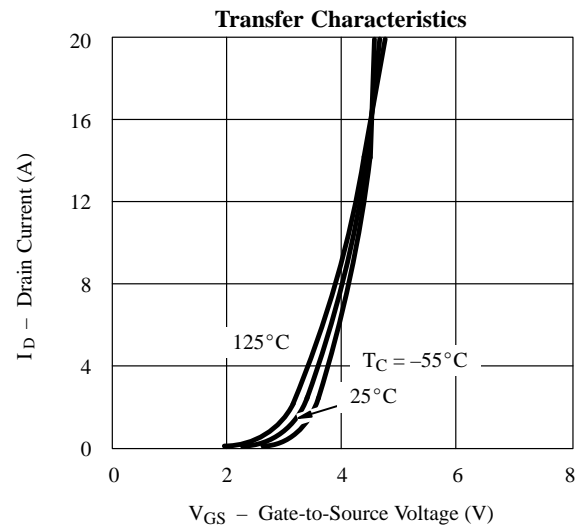
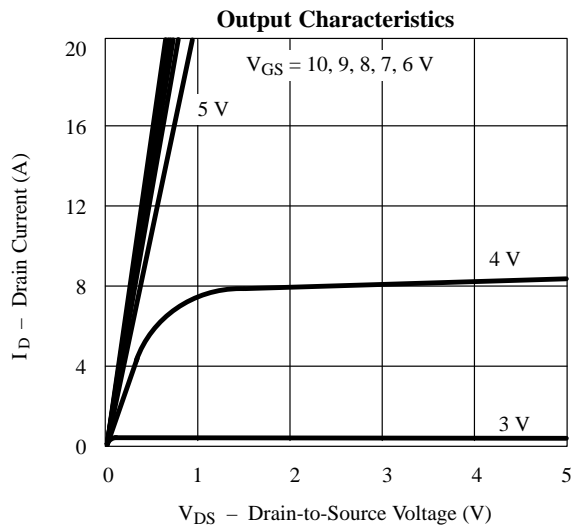
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

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}	$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}$			2	μA
		$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$			25	
On-State Drain Current ^b	$I_{D(on)}$	$V_{DS} \geq 5 \text{ V}, V_{GS} = 10 \text{ V}$	20			A
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = 10 \text{ V}, I_D = 7.0 \text{ A}$		0.026	0.030	Ω
		$V_{GS} = 5 \text{ V}, I_D = 4.0 \text{ A}$		0.034	0.040	
		$V_{GS} = 4.5 \text{ V}, I_D = 3.5 \text{ A}$		0.042	0.050	
Forward Transconductance ^b	g_{fs}	$V_{DS} = 15 \text{ V}, I_D = 7.0 \text{ A}$		14		S
Diode Forward Voltage ^b	V_{SD}	$I_S = 2 \text{ A}, V_{GS} = 0 \text{ V}$		0.75	1.1	V
Dynamic^a						
Total Gate Charge	Q_g	$V_{DS} = 15 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 2 \text{ A}$		30	50	nC
Gate-Source Charge	Q_{gs}			3.4		
Gate-Drain Charge	Q_{gd}			10.5		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 25 \text{ V}, R_L = 25 \Omega$ $I_D \cong 1 \text{ A}, V_{GEN} = 10 \text{ V}, R_G = 6 \Omega$		13	30	ns
Rise Time	t_r			30	60	
Turn-Off Delay Time	$t_{d(off)}$			95	150	
Fall Time	t_f			80	140	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 2 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$		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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