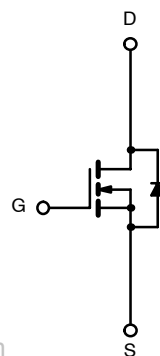
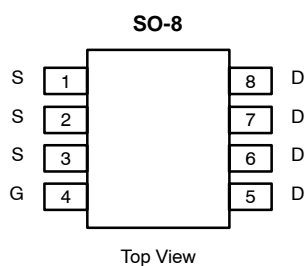




N-Channel 30-V (D-S) MOSFET

TrenchFET[®]
 Power MOSFETs
 2.5-V Rated
 100% R_G Tested

PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
30	0.0045 @ V _{GS} = 10 V	22
	0.005 @ V _{GS} = 4.5 V	19
	0.0075 @ V _{GS} = 2.5 V	17



N-Channel MOSFET

Ordering Information: Si4442DY
 Si4442DY-T1 (with Tape and Reel)
 Si4442DY—E3 (Lead Free)
 Si4442DY-T1—E3 (Lead Free with Tape and Reel)

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ABSOLUTE MAXIMUM RATINGS (T _A = 25 °C UNLESS OTHERWISE NOTED)					
Parameter	Symbol	10 secs	Steady State	Unit	
Drain-Source Voltage	V _{DS}	30		V	
Gate-Source Voltage	V _{GS}	±12			
Continuous Drain Current (T _J = 150 °C) ^a	I _D	T _A = 25 °C	22	15	A
		T _A = 70 °C	17	11	
Pulsed Drain Current (10 μs Pulse Width)	I _{DM}	60			
Continuous Source Current (Diode Conduction) ^a	I _S	2.9	1.3		
Maximum Power Dissipation ^a	P _D	T _A = 25 °C	3.5	1.6	W
		T _A = 70 °C	2.2	1	
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 ≤ 10 sec	29	35	°C/W
		Steady State	67	80	
Maximum Junction-to-Foot (Drain)	R _{thJF}	13	16		

Notes

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

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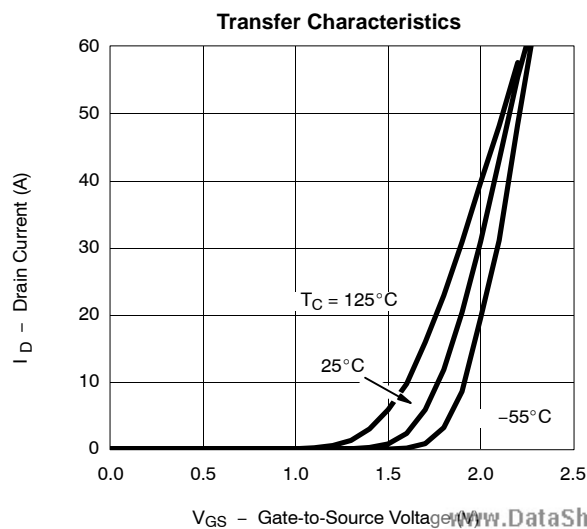
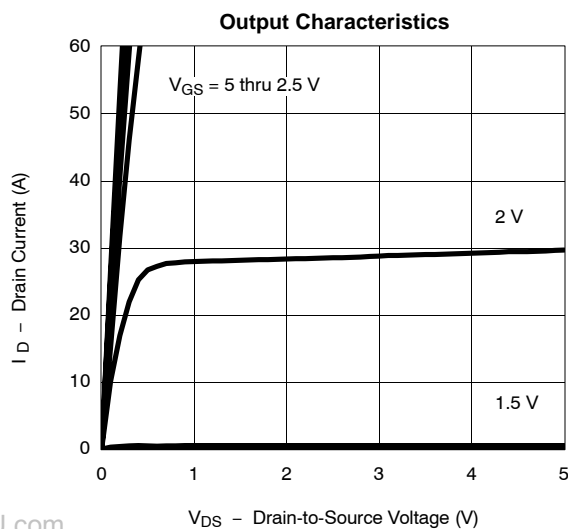


SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.6		1.5	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 12 V			± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V			1	μA
		V _{DS} = 30 V, V _{GS} = 0 V, T _J = 55 °C			5	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 10 V	30			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 22 A		0.0035	0.0045	Ω
		V _{GS} = 4.5 V, I _D = 19 A		0.0041	0.005	
		V _{GS} = 2.5 V, I _D = 17 A		0.0062	0.0075	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 22 A		100		S
Diode Forward Voltage ^a	V _{SD}	I _S = 2.9 A, V _{GS} = 0 V		0.75	1.1	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 4.5 V, I _D = 22 A		36	50	nC
Gate-Source Charge	Q _{gs}			8		
Gate-Drain Charge	Q _{gd}			10.5		
Gate Resistance	R _g		0.5	1.5	2.6	Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} = 15 V, R _L = 15 Ω I _D = 1 A, V _{GEN} = 10 V, R _g = 6 Ω		17	30	ns
Rise Time	t _r			11	20	
Turn-Off Delay Time	t _{d(off)}			125	180	
Fall Time	t _f			47	70	
Source-Drain Reverse Recovery Time	t _{rr}		I _F = 2.9 A, di/dt = 100 A/μs		50	

Notes

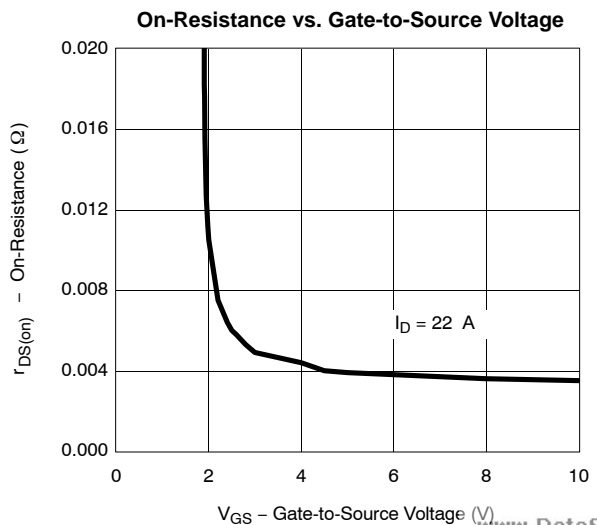
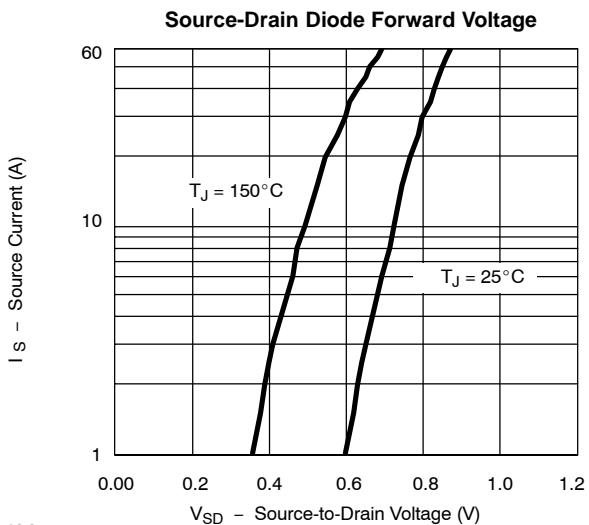
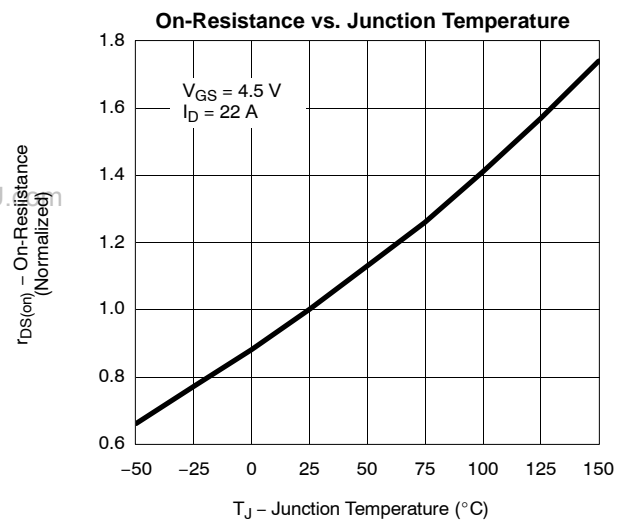
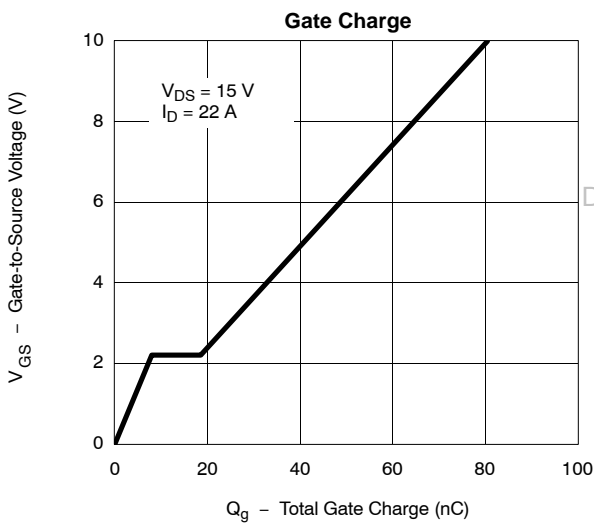
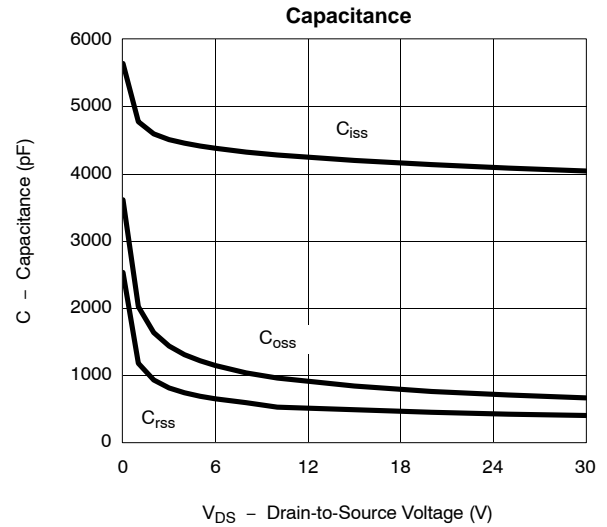
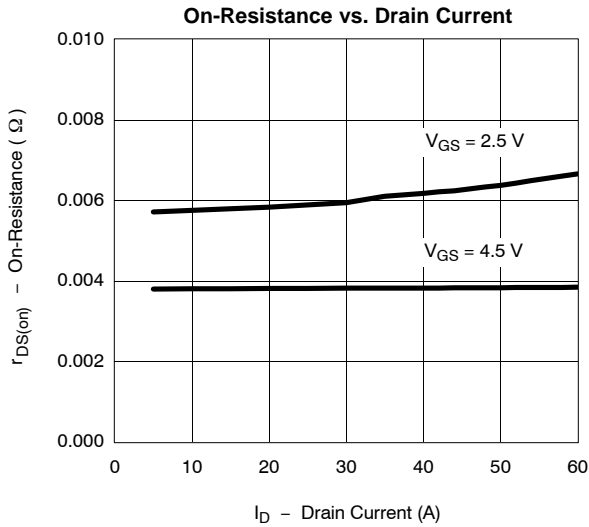
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
 b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



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TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

