



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

PRODUCT SUMMARY

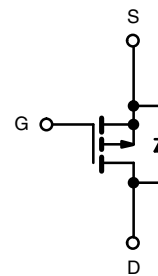
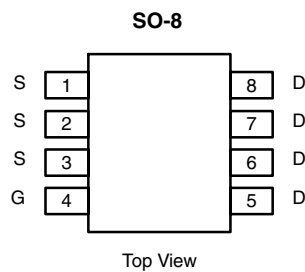
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-30	0.02 @ $V_{GS} = -10$ V	-8.0
	0.035 @ $V_{GS} = -4.5$ V	-6.0

FEATURES

- Lead (Pb)-Free Version is RoHS Compliant



RoHS
COMPLIANT



P-Channel MOSFET

Ordering Information: Si4435DY-T1-REV A
Si4435DY-T1-A-E3 (Lead (Pb)-Free)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	I_D	-8.0	A
		-6.4	
Pulsed Drain Current	I_{DM}	-50	
Continuous Source Current (Diode Conduction) ^a	I_S	-2.1	
Maximum Power Dissipation ^a	P_D	2.5	W
		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	$^\circ\text{C/W}$

Notes

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

For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>

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	-2.0	-3.0	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}	$V_{DS} = -30\ \text{V}, V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -30\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 70^\circ\text{C}$			-5	
On-State Drain Current ^b	$I_{D(on)}$	$V_{DS} \leq -5\ \text{V}, V_{GS} = -10\ \text{V}$	-40			A
		$V_{DS} \leq -5\ \text{V}, V_{GS} = -4.5\ \text{V}$	-10			
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = -10\ \text{V}, I_D = -8.0\ \text{A}$		0.015	0.02	Ω
		$V_{GS} = -4.5\ \text{V}, I_D = -5.0\ \text{A}$		0.022	0.035	
Forward Transconductance ^b	g_{fs}	$V_{DS} = -15\ \text{V}, I_D = -8.0\ \text{A}$		20		S
Diode Forward Voltage ^b	V_{SD}	$I_S = -2.1\ \text{A}, V_{GS} = 0\ \text{V}$		-0.75	-1.2	V
Dynamic^a						
Total Gate Charge	Q_g	$V_{DS} = -15\ \text{V}, V_{GS} = -10\ \text{V}, I_D = -4.6\ \text{A}$		47	60	nC
Gate-Source Charge	Q_{gs}			9.5		
Gate-Drain Charge	Q_{gd}			8		
Gate Resistance	R_G			2.75	4.1	Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -15\ \text{V}, R_L = 15\ \Omega$ $I_D \cong -1\ \text{A}, V_{GEN} = -10\ \text{V}, R_G = 6\ \Omega$		16	30	ns
Rise Time	t_r			17	30	
Turn-Off Delay Time	$t_{d(off)}$			75	120	
Fall Time	t_f			31	80	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -2.1\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		40	80	

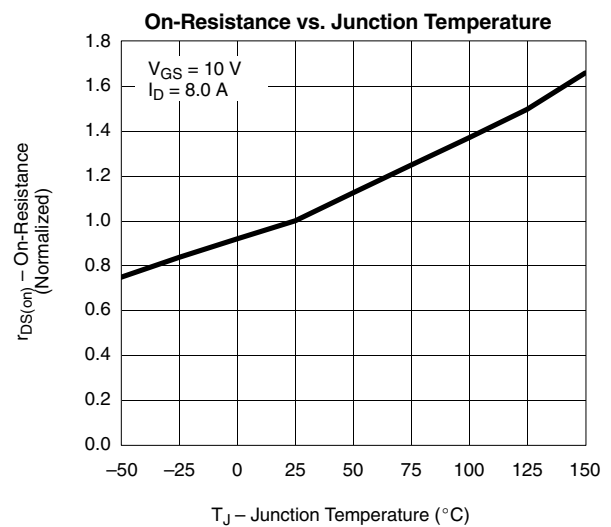
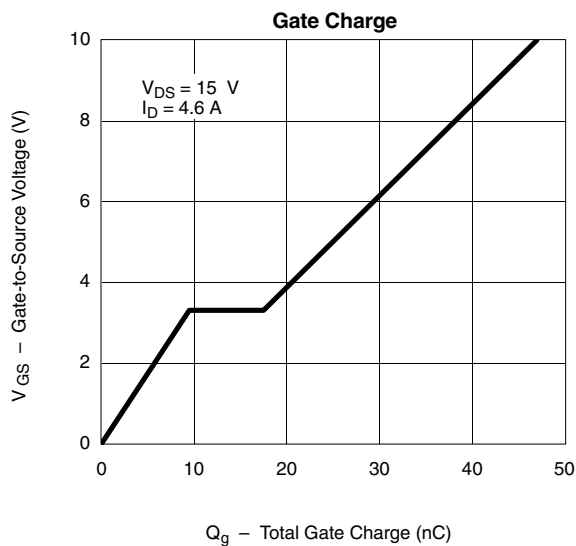
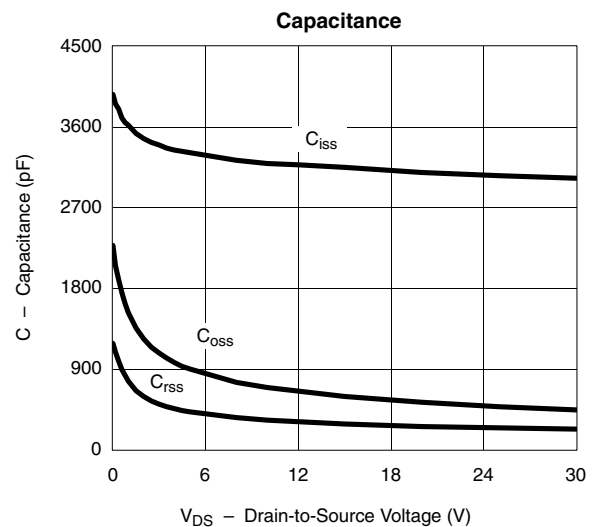
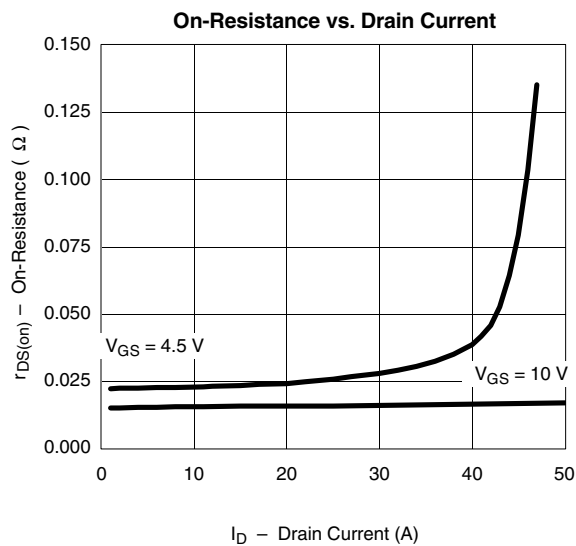
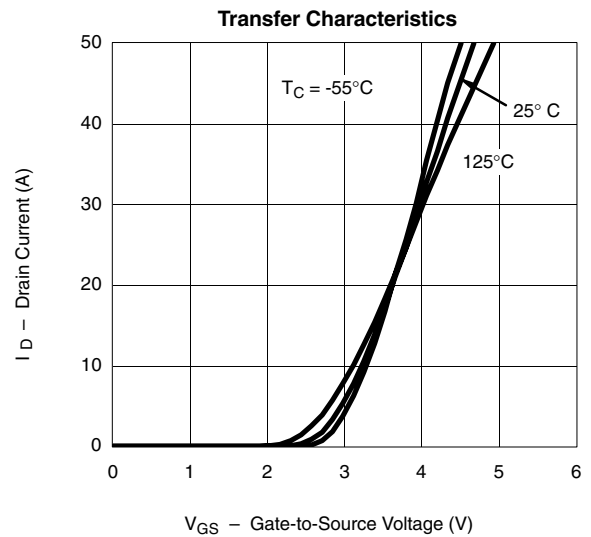
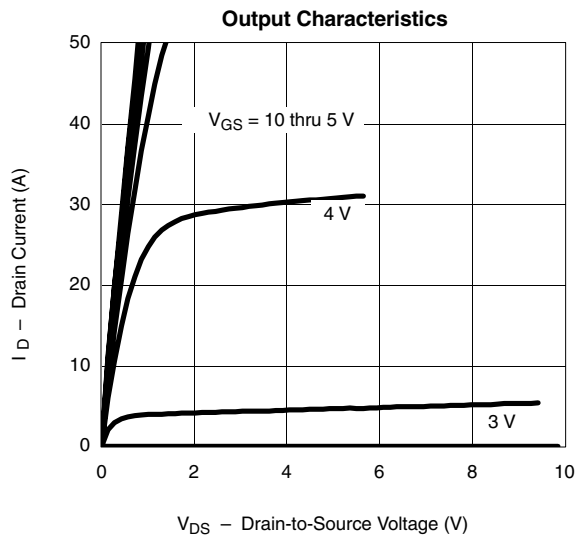
Notes

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

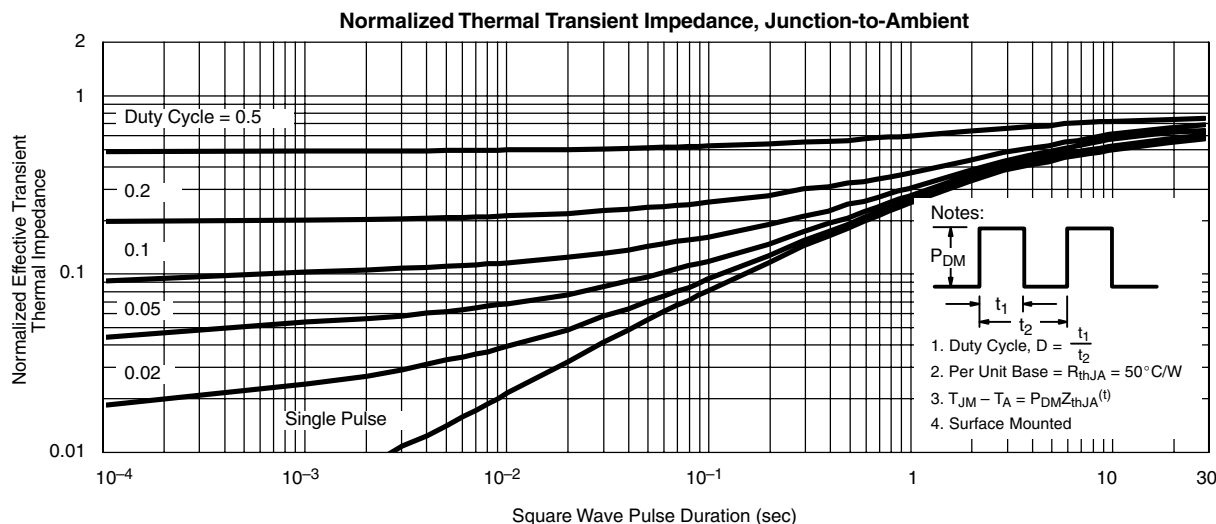
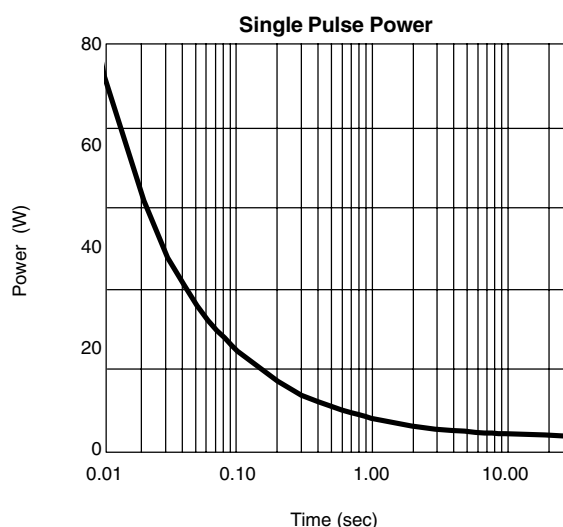
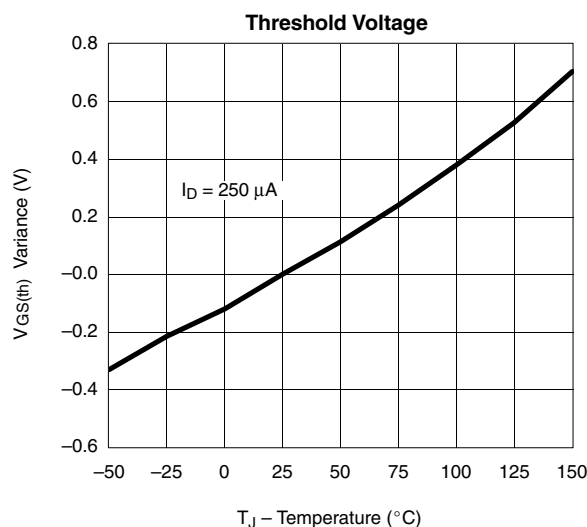
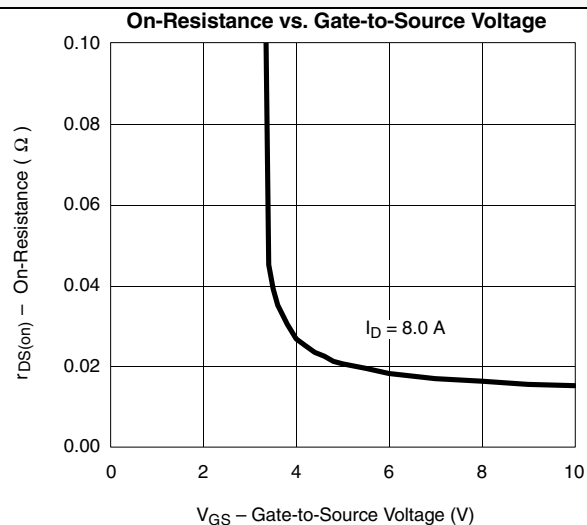
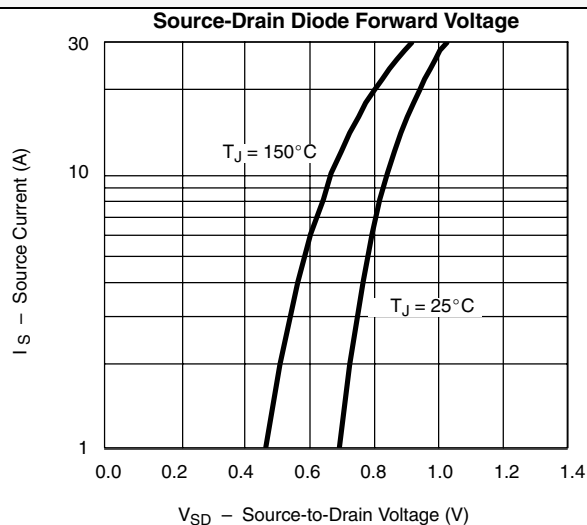
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



TYPICAL CHARACTERISTICS, PRODUCT REVISION A (25°C UNLESS NOTED)



TYPICAL CHARACTERISTICS, PRODUCT REVISION A (25°C UNLESS NOTED)



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