



New Product

Si4427DY
Vishay Siliconix

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

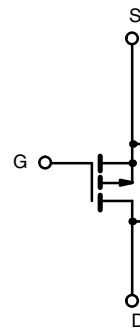
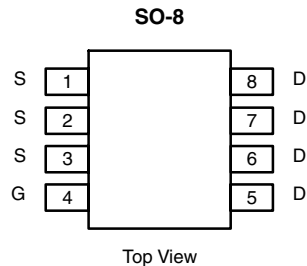
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-30	0.0105 @ $V_{GS} = -10$ V	-13.3
	0.0125 @ $V_{GS} = -4.5$ V	-12.2
	0.0195 @ $V_{GS} = -2.5$ V	-9.8

FEATURES

- TrenchFET® Power MOSFETs



RoHS
COMPLIANT



Ordering Information: Si4427DY-T1
Si4427DY-T1-E3 (Lead (Pb)-free)

P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	10 secs	Steady State
Drain-Source Voltage		V_{DS}	-30	
Gate-Source Voltage		V_{GS}	± 12	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	-13.3	-9.4
	$T_A = 70^\circ\text{C}$		-10.7	-7.5
Pulsed Drain Current		I_{DM}	-50	
continuous Source Current (Diode Conduction) ^a		I_S	-2.5	-1.3
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	3.0	1.5
	$T_A = 70^\circ\text{C}$		1.9	0.9
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Typical	Maximum
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	R_{thJA}	32	42
	Steady State		68	85
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	15	18

Notes

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

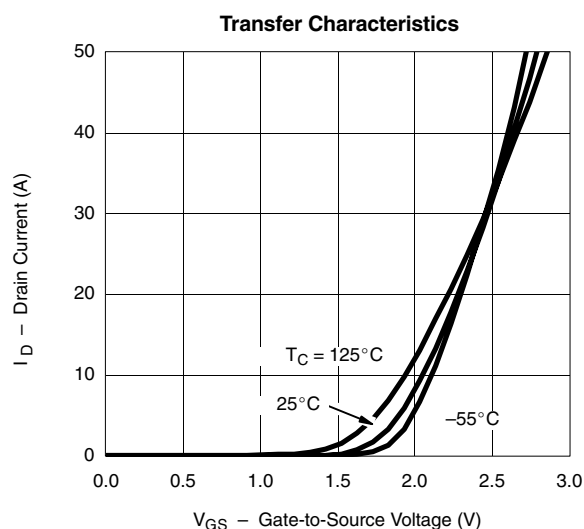
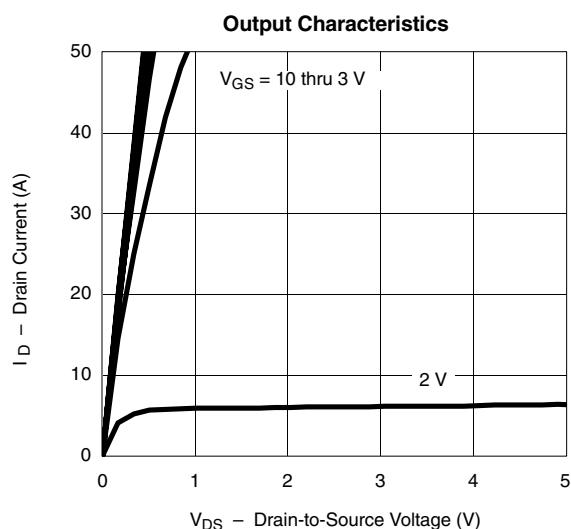
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

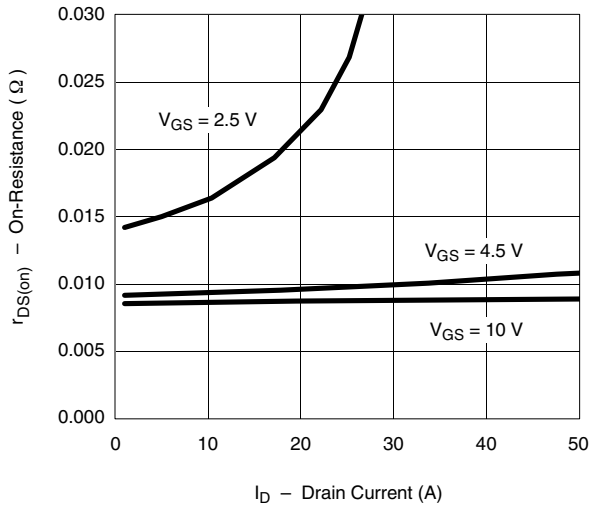
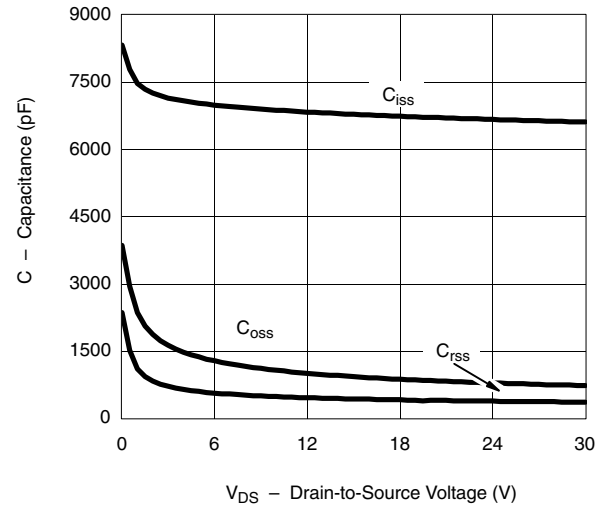
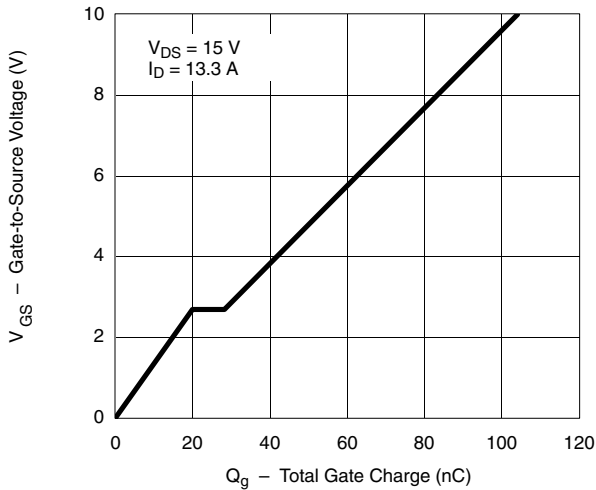
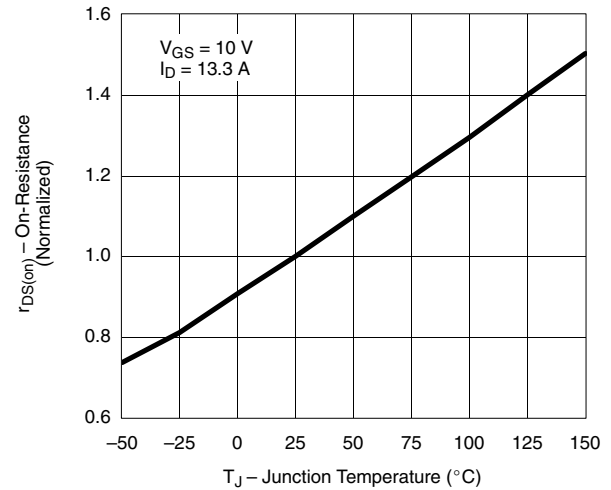
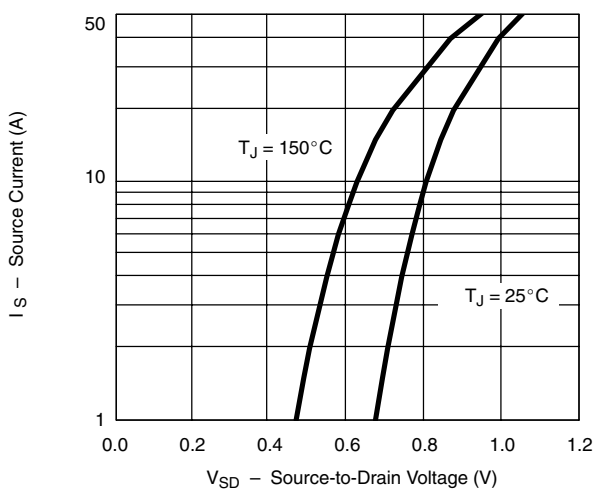
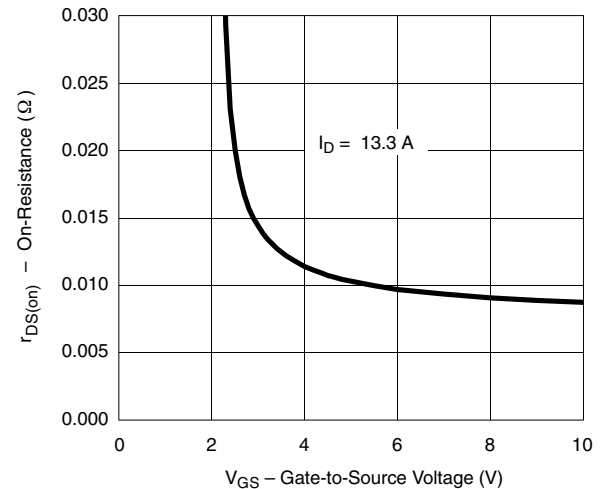
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-0.60		-1.7	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}, V_{GS} = \pm 12\ \text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30\ \text{V}, V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -30\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 55^\circ\text{C}$			-5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \leq -5\ \text{V}, V_{GS} = -10\ \text{V}$	-50			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -10\ \text{V}, I_D = -13.3\ \text{A}$		0.0086	0.0105	Ω
		$V_{GS} = -4.5\ \text{V}, I_D = -12.2\ \text{A}$		0.0105	0.0125	
		$V_{GS} = -2.5\ \text{V}, I_D = -9.8\ \text{A}$		0.0165	0.0195	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -15\ \text{V}, I_D = -13.3\ \text{A}$		40		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -2.5\ \text{A}, V_{GS} = 0\ \text{V}$		-0.8	-1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -15\ \text{V}, V_{GS} = -4.5\ \text{V}, I_D = -13.3\ \text{A}$		47	70	nC
Gate-Source Charge	Q_{gs}			20		
Gate-Drain Charge	Q_{gd}			8.3		
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	25	ns
Rise Time	t_r			12	20	
Turn-Off Delay Time	$t_{d(off)}$			220	330	
Fall Time	t_f			70	110	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -2.5\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		50	80	

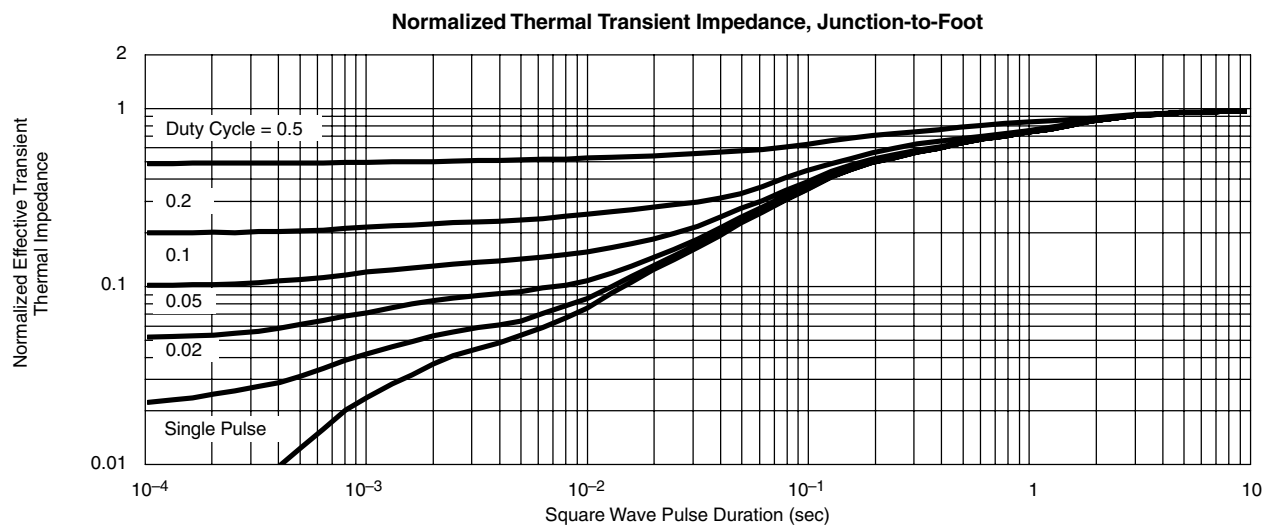
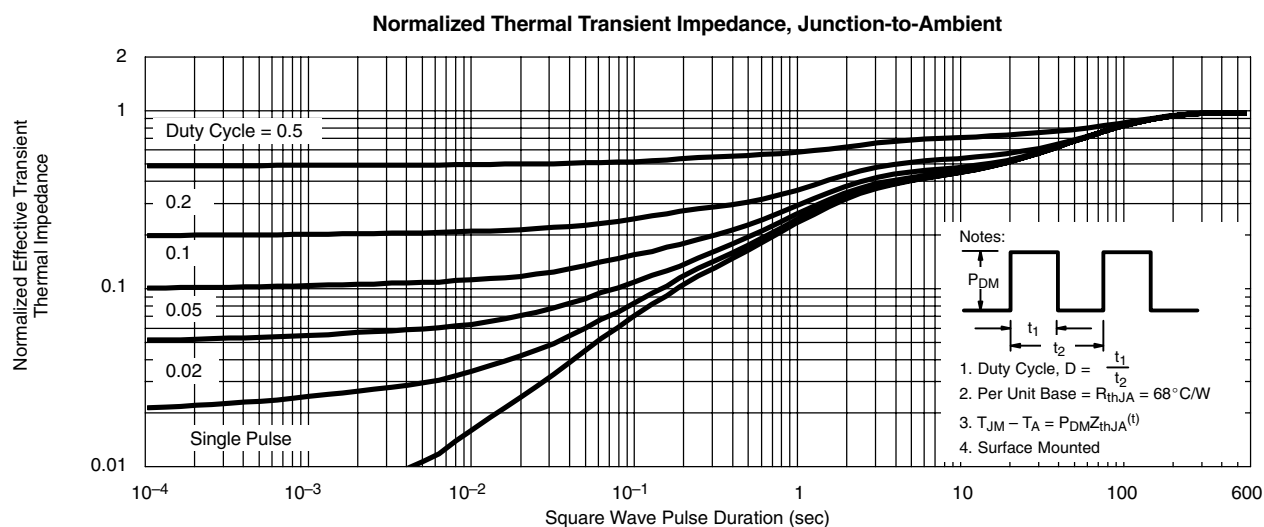
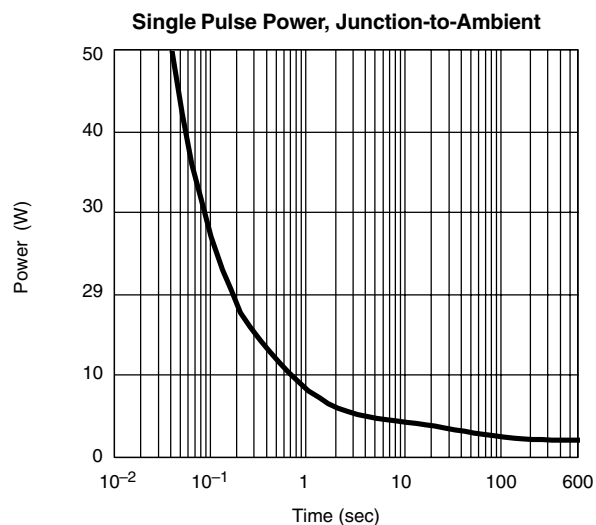
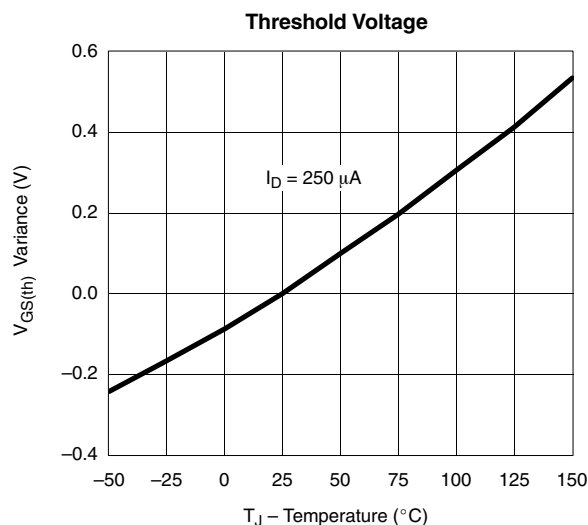
Notes

a. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)****On-Resistance vs. Drain Current****Capacitance****Gate Charge****On-Resistance vs. Junction Temperature****Source-Drain Diode Forward Voltage****On-Resistance vs. Gate-to-Source Voltage**

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)




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