

VISHAY

New Product

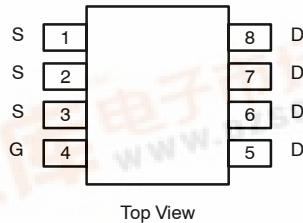
Si4463BDY
Vishay Siliconix

P-Channel 2.5-V (G-S) MOSFET

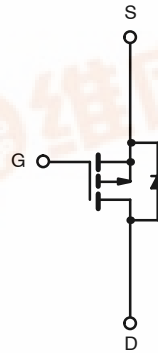
PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.011 @ $V_{GS} = -10$ V	-13.7
	0.014 @ $V_{GS} = -4.5$ V	-12.3
	0.020 @ $V_{GS} = -2.5$ V	-10.3

SO-8



Ordering Information: Si4463BDY—E3 (Lead Free)
Si4463BDY-T1—E3 (Lead Free with Tape and Reel)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V _{DS}	-20		V
Gate-Source Voltage		V _{GS}	± 12		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	-13.7	-9.8	A
	T _A = 70°C		-11.1	-7.9	
Pulsed Drain Current		I _{DM}	-50		
continuous Source Current (Diode Conduction) ^a		I _S	-2.7	-1.36	
Maximum Power Dissipation ^a	T _A = 25°C	P _D	3.0	1.5	W
	T _A = 70°C		1.9	0.95	
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	$t \leq 10$ sec	R_{thJA}	35	42	$^\circ\text{C/W}$
	Steady State		70	84	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	17	21	

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

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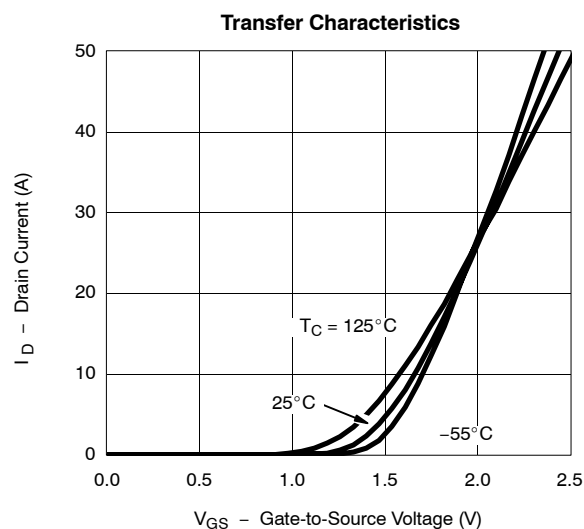
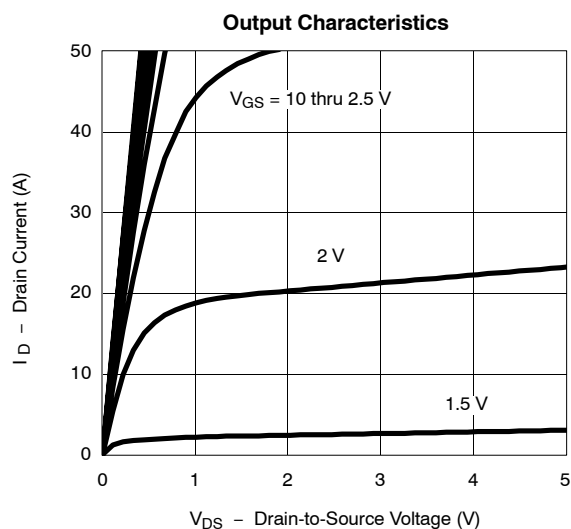
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-0.6		-1.4	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}	$V_{DS} = -20\ \text{V}, V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -20\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 70^\circ\text{C}$			-10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = -5\ \text{V}, V_{GS} = -4.5\ \text{V}$	-30			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -10\ \text{V}, I_D = -13.7\ \text{A}$		0.0085	0.011	Ω
		$V_{GS} = -4.5\ \text{V}, I_D = -12.3\ \text{A}$		0.010	0.014	
		$V_{GS} = -2.5\ \text{V}, I_D = -5\ \text{A}$		0.015	0.020	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -10\ \text{V}, I_D = -13.7\ \text{A}$		44		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -2.7\ \text{A}, V_{GS} = 0\ \text{V}$		-0.7	-1.1	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -10\ \text{V}, V_{GS} = -4.5\ \text{V}, I_D = -13.7\ \text{A}$		37	56	nC
Gate-Source Charge	Q_{gs}			8.7		
Gate-Drain Charge	Q_{gd}			11		
Gate Resistance	R_g	$f = 1\ \text{MHz}$		2.7		Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10\ \text{V}, R_L = 10\ \Omega$ $I_D \cong -1\ \text{A}, V_{GEN} = -4.5\ \text{V}, R_g = 6\ \Omega$		35	55	ns
Rise Time	t_r			60	90	
Turn-Off Delay Time	$t_{d(off)}$			115	170	
Fall Time	t_f			75	115	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -2.3\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		50	75	

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)



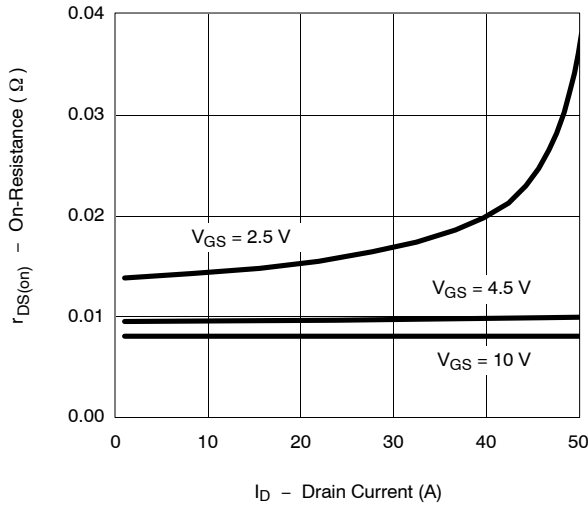


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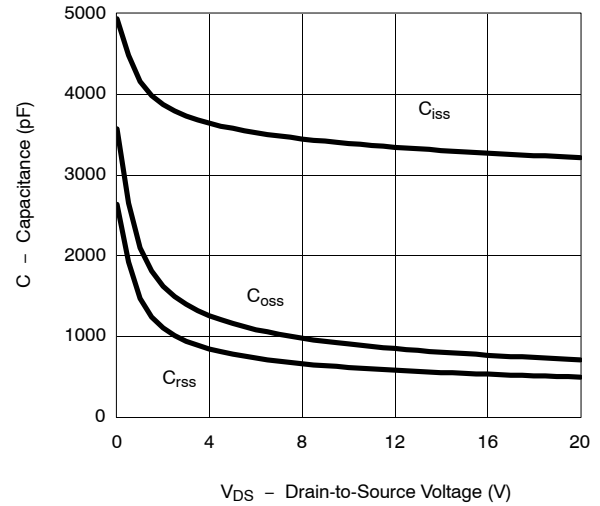
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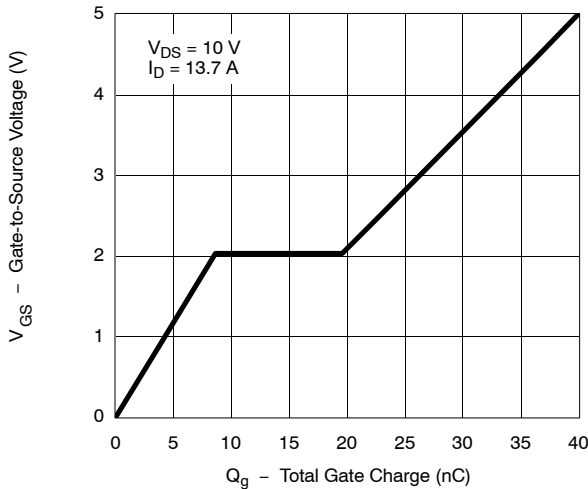
On-Resistance vs. Drain Current



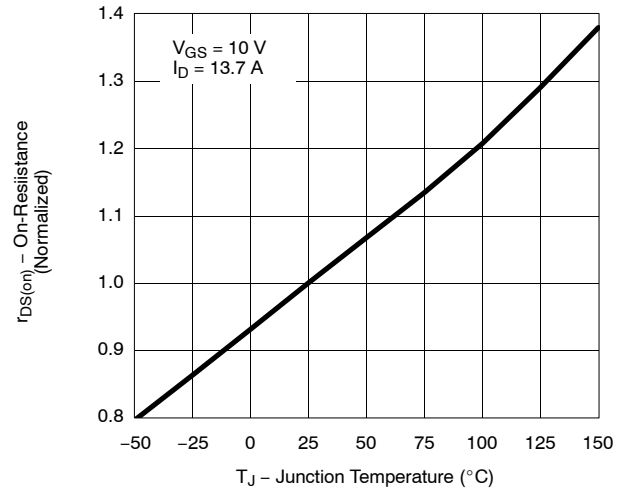
Capacitance



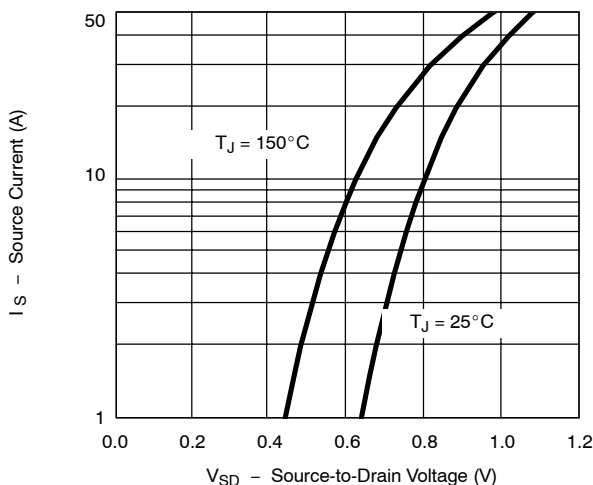
Gate Charge



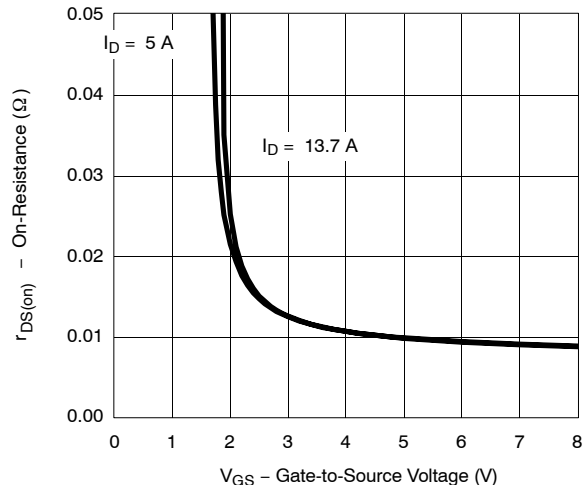
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



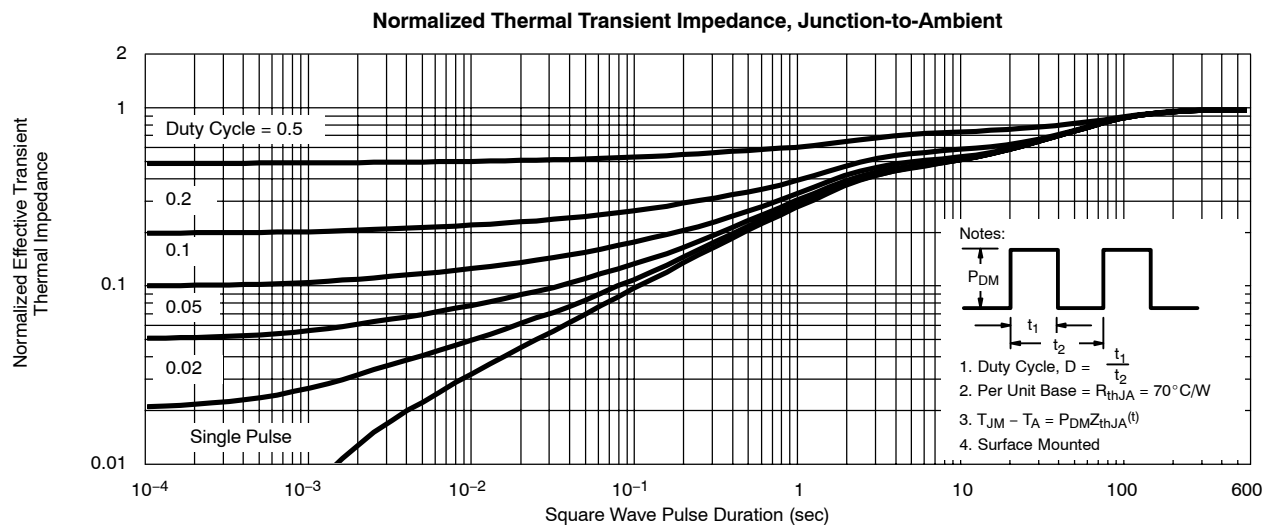
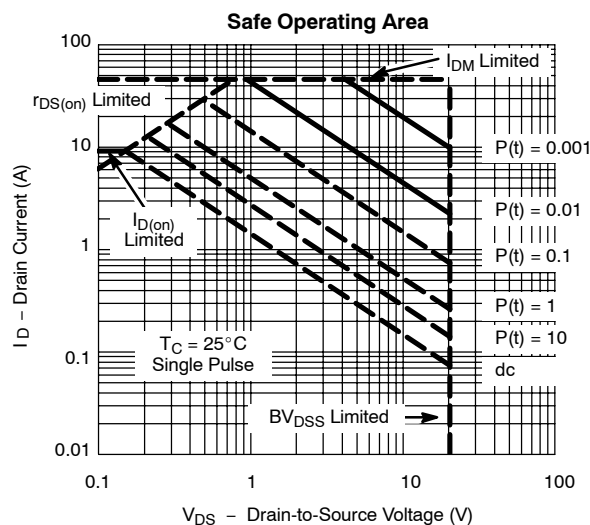
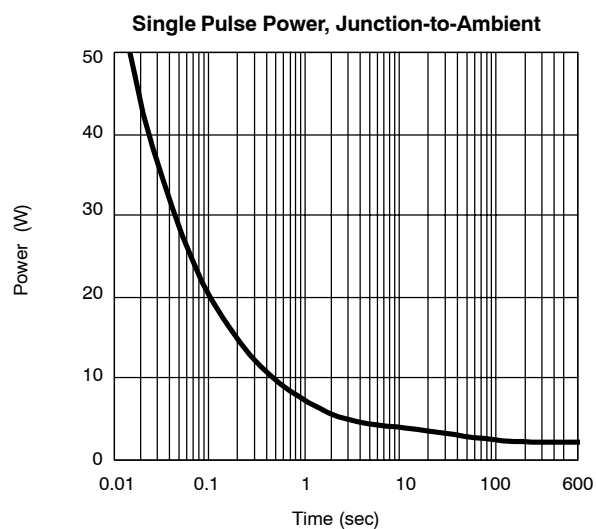
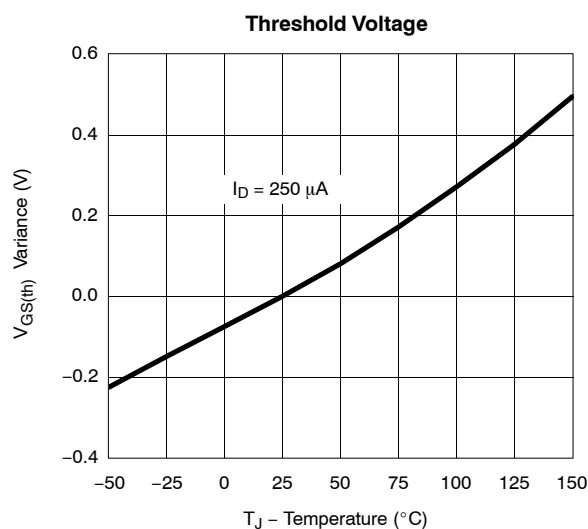
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