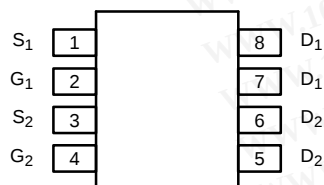


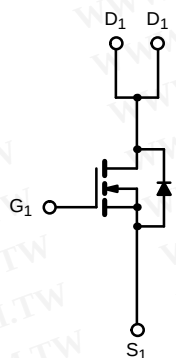
**Si9942DY****Vishay Siliconix****Complimentary 20-V (D-S) MOSFET**

PRODUCT SUMMARY			
	V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
N-Channel	20	0.125 @ $V_{GS} = 10$ V	± 3.0
		0.250 @ $V_{GS} = 4.5$ V	± 2.0
P-Channel	-20	0.200 @ $V_{GS} = -10$ V	± 2.5
		0.350 @ $V_{GS} = -4.5$ V	± 2.0

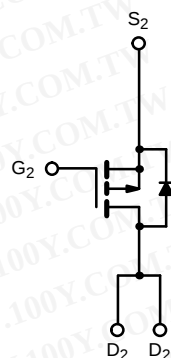
勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-54151736
勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

SO-8

Top View



N-Channel MOSFET



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)						
Parameter			Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage			V _{DS}	20	−20	V
Gate-Source Voltage			V _{GS}	± 20	± 20	
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C		I _D	± 3.0	± 2.5	A
	T _A = 70°C			± 2.5	± 2.0	
Pulsed Drain Current			I _{DM}	± 10	± 10	
Continuous Source Current (Diode Conduction) ^a			I _S	1.6	−1.6	
Maximum Power Dissipation ^a	T _A = 25°C		P _D	2.0		W
	T _A = 70°C			1.3		
Operating Junction and Storage Temperature Range			T _J , T _{stg}	−55 to 150		°C

THERMAL RESISTANCE RATINGS

Parameter	Symbol	N- or P-Channel	Unit
Maximum Junction-to-Ambient ^a	R_{thJA}	62.5	$^\circ\text{C/W}$

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>

Si9942DY**Vishay Siliconix**

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**SPECIFICATIONS (T_J = 25 °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 μA	N-Ch	1.0			V
		V _{DS} = V _{GS} , I _D = -250 μA	P-Ch	-1.0			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V				± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16 V, V _{GS} = 0 V	N-Ch			2	μA
		V _{DS} = -16 V, V _{GS} = 0 V	P-Ch			-2	
		V _{DS} = 16 V, V _{GS} = 0 V, T _J = 55 °C	N-Ch			25	
		V _{DS} = -16 V, V _{GS} = 0 V, T _J = 55 °C	P-Ch			-25	
On-State Drain Current ^b	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 10 V	N-Ch	10			A
		V _{DS} ≤ -5 V, V _{GS} = -10 V	P-Ch	-10			
		V _{DS} ≥ 5 V, V _{GS} = 4.5 V	N-Ch	2			
		V _{DS} ≤ -5 V, V _{GS} = -4.5 V	P-Ch	-2			
Drain-Source On-State Resistance ^b	r _{DS(on)}	V _{GS} = 10 V, I _D = 1.0 A	N-Ch		0.07	0.125	Ω
		V _{GS} = -10 V, I _D = 1.0 A	P-Ch		0.12	0.200	
		V _{GS} = 4.5 V, I _D = 0.5 A	N-Ch		0.105	0.250	
		V _{GS} = -4.5 V, I _D = 0.5 A	P-Ch		0.22	0.350	
Forward Transconductance ^b	g _{fs}	V _{DS} = 15 V, I _D = 3.0 A	N-Ch		4.8		S
		V _{DS} = -15 V, I _D = -3.0 A	P-Ch		3.0		
Diode Forward Voltage ^b	V _{SD}	I _S = 1.25 A, V _{GS} = 0 V	N-Ch		0.75	1.2	V
		I _S = -1.25 A, V _{GS} = 0 V	P-Ch		-0.8	-1.2	
Dynamic ^a							
Total Gate Charge	Q _g	N-Channel V _{DS} = 10 V, V _{GS} = 10 V, I _D = 2.3 A P-Channel V _{DS} = -10 V, V _{GS} = -10 V, I _D = -2.3 A	N-Ch		7	25	nC
Gate-Source Charge	Q _{gs}		P-Ch		6.7	25	
			N-Ch		0.75		
Gate-Drain Charge	Q _{gd}		P-Ch		1.3		
		N-Ch		1.7			
Turn-On Delay Time	t _{d(on)}	P-Ch		1.6			
		N-Ch		6	15		
Rise Time	t _r	N-Channel V _{DD} = 20 V, R _L = 20 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω P-Channel V _{DD} = -20 V, R _L = 20 Ω I _D ≅ -1 A, V _{GEN} = -10 V, R _G = 6 Ω	P-Ch		10	40	
			N-Ch		10	20	
Turn-Off Delay Time	t _{d(off)}		P-Ch		12	40	
			N-Ch		17	50	
Fall Time	t _f	P-Ch		20	90		
		N-Ch		10	50		
Source-Drain Reverse Recovery Time	t _{rr}	P-Ch		10	50		
		N-Ch		45	100		
			P-Ch		70	100	

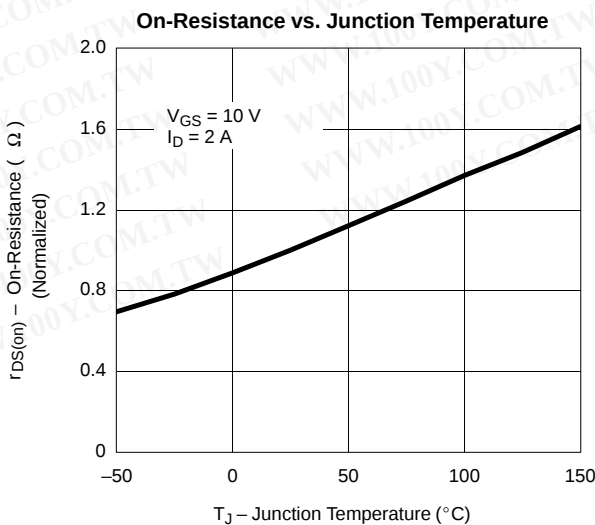
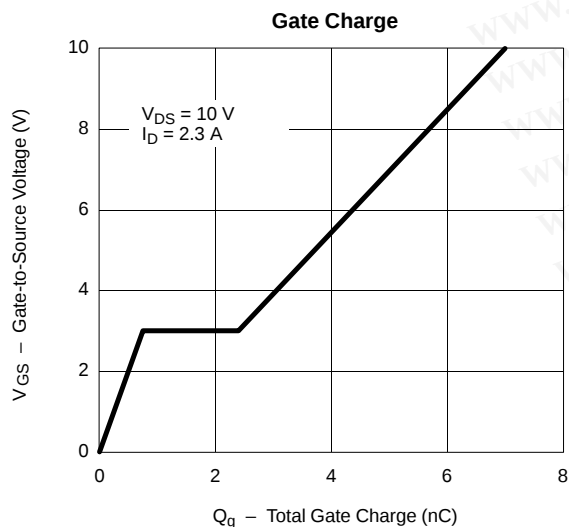
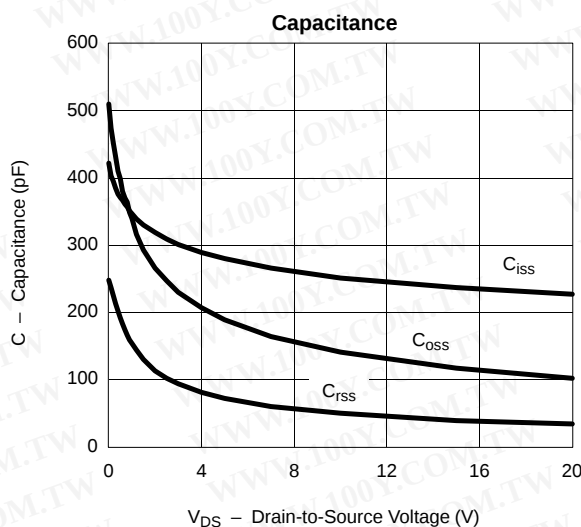
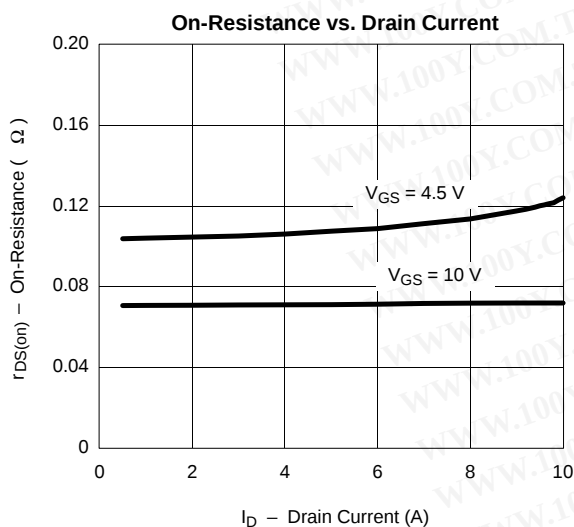
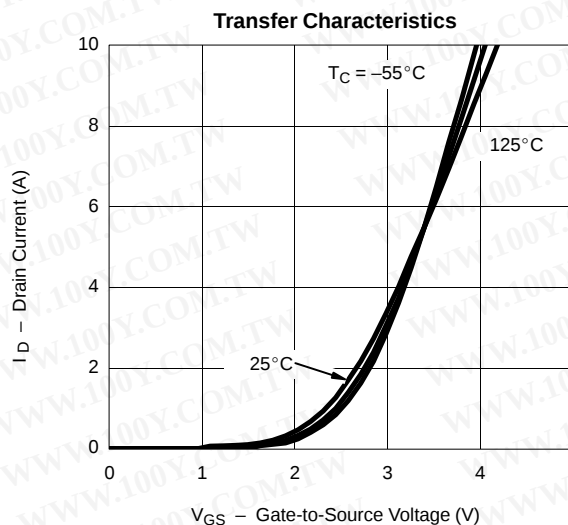
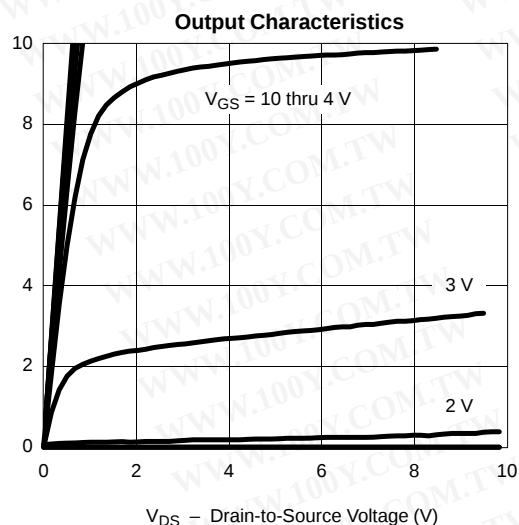
Notes

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



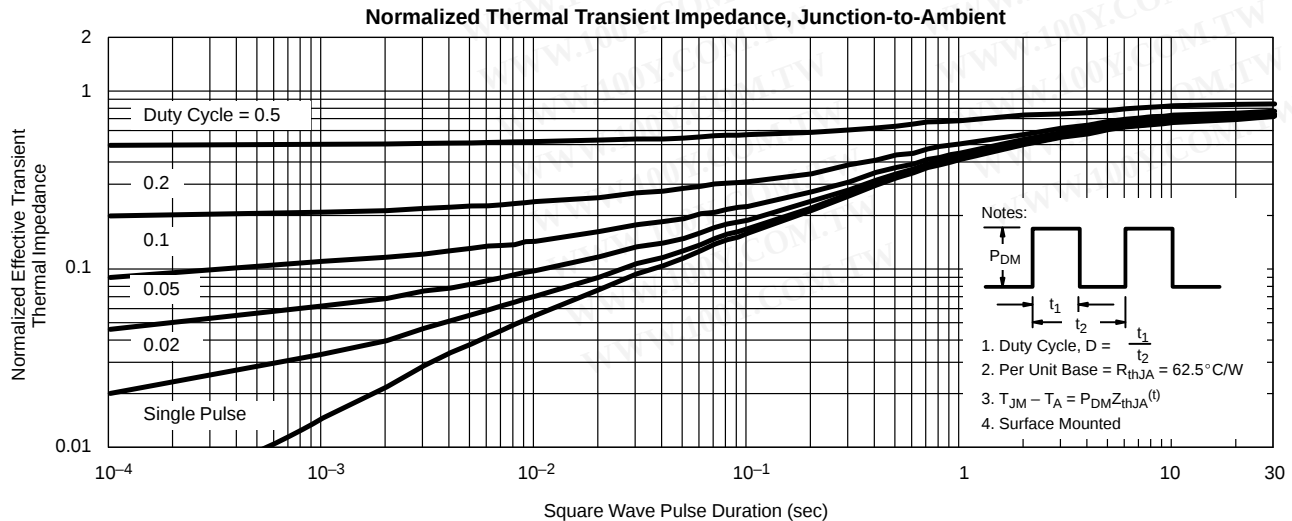
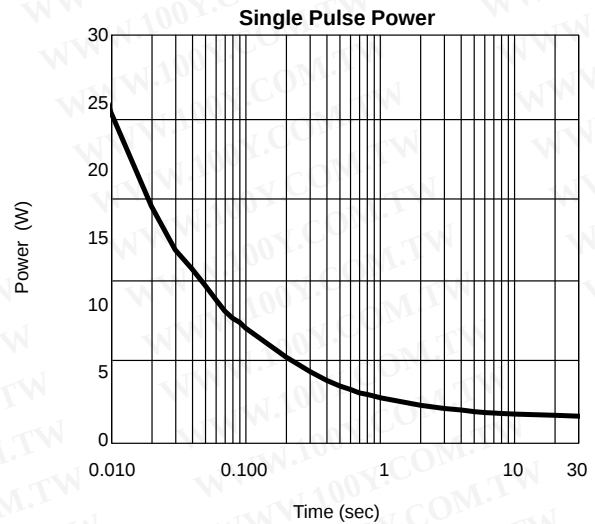
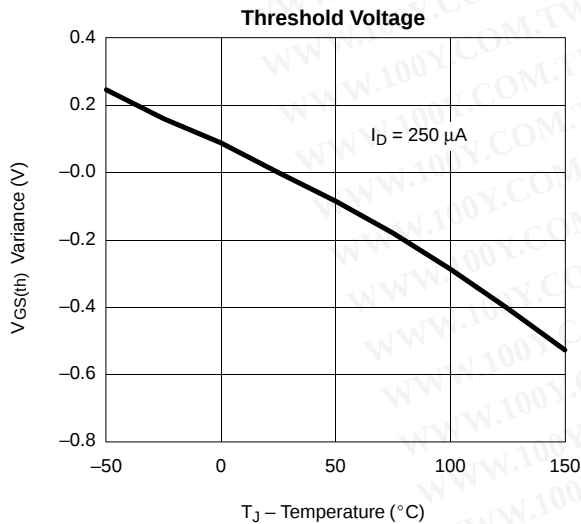
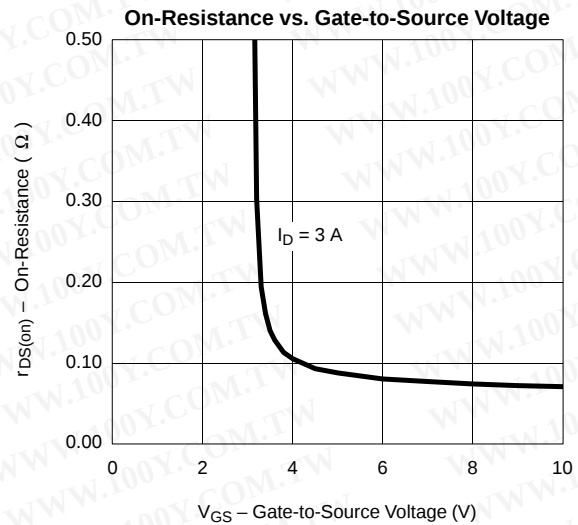
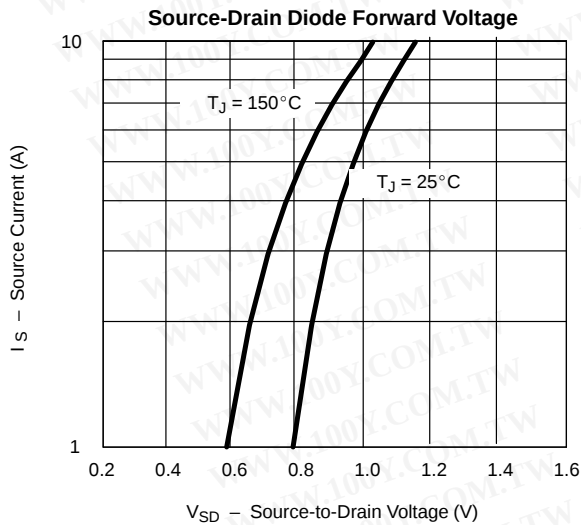
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

N-CHANNEL



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

N-CHANNEL





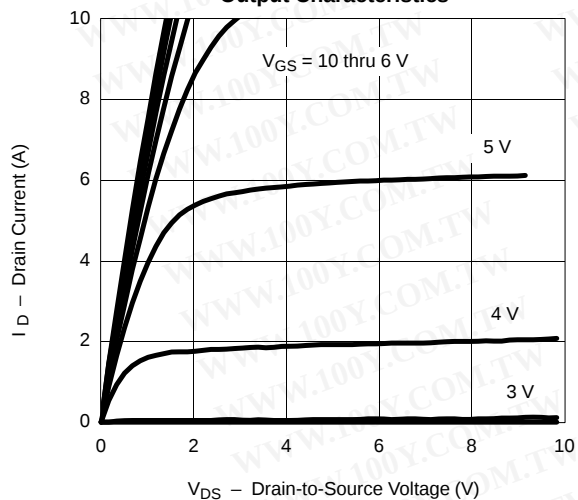
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Si9942DY
Vishay Siliconix

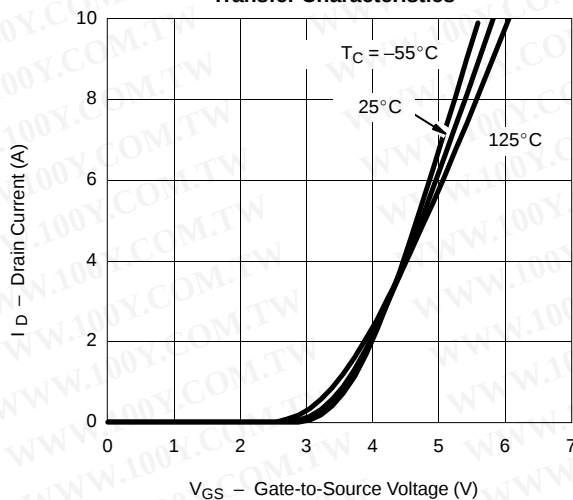
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL

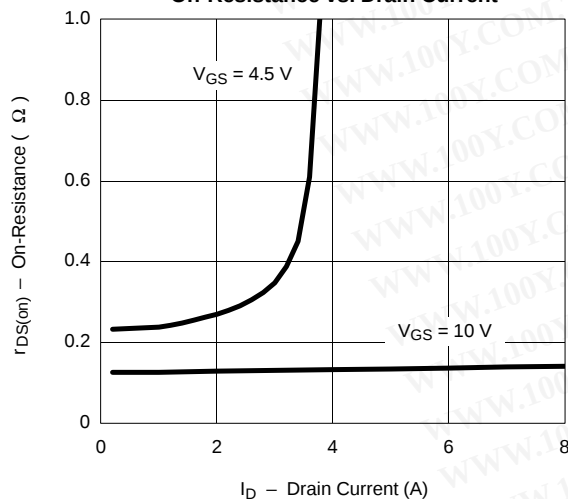
Output Characteristics



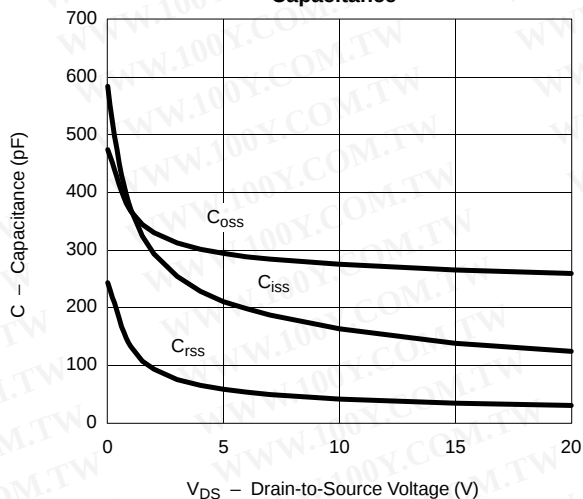
Transfer Characteristics



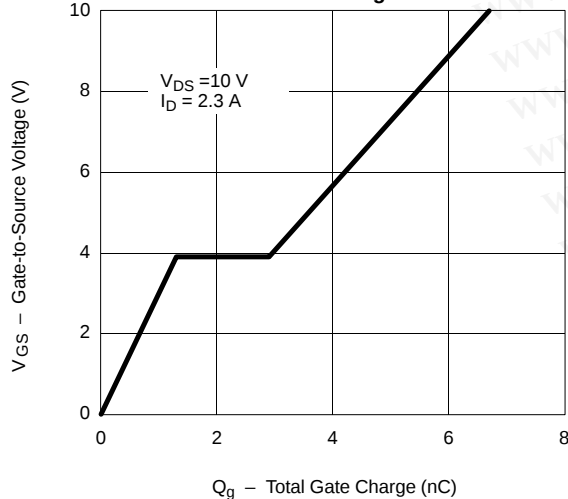
On-Resistance vs. Drain Current



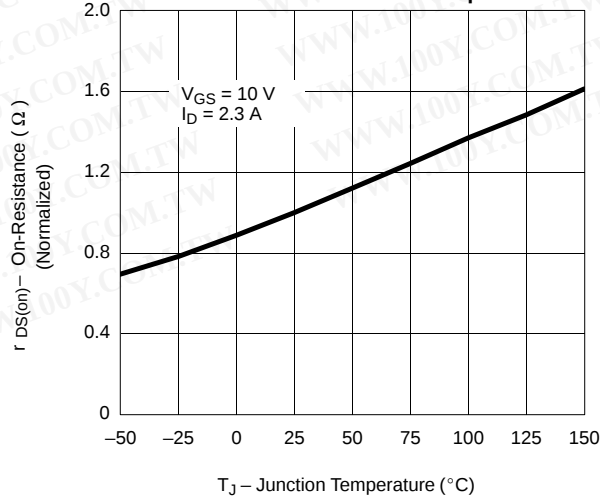
Capacitance



Gate Charge



On-Resistance vs. Junction Temperature



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL

