

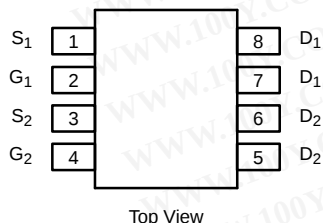


Dual P-Channel 20-V (D-S) MOSFET

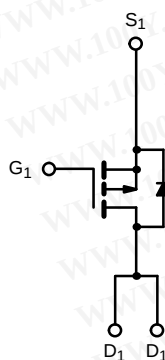
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.075 @ $V_{GS} = -4.5$ V	± 3.4
	0.105 @ $V_{GS} = -3.0$ V	± 2.9
	0.115 @ $V_{GS} = -2.7$ V	± 2.6

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)

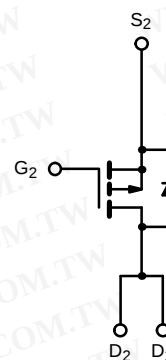
SO-8



Top View



P-Channel MOSFET



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	± 12	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	± 3.4	A
	$T_A = 70^\circ\text{C}$		± 2.7	
Pulsed Drain Current		I_{DM}	± 16	
Continuous Source Current (Diode Conduction) ^a		I_S	-2.0	W
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	2.0	
	$T_A = 70^\circ\text{C}$		1.3	
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}	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>

Si9933ADY

Vishay Siliconix



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

Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\ \mu\text{A}$	-0.8			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}	$V_{DS} = -16\ \text{V}$, $V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -10\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 85^\circ\text{C}$			-3	
On-State Drain Current ^b	$I_{D(on)}$	$V_{DS} \leq -5\ \text{V}$, $V_{GS} = -4.5\ \text{V}$	-16			A
		$V_{DS} \leq -5\ \text{V}$, $V_{GS} = -2.7\ \text{V}$	-3			
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = -4.5\ \text{V}$, $I_D = -3.2\ \text{A}$		0.06	0.075	Ω
		$V_{GS} = -3.0\ \text{V}$, $I_D = -2.0\ \text{A}$		0.078	0.105	
		$V_{GS} = -2.7\ \text{V}$, $I_D = -1\ \text{A}$		0.085	0.115	
Forward Transconductance ^b	g_{fs}	$V_{DS} = -9\ \text{V}$, $I_D = -3.4\ \text{A}$		8		S
Diode Forward Voltage ^b	V_{SD}	$I_S = -2.0\ \text{A}$, $V_{GS} = 0\ \text{V}$		-0.7	-1.2	V
Dynamic^a						
Total Gate Charge	Q_g	$V_{DS} = -6\ \text{V}$, $V_{GS} = -4.5\ \text{V}$, $I_D = -3.2\ \text{A}$		10	20	nC
Gate-Source Charge	Q_{gs}			2.1		
Gate-Drain Charge	Q_{gd}			3.3		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -6\ \text{V}$, $R_L = 6\ \Omega$ $I_D \cong -1\ \text{A}$, $V_{GEN} = -4.5\ \text{V}$, $R_G = 6\ \Omega$		16	40	ns
Rise Time	t_r			46	80	
Turn-Off Delay Time	$t_{d(off)}$			40	70	
Fall Time	t_f			25	40	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -2.0\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$		60	100	

Notes

- a. For design aid only; not subject to production testing.
b. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

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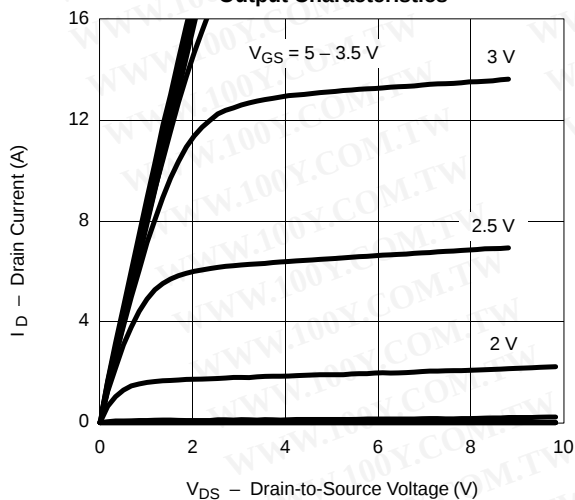


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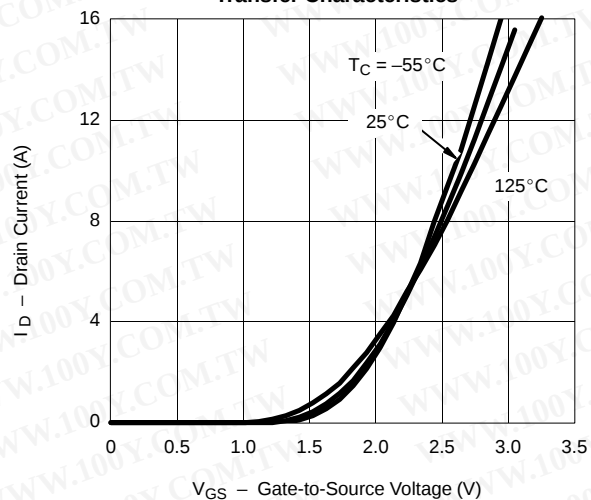
Si9933ADY
Vishay Siliconix

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

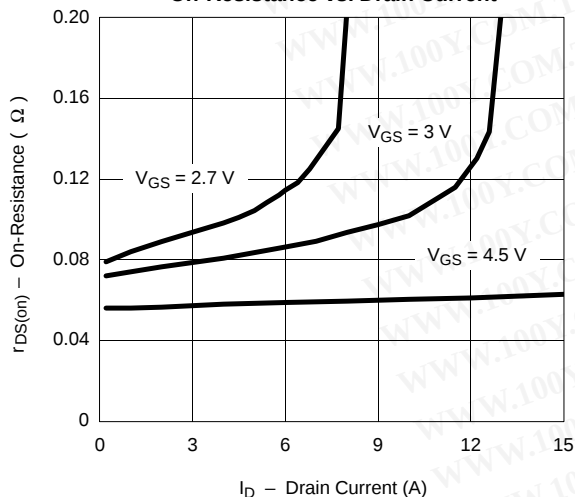
Output Characteristics



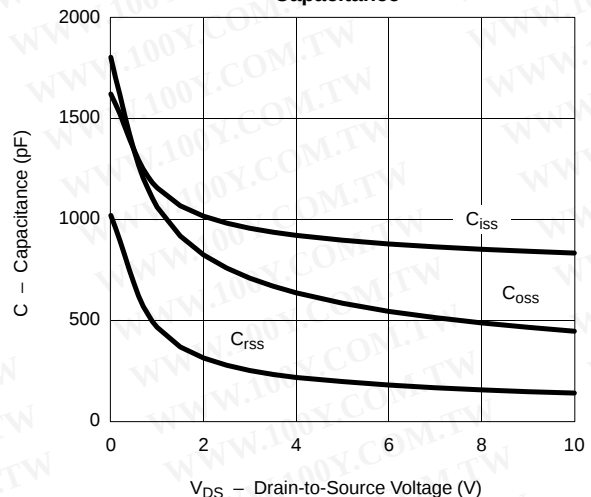
Transfer Characteristics



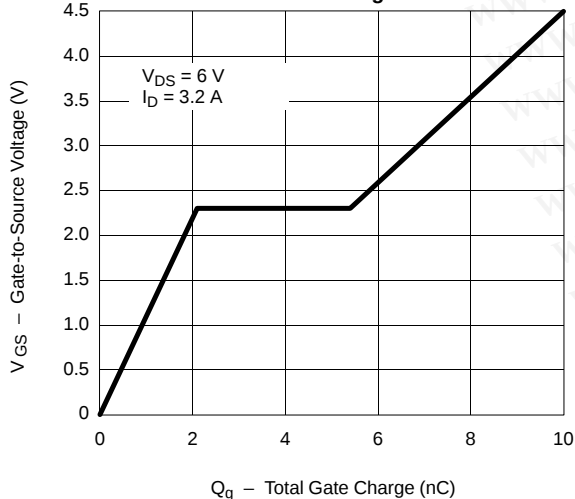
On-Resistance vs. Drain Current



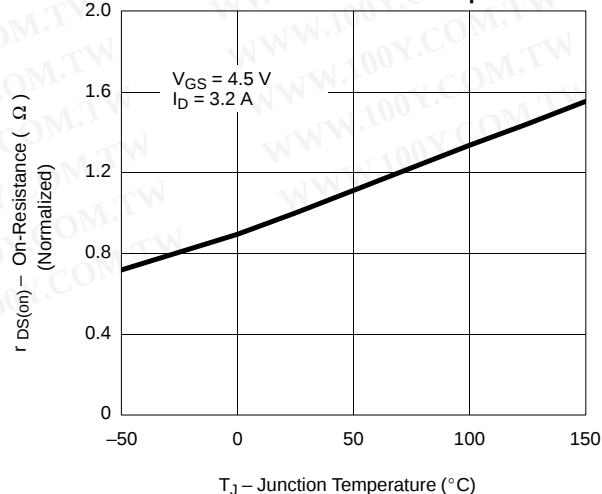
Capacitance



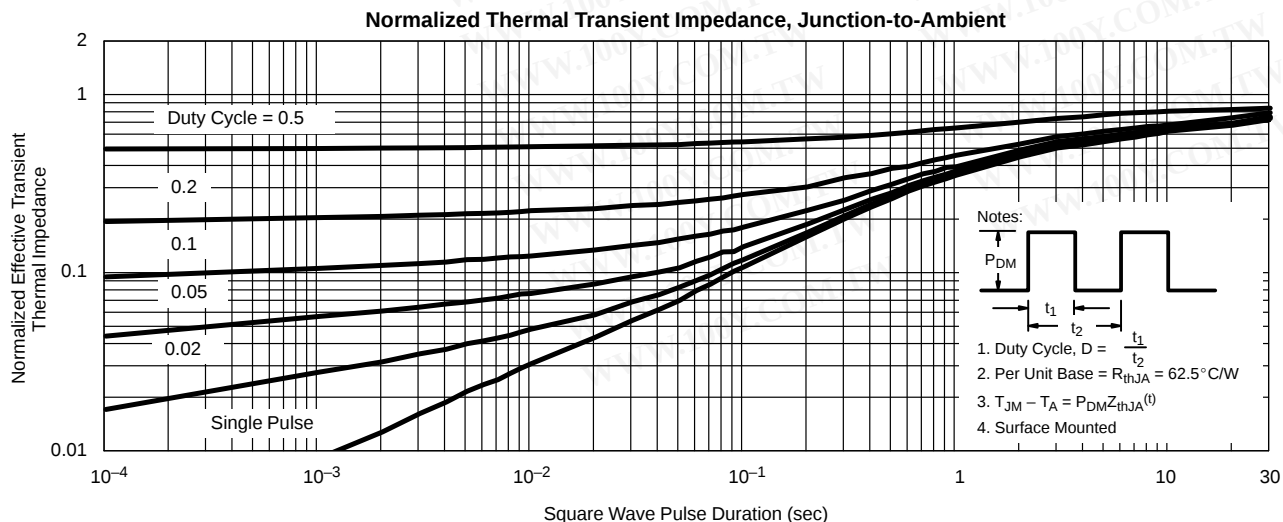
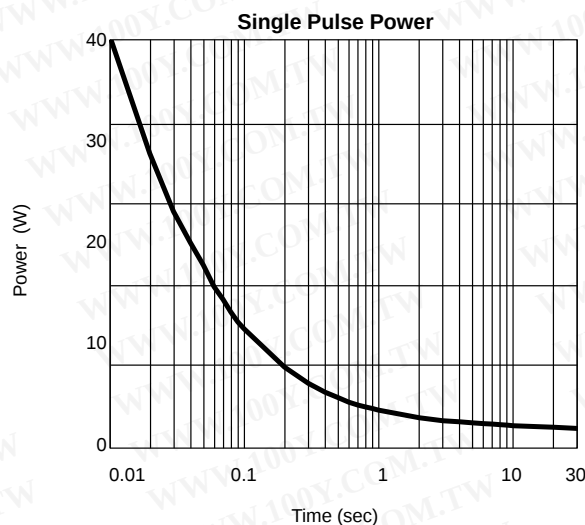
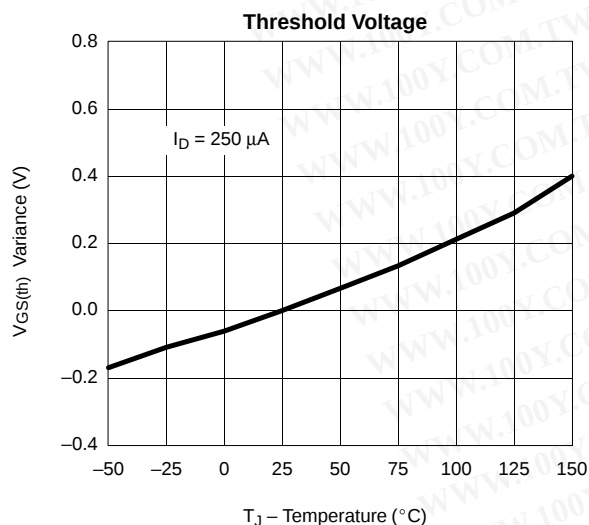
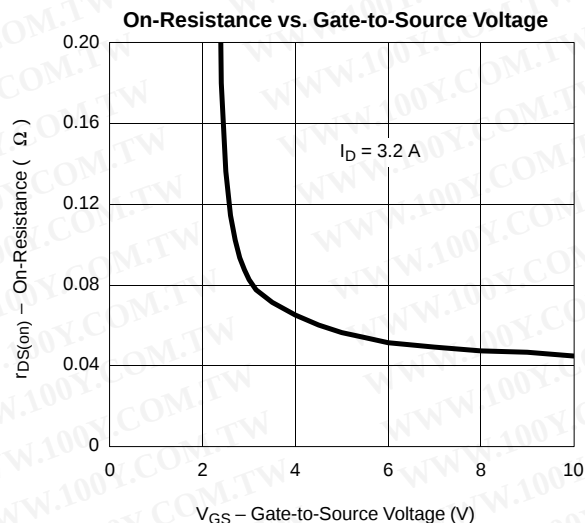
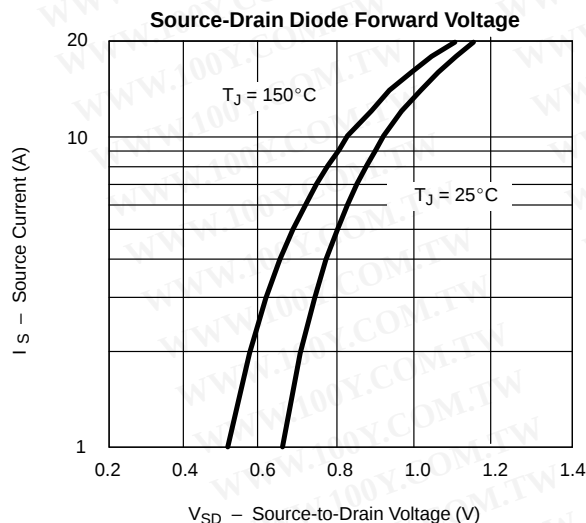
Gate Charge



On-Resistance vs. Junction Temperature



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)





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