



New Product

Si7366DP
Vishay Siliconix

N-Channel 20-V (D-S) MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
20	0.0055 @ $V_{GS} = 10$ V	20
	0.009 @ $V_{GS} = 4.5$ V	16

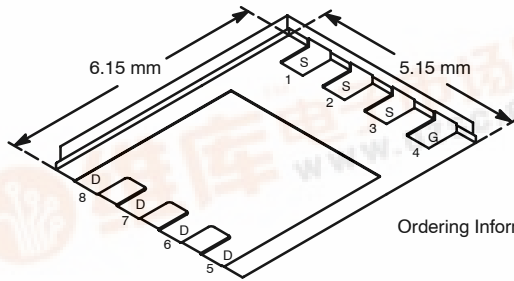
FEATURES

- TrenchFET® Power MOSFET
- Q_g Optimized

APPLICATIONS

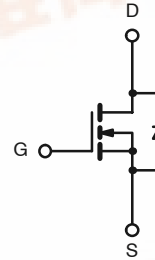
- Synchronous Rectifier for DC/DC

PowerPAK® SO-8



Bottom View

Ordering Information: Si7366DP-T1



N-Channel MOSFET

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}	± 20		
Continuous Drain Current ($T_J = 150^{\circ}\text{C}$) ^a	$T_A = 25^{\circ}\text{C}$	I_D	20	13	A
	$T_A = 70^{\circ}\text{C}$		17	10	
Pulsed Drain Current (10 μs Pulse Width)		I_{DM}	50		
Continuous Source Current (Diode Conduction) ^a		I_S	4.1	1.4	
Maximum Power Dissipation ^a	$T_A = 25^{\circ}\text{C}$	P_D	5	1.7	W
	$T_A = 70^{\circ}\text{C}$		3.2	1.1	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150		$^{\circ}\text{C}$

THERMAL RESISTANCE RATINGS

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	R_{thJA}	20	25	$^\circ\text{C/W}$
	Steady State		53	70	
Maximum Junction-to-Case (Drain)	Steady State	R_{thJC}	3.4	4.5	

Notes:

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

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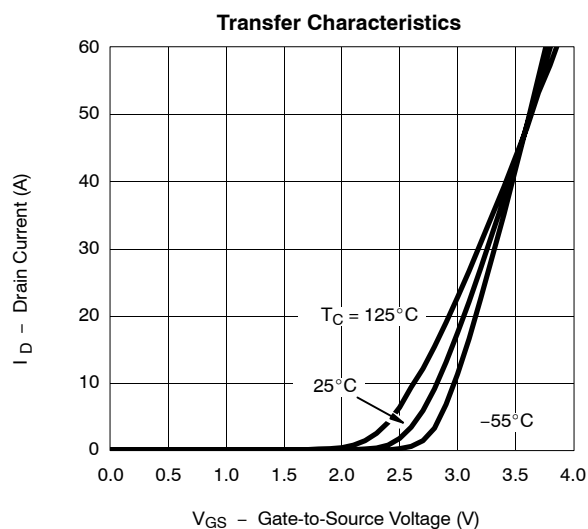
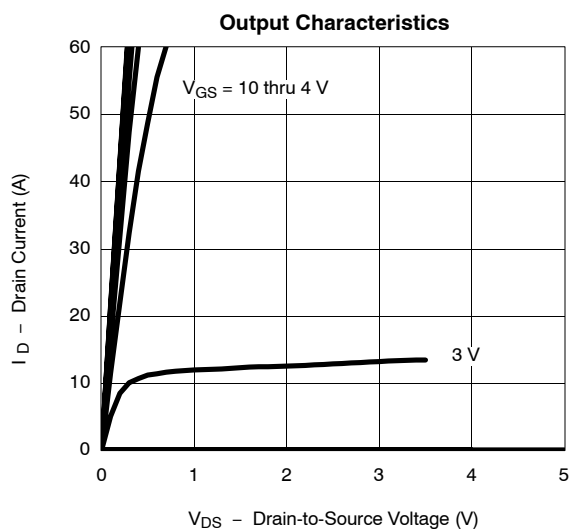
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\ \mu\text{A}$	1.0		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}	$V_{DS} = 16\ \text{V}$, $V_{GS} = 0\ \text{V}$			1	μA
		$V_{DS} = 16\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 55^\circ\text{C}$			5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 5\ \text{V}$, $V_{GS} = 10\ \text{V}$	30			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = 10\ \text{V}$, $I_D = 20\ \text{A}$		0.0045	0.0055	Ω
		$V_{GS} = 4.5\ \text{V}$, $I_D = 16\ \text{A}$		0.0072	0.009	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 6\ \text{V}$, $I_D = 20\ \text{A}$		48		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 4.5\ \text{A}$, $V_{GS} = 0\ \text{V}$		0.76	1.1	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 10\ \text{V}$, $V_{GS} = 4.5\ \text{V}$, $I_D = 20\ \text{A}$		16	25	nC
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			5.2		
Gate Resistance	R_g			1.8		Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10\ \text{V}$, $R_L = 10\ \Omega$ $I_D \cong 1\ \text{A}$, $V_{GEN} = 10\ \text{V}$, $R_G = 6\ \Omega$		21	32	ns
Rise Time	t_r			16	25	
Turn-Off Delay Time	$t_{d(off)}$			58	90	
Fall Time	t_f			15	23	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 4.1\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$		40	80	

Notes

- Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

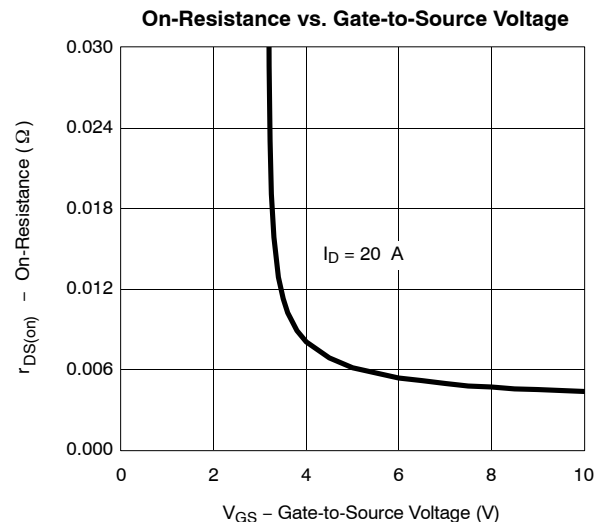
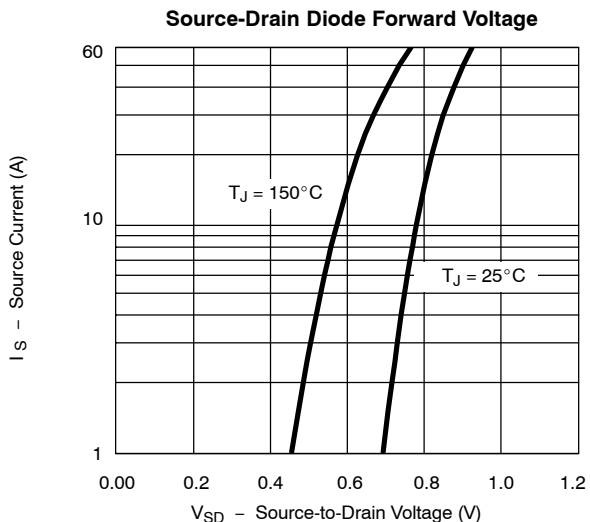
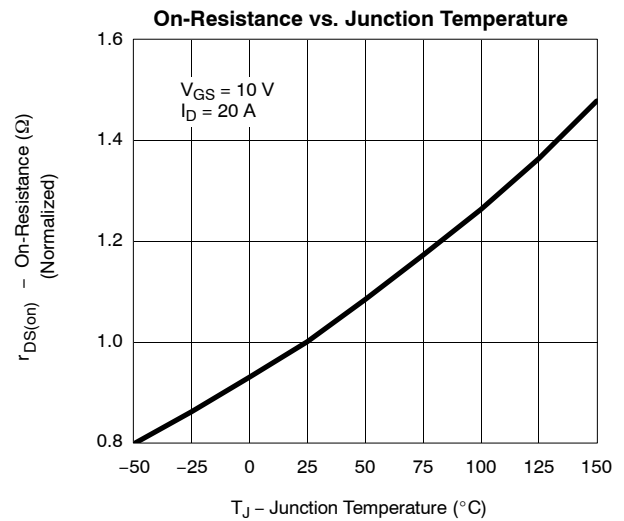
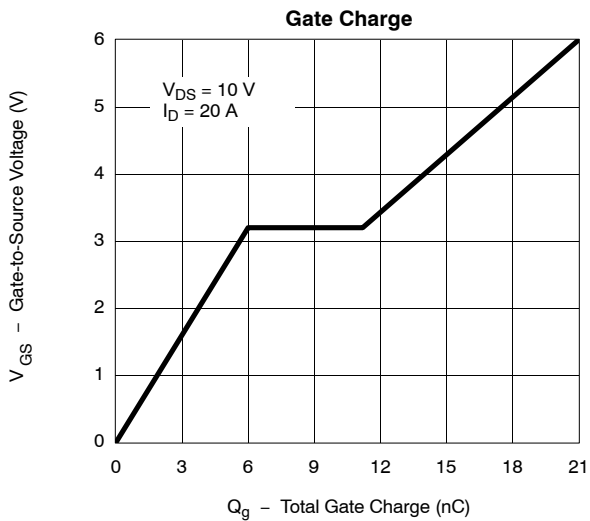
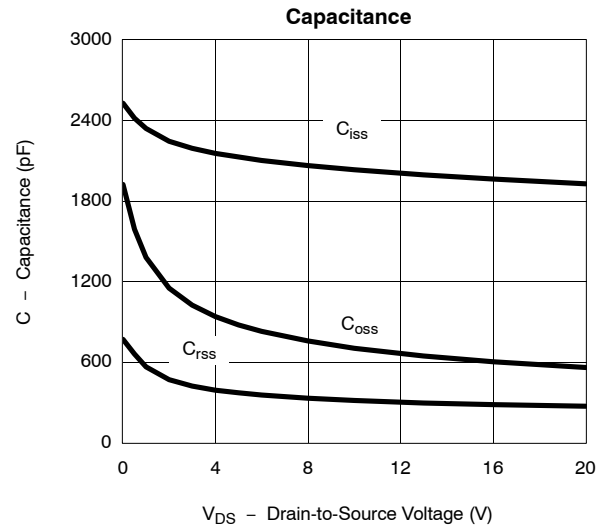
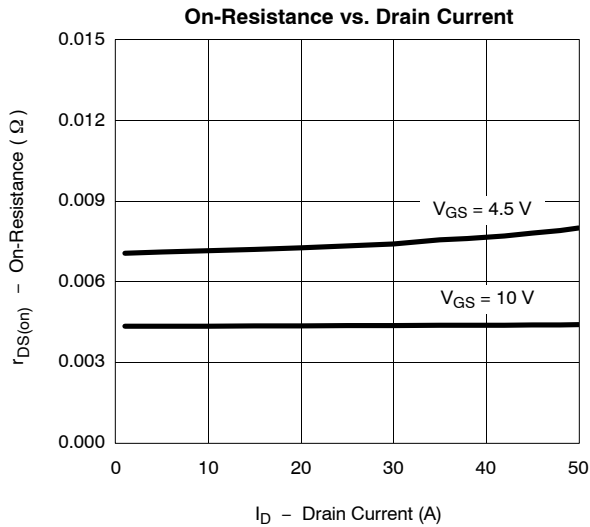




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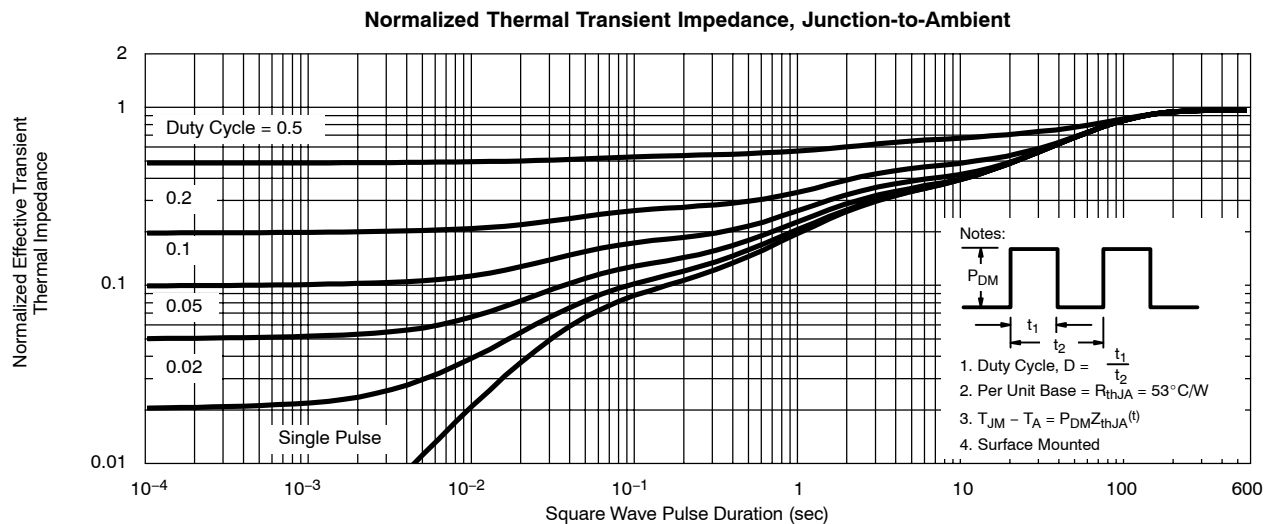
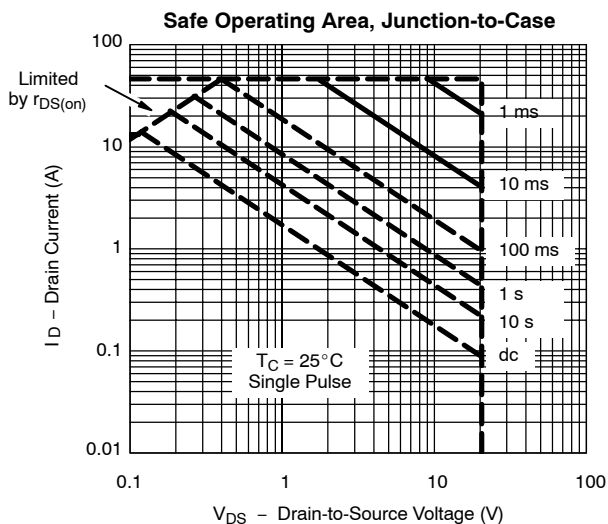
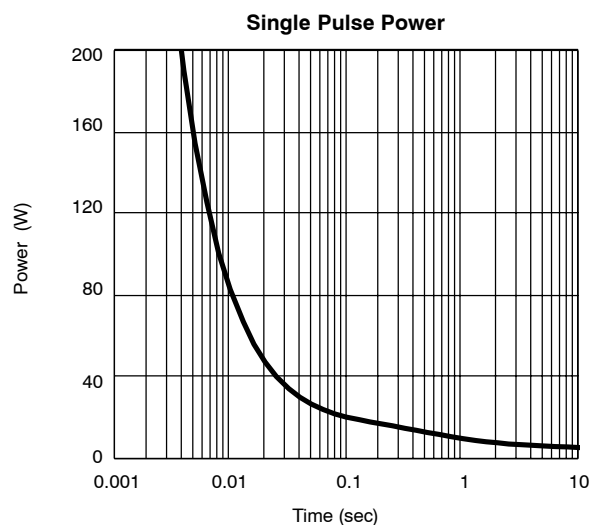
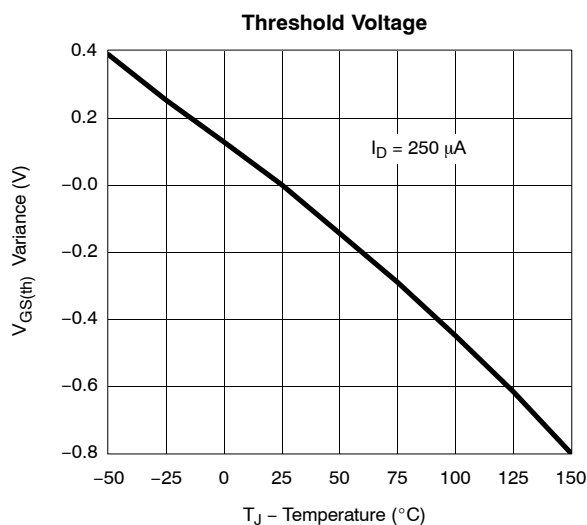
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