



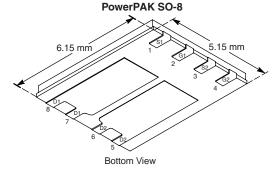
## **Dual N-Channel 40-V (D-S) MOSFET**

PRODUCT SUMMARY					
V <sub>DS</sub> (V)	$R_{DS(on)}\left(\Omega\right)$	I <sub>D</sub> (A)	Q <sub>g</sub> (Typ.)		
40	0.017 at V <sub>GS</sub> = 10 V	11.1	46.2		

#### **FEATURES**

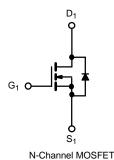
- Halogen-free According to IEC 61249-2-21 Available
- TrenchFET<sup>®</sup> Power MOSFET
- New Low Thermal Resistance PowerPAK<sup>®</sup> Package
- Dual MOSFET for Space Savings
- 100 % R<sub>g</sub> Tested
- · High Threshold Voltage at High Temperature

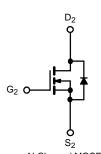




Ordering Information: Si7962DP-T1-E3 (Lead (Pb)-free)

Si7962DP-T1-GE3 (Lead (Pb)-free and Halogen-free)





N-Channel MOSFET

Parameter		Symbol	10 s	Steady State	Unit	
Drain-Source Voltage		$V_{DS}$	40		V	
Gate-Source Voltage		$V_{GS}$	± 20		V	
Continuous Drain Current (T <sub>.I</sub> = 150 °C) <sup>a</sup>	T <sub>A</sub> = 25 °C	I <sub>D</sub>	11.1	7.1		
Continuous Drain Current (1 j = 150 °C)	T <sub>A</sub> = 70 °C		8.9	5.7		
Pulsed Drain Current		I <sub>DM</sub>	40		Α	
Continuous Source Current (Diode Conduction) <sup>a</sup>		I <sub>S</sub>	2.9	1.2		
Single Avalanche Current	L = 0.1 mH	I <sub>AS</sub>	30			
Single Avalanche Energy	L = 0.111111	E <sub>AS</sub>	45		mJ	
Manianum Danier Disabational	T <sub>A</sub> = 25 °C	P <sub>D</sub>	3.5	1.4	W	
Maximum Power Dissipation <sup>a</sup>	T <sub>A</sub> = 70 °C	' D	2.2	0.9	VV	
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	- 55 to 150		°C	
Soldering Recommendations (Peak Temperature)b, c		·	260			

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Marrian de la contraction de Amelia antid	t ≤ 10 s	R <sub>thJA</sub>	26	35	°C/W
Maximum Junction-to-Ambient <sup>a</sup>	Steady State		60	85	
Maximum Junction-to-Case (Drain)	Steady State	R <sub>thJC</sub>	2.2	2.7	

#### Notes

- a. Surface Mounted on 1" x 1" FR4 board.
- b. See Solder Profile (<a href="http://www.vishay.com/ppg?73257">http://www.vishay.com/ppg?73257</a>). The PowerPAK SO-8 is a leadless package. The end of the lead terminal is exposed copper (not plated) as a result of the singulation process in manufacturing. A solder fillet at the exposed copper tip cannot be guaranteed and is not required to ensure adequate bottom side solder interconnection.
- c. Rework Conditions: manual soldering with a soldering iron is not recommended for leadless components.

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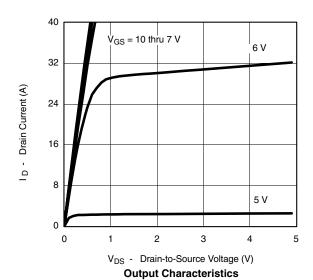
<b>SPECIFICATIONS</b> T <sub>J</sub> = 25 °C, unless otherwise noted							
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit	
Static							
Gate Threshold Voltage	V <sub>GS(th)</sub>	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	3.4		4.5	V	
Gate-Body Leakage	I <sub>GSS</sub>	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA	
Zava Cata Valtana Busin Comunit		V <sub>DS</sub> = 40 V, V <sub>GS</sub> = 0 V			1	μΑ	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	$V_{DS} = 40 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 ^{\circ}\text{C}$			5		
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	$V_{DS} \ge 5 \text{ V}, V_{GS} = 10 \text{ V}$	30			Α	
Drain-Source On-State Resistance <sup>a</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 11.1 A		0.0135	0.017	Ω	
Forward Transconductance <sup>a</sup>	9 <sub>fs</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 11.1 A		31		S	
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	I <sub>S</sub> = 2.9 A, V <sub>GS</sub> = 0 V		0.8	1.2	V	
Dynamic <sup>b</sup>							
Total Gate Charge	$Q_g$			46.2	70		
Gate-Source Charge	$Q_{gs}$	$V_{DS} = 20 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 11.1 \text{ A}$		1.6		nC	
Gate-Drain Charge	$Q_{gd}$			9.6			
Gate Resistance	$R_g$	f = 1 MHz	1.1	2.3	3.5	Ω	
Turn-On Delay Time	t <sub>d(on)</sub>			22	35		
Rise Time	t <sub>r</sub>	$V_{DD}$ = 20 V, $R_L$ = 20 $\Omega$		15	25	ns	
Turn-Off Delay Time	t <sub>d(off)</sub>	$I_D\cong 1$ A, $V_{GEN}$ = 10 V, $R_g$ = 6 $\Omega$		55	70		
Fall Time	t <sub>f</sub>			15	25		
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 2.9 A, dI/dt = 100 A/μs		35	60		

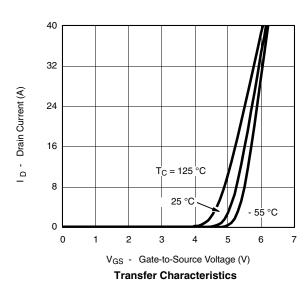
#### Notes:

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

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

#### TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



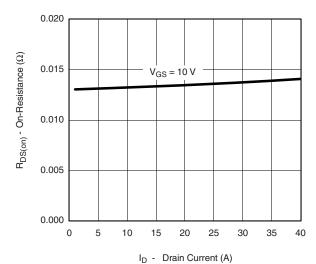




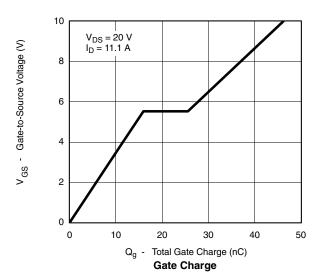


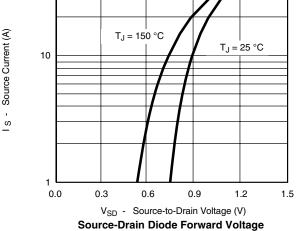


#### TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



On-Resistance vs. Drain Current

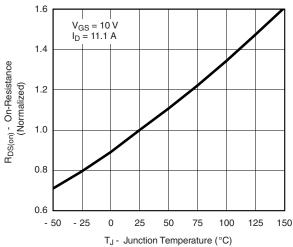




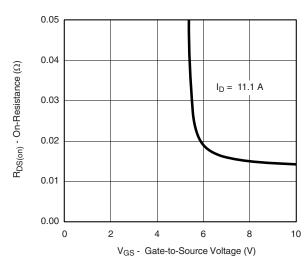
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V<sub>DS</sub> - Drain-to-Source Voltage (V)





On-Resistance vs. Junction Temperature



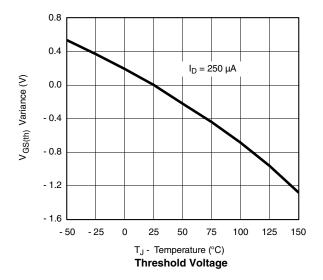
On-Resistance vs. Gate-to-Source Voltage

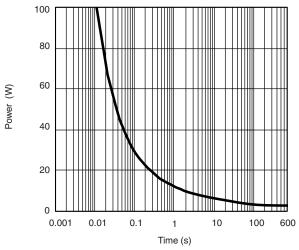
40

## Vishay Siliconix

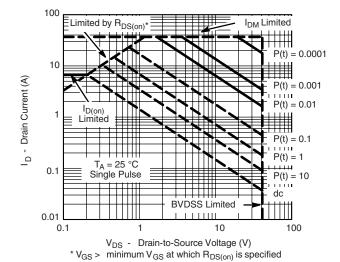
# VISHAY

#### TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

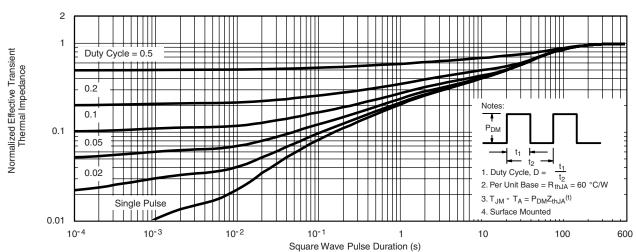




**Single Pulse Power** 



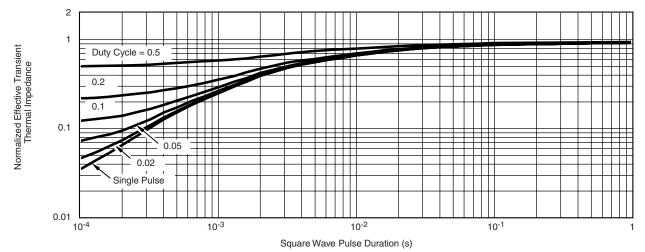
#### Safe Operating Area, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Ambient



#### TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



Normalized Thermal Transient Impedance, Junction-to-Case

Vishay Siliconix maintains worldwide manufacturing capability. Products may be manufactured at one of several qualified locations. Reliability data for Silicon Technology and Package Reliability represent a composite of all qualified locations. For related documents such as package/tape drawings, part marking, and reliability data, see <a href="https://www.vishay.com/ppg?72914">www.vishay.com/ppg?72914</a>.



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Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

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Revision: 02-Oct-12 Document Number: 91000

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многоканальный

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001 Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

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#### http://moschip.ru/get-element

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