

Vishay Siliconix

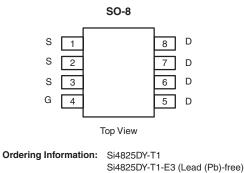
## P-Channel 30-V (D-S) MOSFET

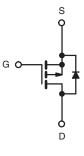
PRODUCT SUMMARY					
V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)			
- 30	0.014 at V <sub>GS</sub> = - 10 V	- 11.5			
	0.022 at V <sub>GS</sub> = - 4.5 V	- 9.2			

#### **FEATURES**

- TrenchFET<sup>®</sup> Power MOSFETs
- 100 % R<sub>g</sub> Tested







P-Channel MOSFET

<b>ABSOLUTE MAXIMUM RATINGS</b> $T_A = 25 \text{ °C}$ , unless otherwise noted						
Parameter		Symbol	10 sec	Steady State	Unit	
Drain-Source Voltage		V <sub>DS</sub>	- 30		V	
Gate-Source Voltage		V <sub>GS</sub>	± 25			
	T <sub>A</sub> = 25 °C	– I <sub>D</sub>	- 11.5	- 8.1		
Continuous Drain Current $(T_J = 150 \ ^{\circ}C)^a$	T <sub>A</sub> = 70 °C		- 9.2	- 6.5		
Pulsed Drain Current		I <sub>DM</sub>	- 50		А	
Continuous Source Current (Diode Conduction) <sup>a</sup>		۱ <sub>S</sub>	- 2.5	- 1.3		
Maximum Power Dissipation <sup>a</sup>	T <sub>A</sub> = 25 °C	- P <sub>D</sub>	3.0	1.5	W	
	T <sub>A</sub> = 70 °C		1.9	0.9	vv	
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	- 55 to 150		°C	

THERMAL RESISTANCE RATINGS						
Parameter		Symbol	Typical	Maximum	Unit	
Manimum haration to Anthiand	$t \le 10 \text{ sec}$	- R <sub>thJA</sub> R <sub>thJF</sub>	32	42		
Maximum Junction-to-Ambient <sup>a</sup>	Steady State		68	85	°C/W	
Maximum Junction-to-Foot (Drain)	Steady State		15	18		

Notes:

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

\* Pb containing terminations are not RoHS compliant, exemptions may apply.

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Parameter	Symbol	Test Conditions	Test Conditions Min Typ		Max	Unit	
Static		·					
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = - 250 μA - 1.0			- 3.0	V	
Gate-Body Leakage	I <sub>GSS</sub>	$V_{DS} = 0 V, V_{GS} = \pm 25 V$			± 100	nA	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	$V_{DS} = -30 \text{ V}, \text{ V}_{GS} = 0 \text{ V}$		- 1			
		$V_{DS} = -30 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 ^{\circ}\text{C}$			- 5	μA	
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	$V_{DS} \leq$ - 5 V, $V_{GS}$ = - 10 V	- 50			Α	
Drain-Source On-State Resistance <sup>a</sup>		V <sub>GS</sub> = - 10 V, I <sub>D</sub> = - 11.5 A		0.012	0.014	Ω	
	r <sub>DS(on)</sub>	V <sub>GS</sub> = - 4.5 V, I <sub>D</sub> = - 9.2 A		0.018	0.022		
Forward Transconductance <sup>a</sup>	9 <sub>fs</sub>	V <sub>DS</sub> = - 15 V, I <sub>D</sub> = - 11.5 A		28		S	
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	$I_{\rm S}$ = - 2.5 A, $V_{\rm GS}$ = 0 V		- 0.8	- 1.2	V	
Dynamic <sup>b</sup>							
Total Gate Charge	Qg			55	71		
Gate-Source Charge	Q <sub>gs</sub>	$V_{DS}$ = - 15 V, $V_{GS}$ = - 10 V, $I_{D}$ = - 11.5 A		15.5		nC	
Gate-Drain Charge	Q <sub>gd</sub>			7.5			
Gate Resistance	Rg	f = 1 MHz		3.5	5.3	Ω	
Turn-On Delay Time	t <sub>d(on)</sub>			15	25		
Rise Time	t <sub>r</sub>	$V_{DD}$ = - 15 V, $R_L$ = 15 $\Omega$		13	20		
Turn-Off Delay Time	t <sub>d(off)</sub>	${\rm I}_{\rm D}\cong$ - 1 A, ${\rm V}_{\rm GEN}$ = - 10 V, ${\rm R}_{\rm g}$ = 6 $\Omega$		97	150	ns	
Fall Time	t <sub>f</sub>	1		51	75		
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = - 2.5 A, di/dt = 100 A/μs		45	80		

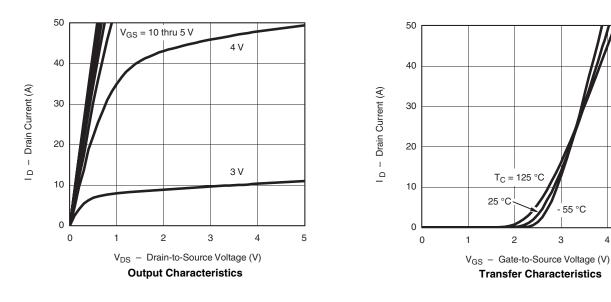
Notes:

a. Pulse test; pulse width  $\leq$  300 µs, 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



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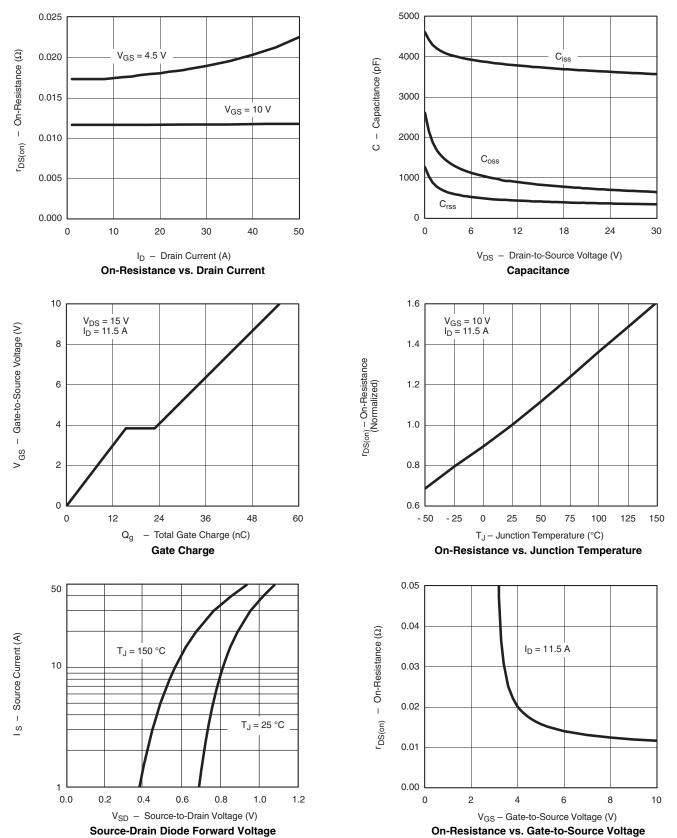
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# Si4825DY

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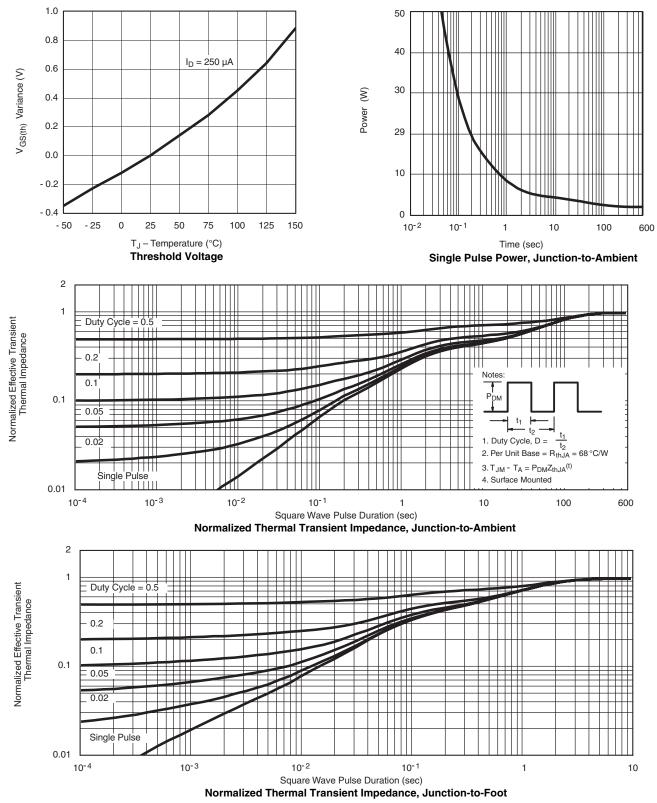


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## Si4825DY

### Vishay Siliconix





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 http://www.vishay.com/ppg?71291.



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