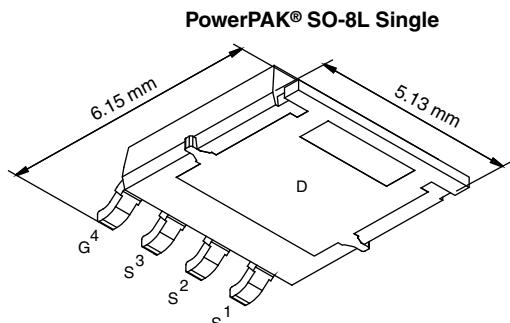


N-Channel 80 V (D-S) MOSFET

PRODUCT SUMMARY			
V _{DS} (V)	R _{DS(on)} (Ω) (Max.)	I _D (A) ^{a, g}	Q _g (Typ.)
80	0.0062 at V _{GS} = 10 V	60	24 nC
	0.0065 at V _{GS} = 7.5 V		
	0.0095 at V _{GS} = 4.5 V		



Ordering Information:

SiJ482DP-T1-GE3 (Lead (Pb)-free and Halogen-free)

FEATURES

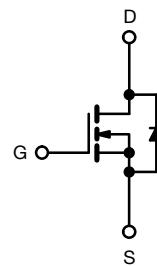
- TrenchFET® Power MOSFET
- 100 % R_g and UIS Tested
- Capable of Operating with 5 V Gate Drive
- Material categorization:
For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

APPLICATIONS

- DC/DC Primary Side Switch
- Synchronous Rectification
- High Current Switching



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T _A = 25 °C, unless otherwise noted)				
Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V _{DS}	80	V	
Gate-Source Voltage	V _{GS}	± 20		
Continuous Drain Current (T _J = 150 °C)	T _C = 25 °C	60 ^g	A	
	T _C = 70 °C	60 ^g		
	T _A = 25 °C	21.1 ^{b, c}		
	T _A = 70 °C	16.9 ^{b, c}		
Pulsed Drain Current (t = 300 μs)	I _{DM}	100		
Continuous Source-Drain Diode Current	T _C = 25 °C	60 ^g		
	T _A = 25 °C	4.5 ^{b, c}		
Single Pulse Avalanche Current	I _{AS}	30		
Single Pulse Avalanche Energy	E _{AS}	45	mJ	
Maximum Power Dissipation	T _C = 25 °C	69.4	W	
	T _C = 70 °C	44.4		
	T _A = 25 °C	5 ^{b, c}		
	T _A = 70 °C	3.2 ^{b, c}		
Operating Junction and Storage Temperature Range	T _J , T _{stg}	- 55 to 150		
Soldering Recommendations (Peak Temperature) ^{d, e}		260	°C	

THERMAL RESISTANCE RATINGS				
Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^{b, f}	t ≤ 10 s	R _{thJA}	20	25
Maximum Junction-to-Case (Drain)	Steady State	R _{thJC}	1.3	1.8 °C/W

Notes:

- a. Based on T_C = 25 °C.
- b. Surface mounted on 1" x 1" FR4 board.
- c. t = 10 s.
- d. See solder profile (www.vishay.com/doc?73257). The PowerPAK SO-8L 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.
- e. Rework conditions: manual soldering with a soldering iron is not recommended for leadless components.
- f. Maximum under steady state conditions is 65 °C/W.
- g. Package limited.

SiJ482DP

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**SPECIFICATIONS** ($T_J = 25^\circ\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0 \text{ V}$, $I_D = 250 \mu\text{A}$	80			V
V_{DS} Temperature Coefficient	$\Delta V_{DS}/T_J$	$I_D = 250 \mu\text{A}$		36		mV°C
$V_{GS(\text{th})}$ Temperature Coefficient	$\Delta V_{GS(\text{th})}/T_J$			- 5.7		
Gate-Source Threshold Voltage	$V_{GS(\text{th})}$	$V_{DS} = V_{GS}$, $I_D = 250 \mu\text{A}$	1.5		2.7	V
Gate-Source Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}$, $V_{GS} = \pm 20 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 80 \text{ V}$, $V_{GS} = 0 \text{ V}$		1		μA
		$V_{DS} = 80 \text{ V}$, $V_{GS} = 0 \text{ V}$, $T_J = 55^\circ\text{C}$			10	
On-State Drain Current ^a	$I_{D(\text{on})}$	$V_{DS} \geq 5 \text{ V}$, $V_{GS} = 10 \text{ V}$	30			A
Drain-Source On-State Resistance ^a	$R_{DS(\text{on})}$	$V_{GS} = 10 \text{ V}$, $I_D = 20 \text{ A}$		0.0051	0.0062	Ω
		$V_{GS} = 7.5 \text{ V}$, $I_D = 15 \text{ A}$		0.0054	0.0065	
		$V_{GS} = 4.5 \text{ V}$, $I_D = 10 \text{ A}$		0.0068	0.0095	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 10 \text{ V}$, $I_D = 20 \text{ A}$		68		S
Dynamic^b						
Input Capacitance	C_{iss}	$V_{DS} = 40 \text{ V}$, $V_{GS} = 0 \text{ V}$, $f = 1 \text{ MHz}$		2425		pF
Output Capacitance	C_{oss}			1180		
Reverse Transfer Capacitance	C_{rss}			100		
Total Gate Charge	Q_g	$V_{DS} = 40 \text{ V}$, $V_{GS} = 10 \text{ V}$, $I_D = 10 \text{ A}$		47	71	nC
		$V_{DS} = 40 \text{ V}$, $V_{GS} = 7.5 \text{ V}$, $I_D = 10 \text{ A}$		36.5	55	
				24	36	
Gate-Source Charge	Q_{gs}	$V_{DS} = 40 \text{ V}$, $V_{GS} = 4.5 \text{ V}$, $I_D = 10 \text{ A}$		6.6		nC
Gate-Drain Charge	Q_{gd}			10.2		
Output Charge	Q_{oss}	$V_{DS} = 40 \text{ V}$, $V_{GS} = 0 \text{ V}$		69	105	
Gate Resistance	R_g	$f = 1 \text{ MHz}$	0.4	1.1	2.2	Ω
Turn-On Delay Time	$t_{d(\text{on})}$	$V_{DD} = 40 \text{ V}$, $R_L = 4 \Omega$ $I_D \geq 10 \text{ A}$, $V_{GEN} = 10 \text{ V}$, $R_g = 1 \Omega$		14	28	ns
Rise Time	t_r			11	22	
Turn-Off Delay Time	$t_{d(\text{off})}$			36	72	
Fall Time	t_f			9	18	
Turn-On Delay Time	$t_{d(\text{on})}$			16	32	
Rise Time	t_r	$V_{DD} = 40 \text{ V}$, $R_L = 4 \Omega$ $I_D \geq 10 \text{ A}$, $V_{GEN} = 7.5 \text{ V}$, $R_g = 1 \Omega$		13	26	ns
Turn-Off Delay Time	$t_{d(\text{off})}$			35	70	
Fall Time	t_f			11	22	
Drain-Source Body Diode Characteristics						
Continuous Source-Drain Diode Current	I_S	$T_C = 25^\circ\text{C}$			60	A
Pulse Diode Forward Current ^a	I_{SM}				100	
Body Diode Voltage	V_{SD}	$I_S = 4 \text{ A}$		0.73	1.1	V
Body Diode Reverse Recovery Time	t_{rr}	$I_F = 10 \text{ A}$, $dI/dt = 100 \text{ A}/\mu\text{s}$, $T_J = 25^\circ\text{C}$		46	90	ns
Body Diode Reverse Recovery Charge	Q_{rr}			44	86	nC
Reverse Recovery Fall Time	t_a			21		ns
Reverse Recovery Rise Time	t_b			25		

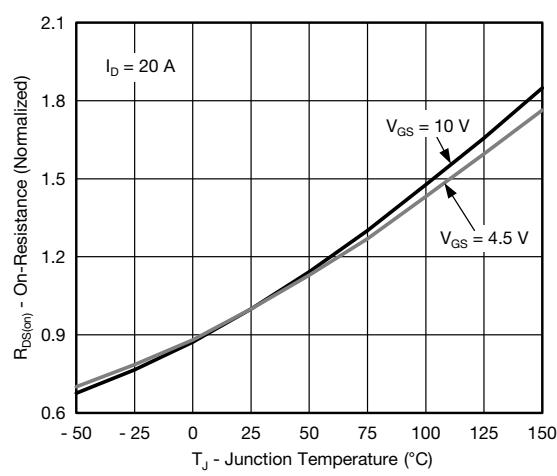
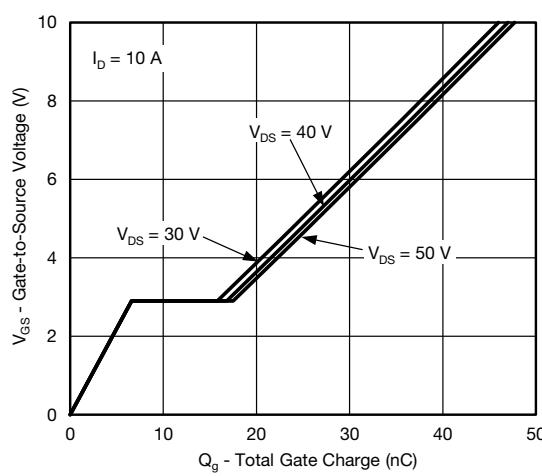
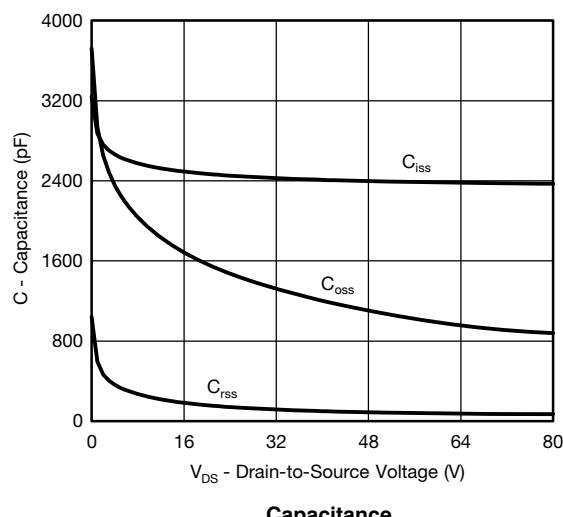
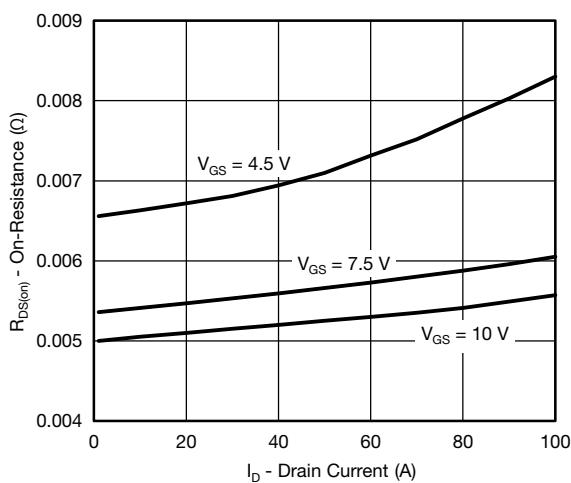
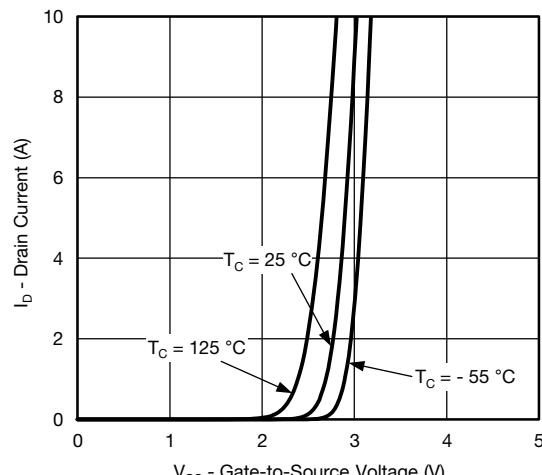
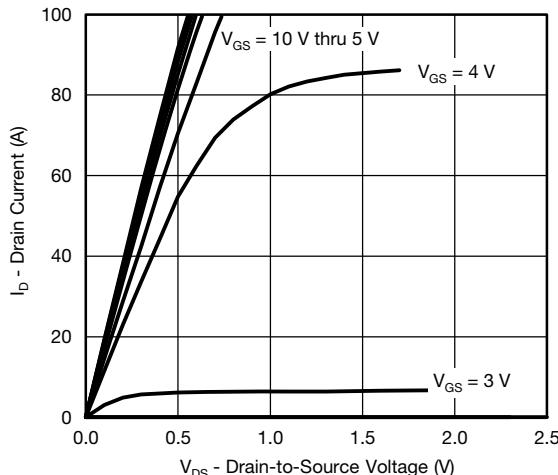
Notes:

a. Pulse test; pulse width $\leq 300 \mu\text{s}$, 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)

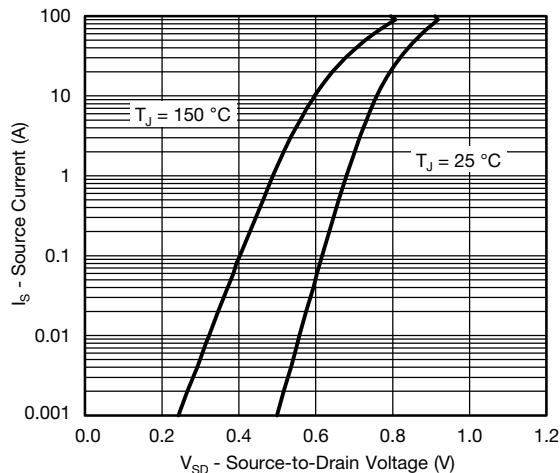


SiJ482DP

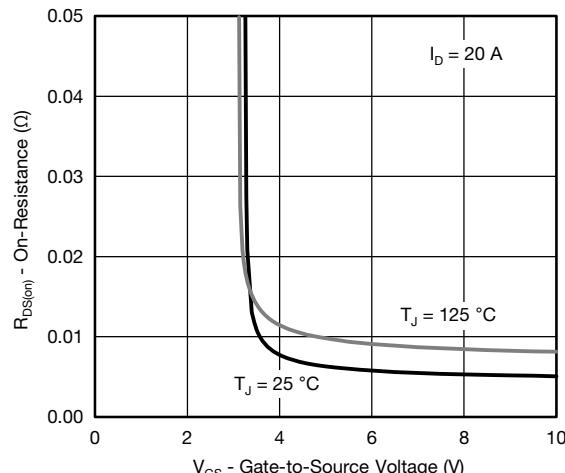
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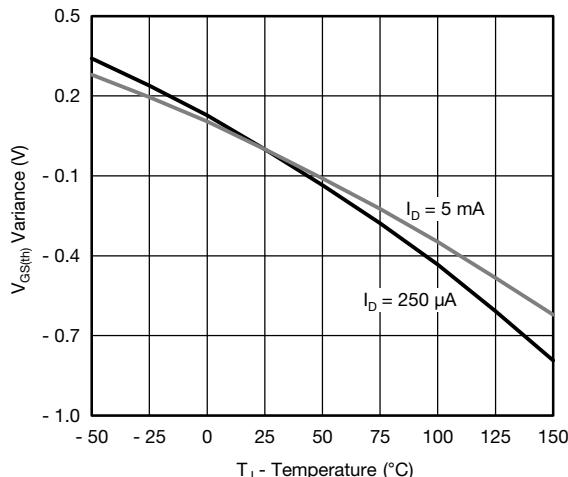
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



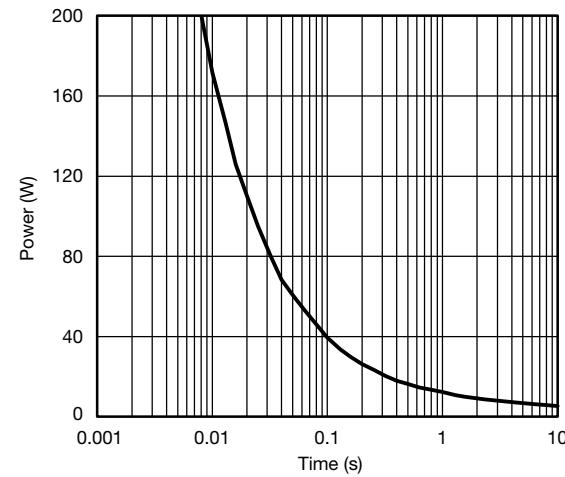
Source-Drain Diode Forward Voltage



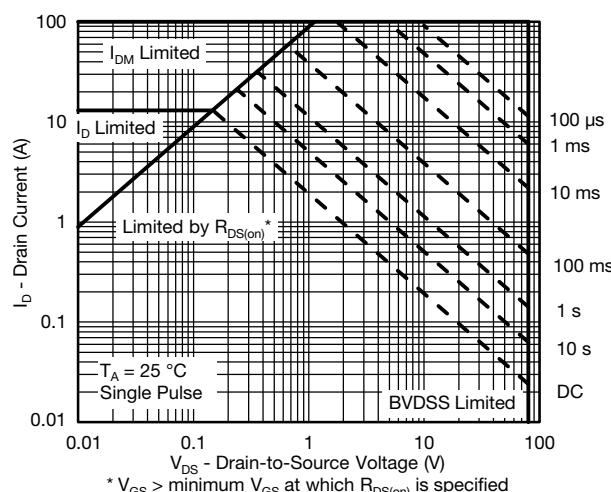
On-Resistance vs. Gate-to-Source Voltage



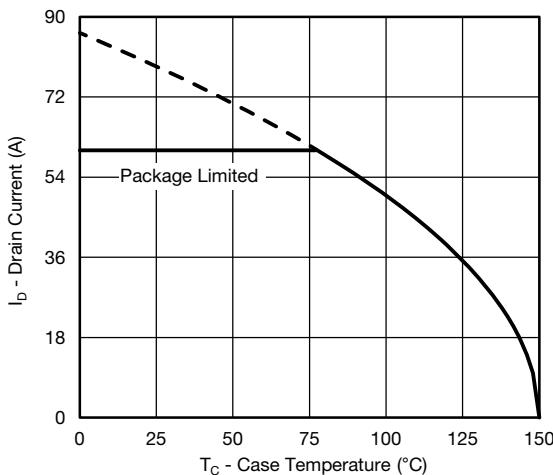
Threshold Voltage



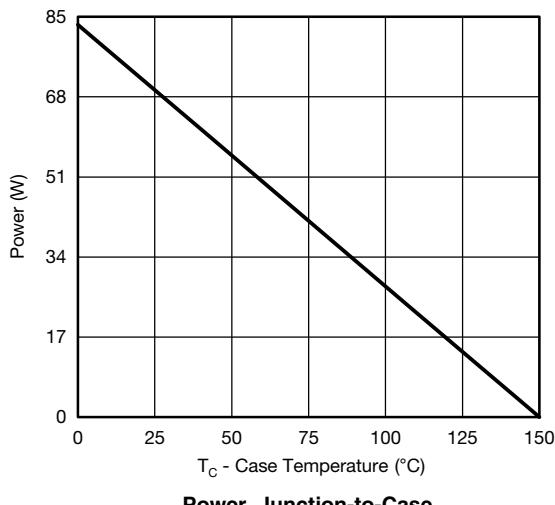
Single Pulse Power, Junction-to-Ambient



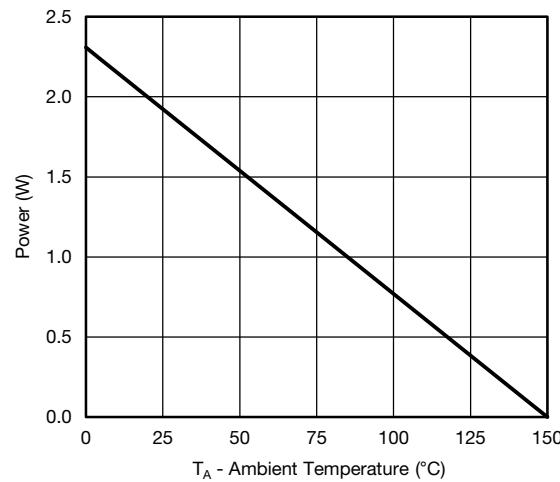
Safe Operating Area, Junction-to-Ambient

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)


Current Derating*



Power, Junction-to-Case



Power, Junction-to-Ambient

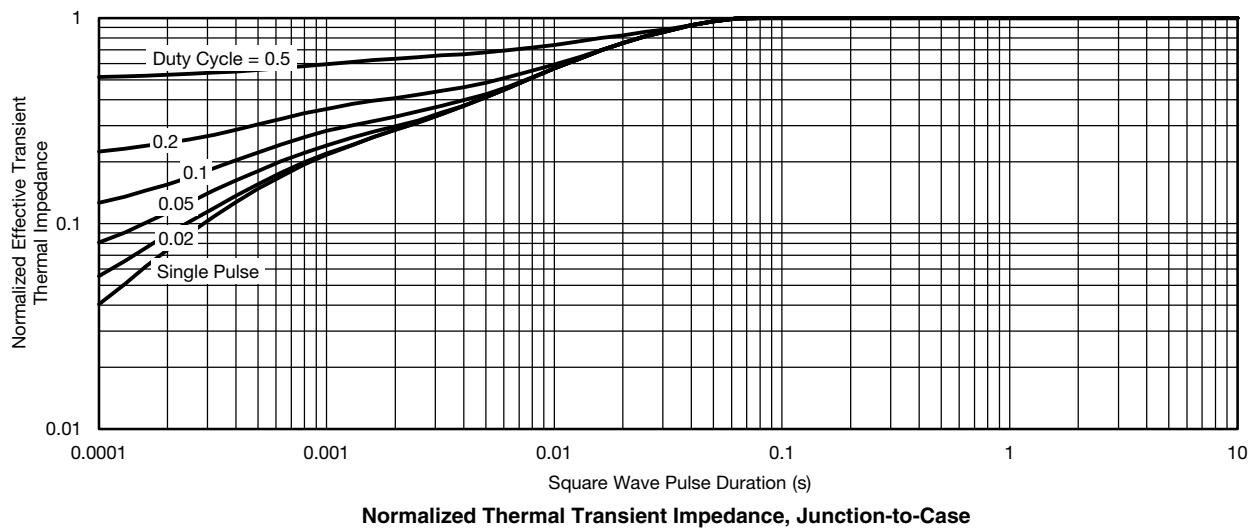
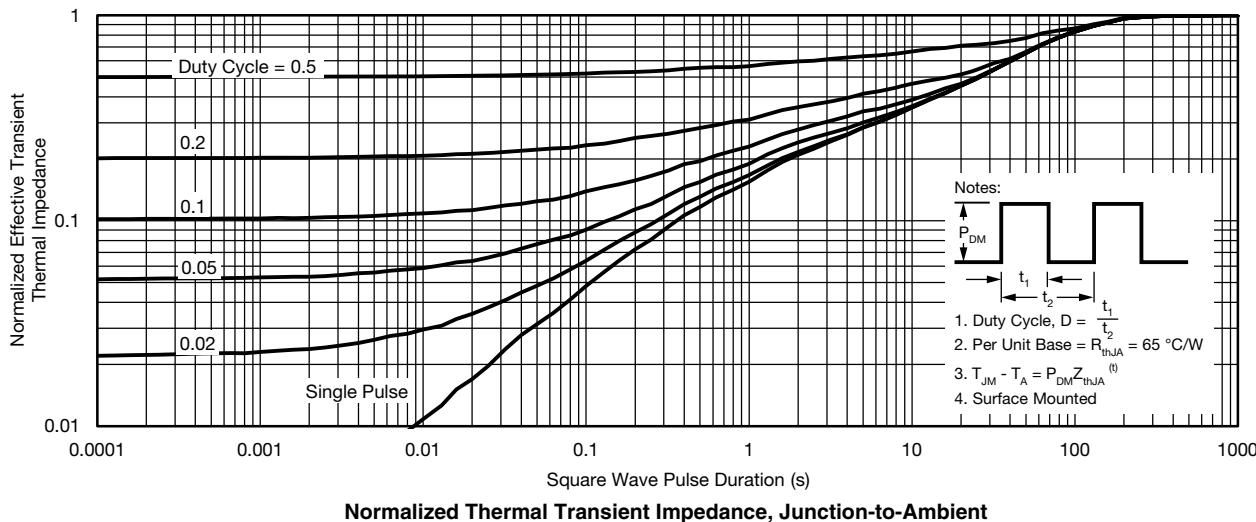
* The power dissipation P_D is based on $T_{J(\max)} = 150$ °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.

SiJ482DP

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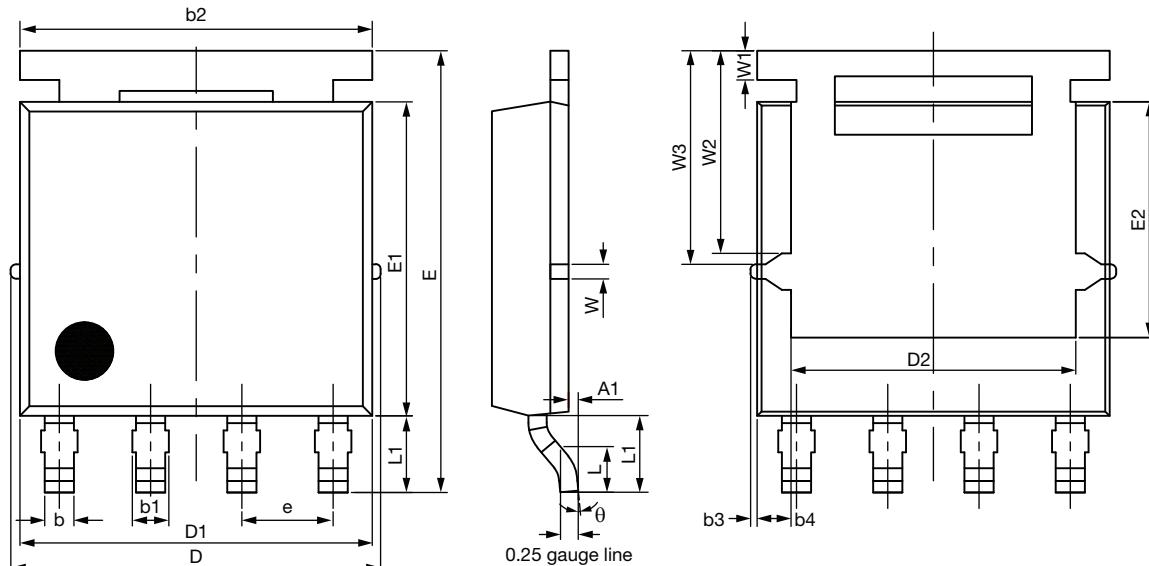
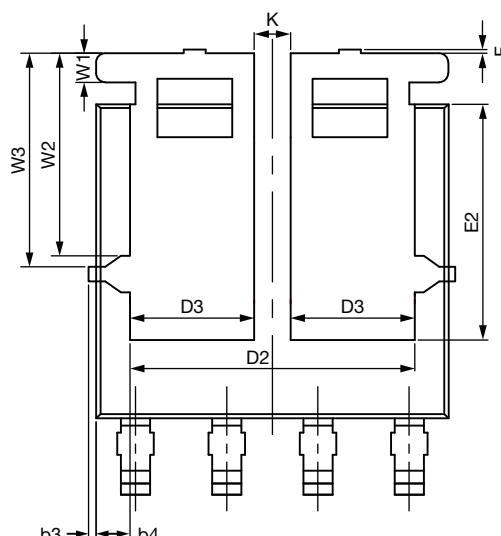
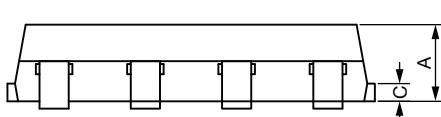


TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



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 www.vishay.com/ppg?63728.

PowerPAK® SO-8L Case Outline for Non-AI Parts


Topside view
Backside view (single)

Backside view (dual)

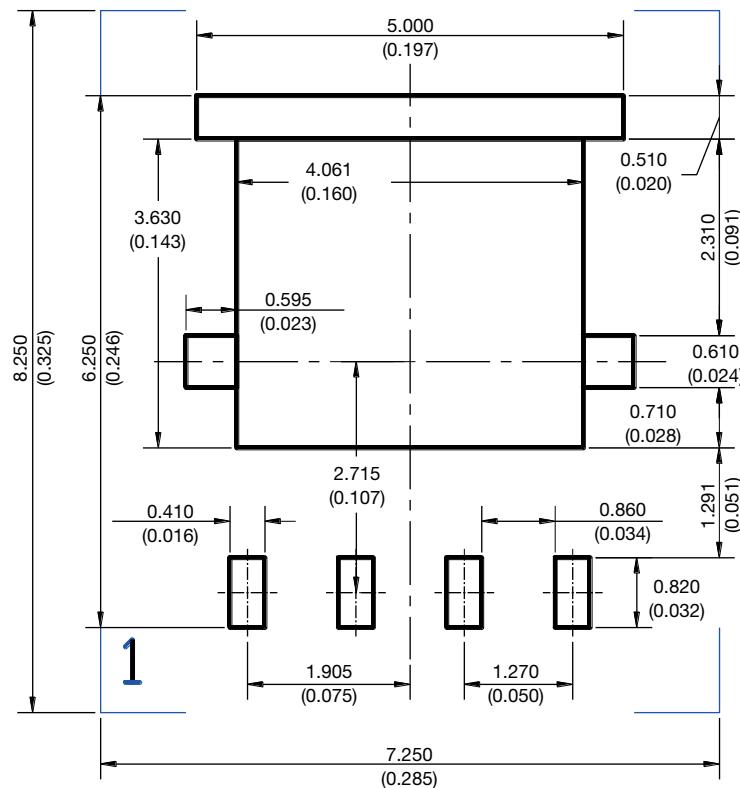
DIM.	MILLIMETERS			INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	1.00	1.07	1.14	0.039	0.042	0.045
A1	0.00	-	0.127	0.00	-	0.005
b	0.33	0.41	0.48	0.013	0.016	0.019
b1	0.44	0.51	0.58	0.017	0.020	0.023
b2	4.80	4.90	5.00	0.189	0.193	0.197
b3	0.094			0.004		
b4	0.47			0.019		
c	0.20	0.25	0.30	0.008	0.010	0.012
D	5.00	5.13	5.25	0.197	0.202	0.207
D1	4.80	4.90	5.00	0.189	0.193	0.197
D2	3.86	3.96	4.06	0.152	0.156	0.160
D3	1.63	1.73	1.83	0.064	0.068	0.072
e	1.27 BSC			0.050 BSC		
E	6.05	6.15	6.25	0.238	0.242	0.246
E1	4.27	4.37	4.47	0.168	0.172	0.176
E2	3.18	3.28	3.38	0.125	0.129	0.133
F	-	-	0.15	-	-	0.006
L	0.62	0.72	0.82	0.024	0.028	0.032
L1	0.92	1.07	1.22	0.036	0.042	0.048
K	0.51			0.020		
W	0.23			0.009		
W1	0.41			0.016		
W2	2.82			0.111		
W3	2.96			0.117		
θ	0°	-	10°	0°	-	10°

ECN: T16-0221-Rev. D, 16-May-16

DWG: 5976

Note

- Millimeters will govern

RECOMMENDED MINIMUM PAD FOR PowerPAK® SO-8L SINGLE


Recommended Minimum Pads
Dimensions in mm (inches)

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