

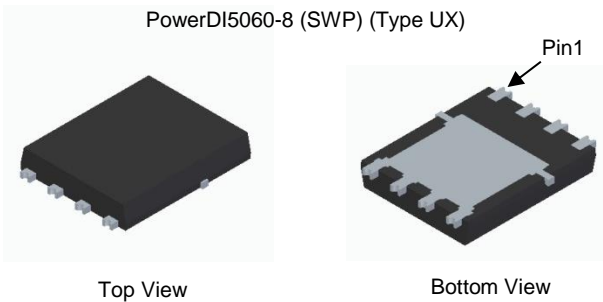
## Product Summary

BV <sub>DSS</sub>	R <sub>DS(ON)</sub>	I <sub>D</sub> T <sub>C</sub> = +25°C
30V	1.7mΩ @ V <sub>GS</sub> = 10V	100A
	2.8mΩ @ V <sub>GS</sub> = 4.5V	100A

## Description and Applications

This new generation MOSFET is designed to minimize R<sub>DS(ON)</sub> yet maintain superior switching performance. This device is ideal for use in power managements and load switches.

- DC-DC converters
- Load switches

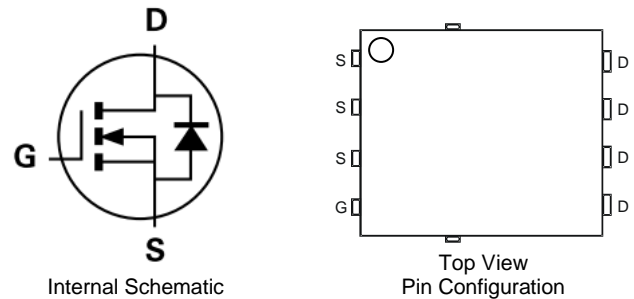


## Features

- Thermally Efficient Package-Cooler Running Applications
- <1.1mm Package Profile – Ideal for Thin Applications
- High Conversion Efficiency
- Low R<sub>DS(ON)</sub> – Minimizes On State Losses
- Low Input Capacitance
- Fast Switching Speed
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. “Green” Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](https://www.diodes.com/quality/product-definitions/) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

## Mechanical Data

- Package: PowerDI<sup>®</sup>5060-8
- Package Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram Below
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.097 grams (Approximate)

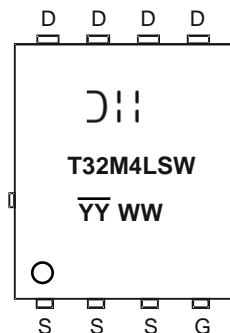


## Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DMT32M4LPSW-13	PowerDI5060-8 (SWP) (Type UX)	2500	Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



= Manufacturer's Marking  
 T32M4LSW = Product Type Marking Code  
 YYWW = Date Code Marking  
 YY = Year (ex: 22 = 2022)  
 WW = Week (01 to 53)

**Maximum Ratings** (@T<sub>C</sub> = +25°C, unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V <sub>DSS</sub>	30	V
Gate-Source Voltage			V <sub>GSS</sub>	±20	V
Continuous Drain Current, V <sub>GS</sub> = 10V (Note 6)	Steady State	T <sub>C</sub> = +25°C	I <sub>D</sub>	100	A
		T <sub>C</sub> = +100°C		100	
Maximum Continuous Body Diode Forward Current (Note 6)			I <sub>S</sub>	80	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)			I <sub>DM</sub>	549	A
Pulsed Body Diode Forward Current (10µs Pulse, Duty Cycle = 1%)			I <sub>SM</sub>	549	A
Avalanche Current, L = 0.1mH			I <sub>AS</sub>	50	A
Avalanche Energy, L = 0.1mH			E <sub>AS</sub>	140	mJ

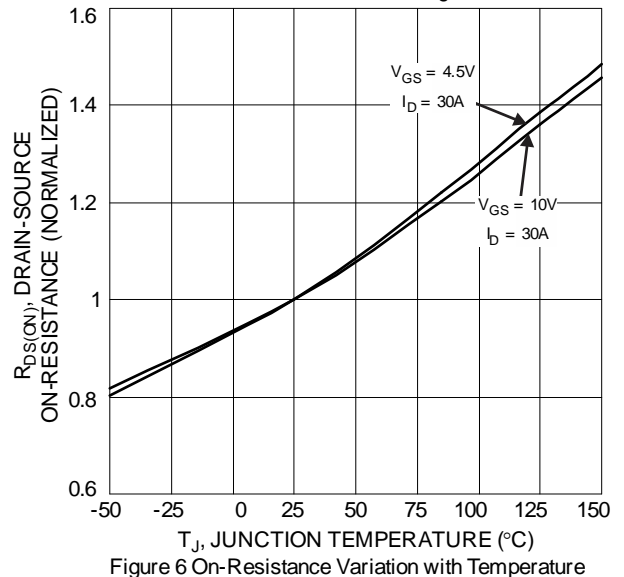
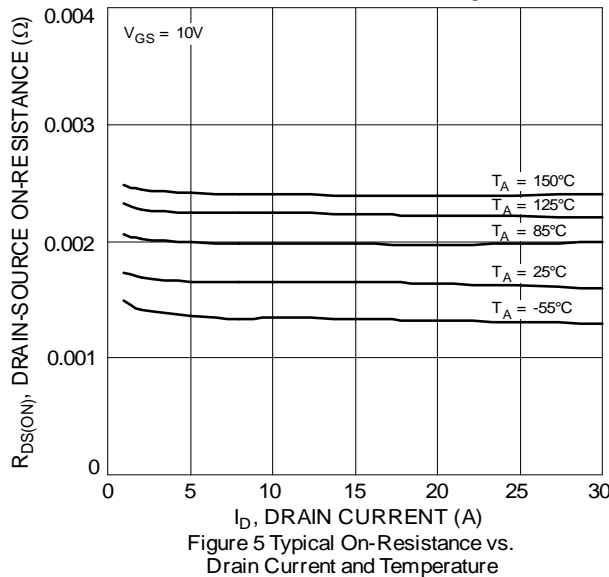
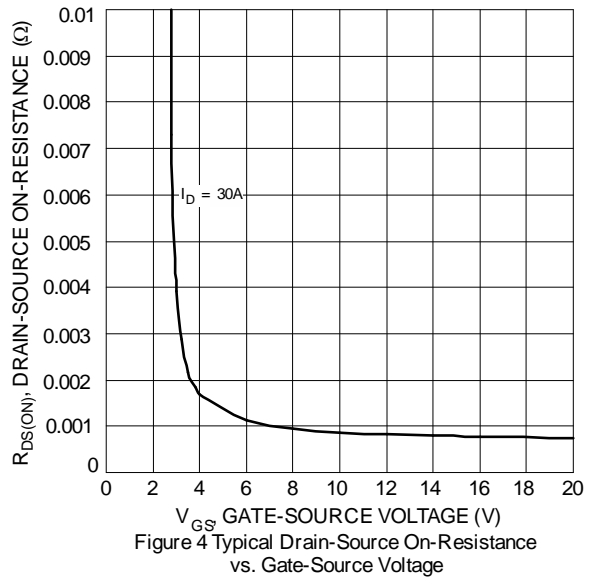
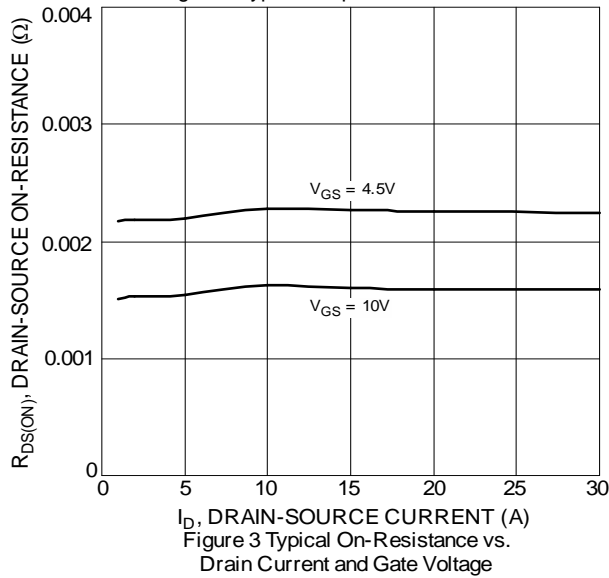
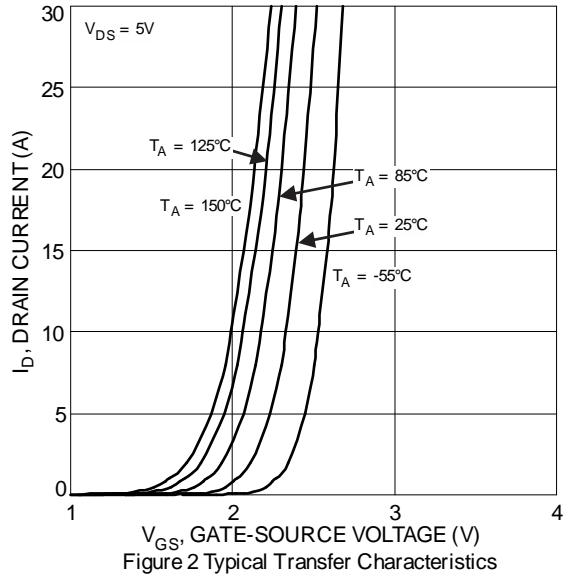
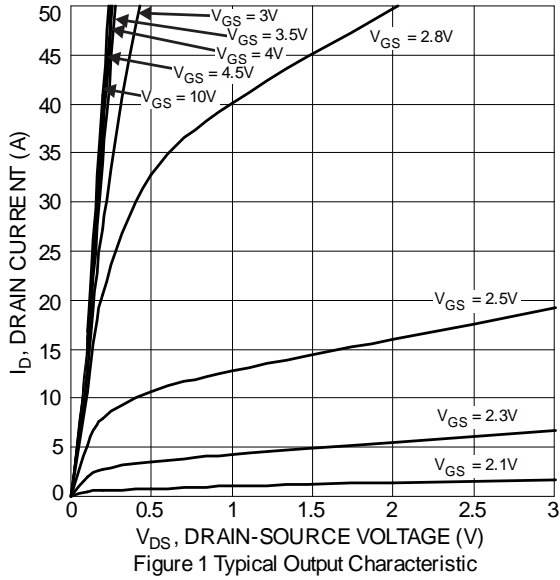
**Thermal Characteristics** (@T<sub>C</sub> = +25°C, unless otherwise specified.)

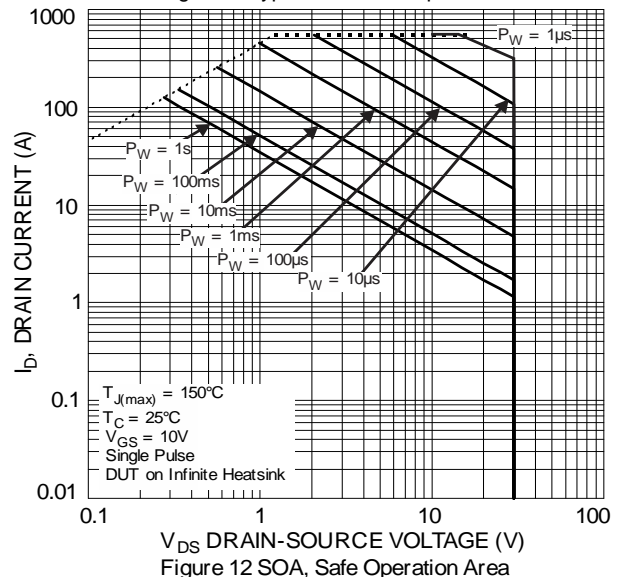
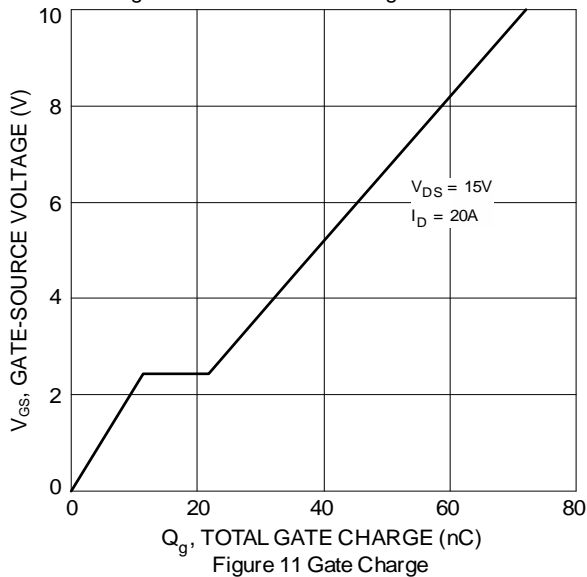
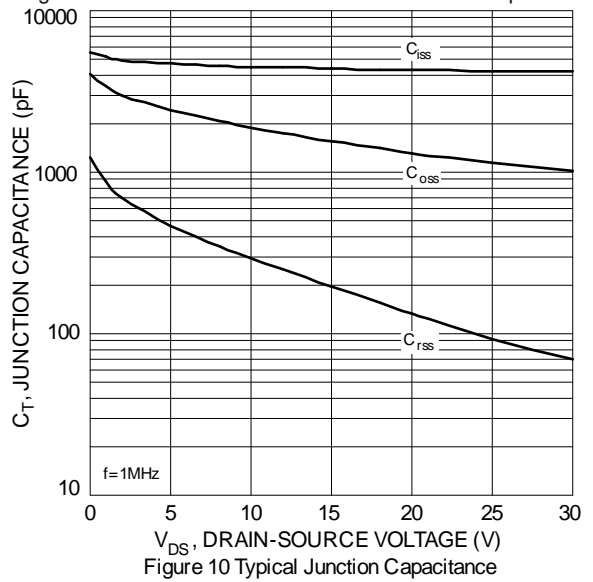
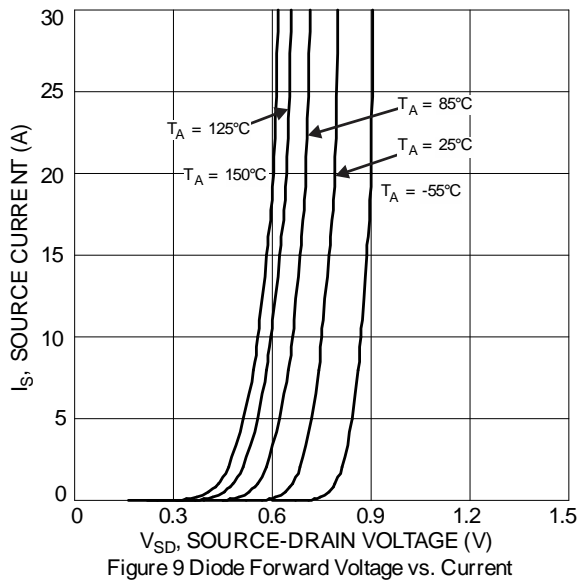
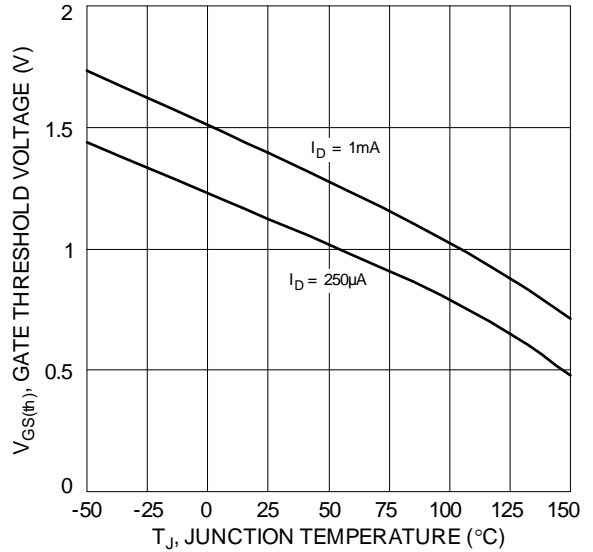
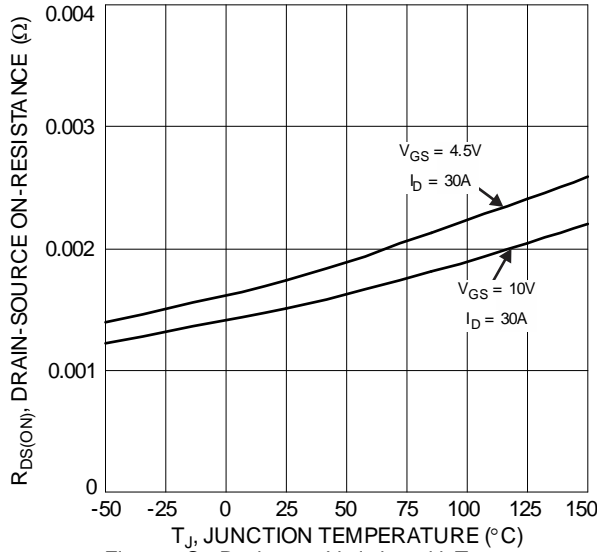
Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 5)	T <sub>A</sub> = +25°C	P <sub>D</sub>	2.3	W
Thermal Resistance, Junction to Ambient (Note 5)		R <sub>θJA</sub>	54	°C/W
Total Power Dissipation (Note 6)	T <sub>C</sub> = +25°C	P <sub>D</sub>	83	W
Thermal Resistance, Junction to Case (Note 6)		R <sub>θJC</sub>	1.5	°C/W
Operating and Storage Temperature Range		T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

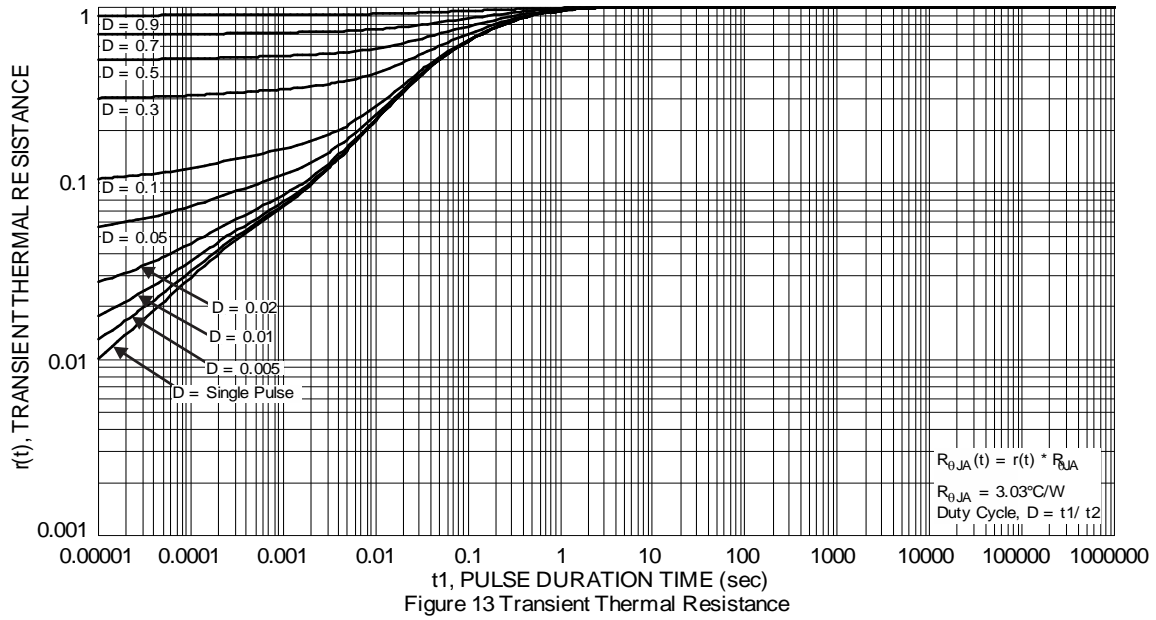
**Electrical Characteristics** (@T<sub>C</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 7)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	30	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250µA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	1	µA	V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	—	—	±10	µA	V <sub>GS</sub> = ±16V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 7)</b>						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	1	—	3	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 1mA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	—	1.5	1.7	mΩ	V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A
		—	1.7	2.8		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 15A
Diode Forward Voltage	V <sub>SD</sub>	—	0.7	1	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = 2A
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	C <sub>iss</sub>	—	3944	—	pF	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz
Output Capacitance	C <sub>oss</sub>	—	1267	—		
Reverse Transfer Capacitance	C <sub>rss</sub>	—	186	—		
Gate Resistance	R <sub>g</sub>	—	0.6	—	Ω	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz
Total Gate Charge (V <sub>GS</sub> = 4.5V)	Q <sub>g</sub>	—	34	—	nC	V <sub>DS</sub> = 15V, I <sub>D</sub> = 20A
Total Gate Charge (V <sub>GS</sub> = 10V)	Q <sub>g</sub>	—	68	—		
Gate-Source Charge	Q <sub>gs</sub>	—	8	—		
Gate-Drain Charge	Q <sub>gd</sub>	—	15	—		
Turn-On Delay Time	t <sub>D(ON)</sub>	—	7.2	—	ns	V <sub>DD</sub> = 15V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A, R <sub>G</sub> = 3Ω
Turn-On Rise Time	t <sub>r</sub>	—	13.2	—		
Turn-Off Delay Time	t <sub>D(OFF)</sub>	—	37.5	—		
Turn-Off Fall Time	t <sub>f</sub>	—	23.9	—		
Body Diode Reverse Recovery Time	t <sub>RR</sub>	—	28.7	—	ns	I <sub>S</sub> = 15A, di/dt = 500A/µs
Body Diode Reverse Recovery Charge	Q <sub>RR</sub>	—	45.8	—	nC	

- Notes:
- Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate.
  - Thermal resistance from junction to soldering point (on the exposed drain pad).
  - Short duration pulse test used to minimize self-heating effect.
  - Guaranteed by design. Not subject to production testing.



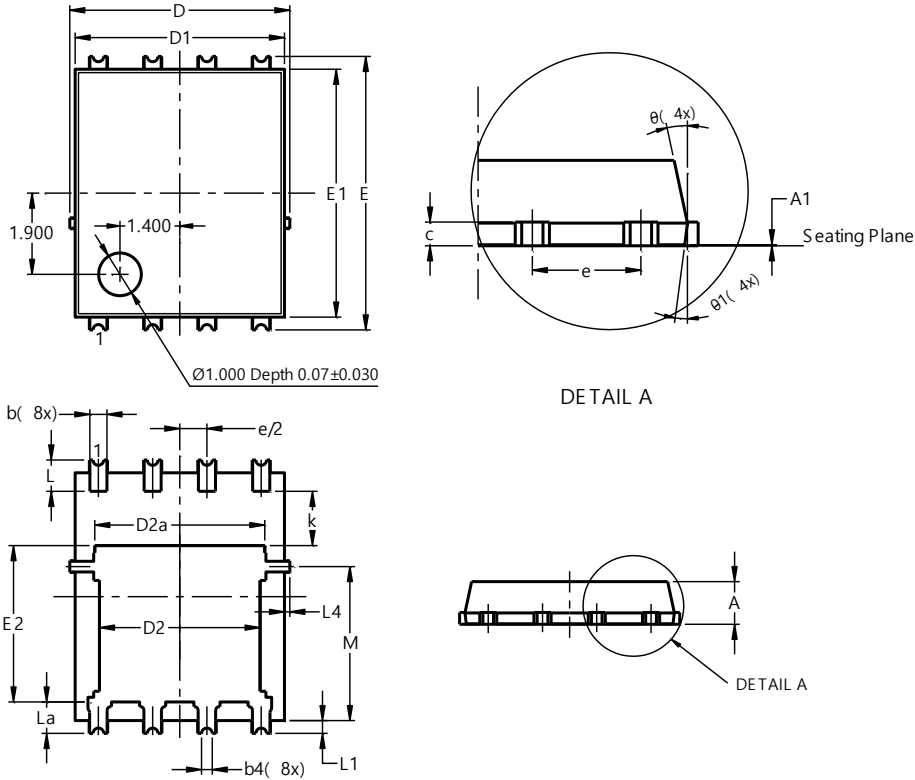




**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**PowerDI5060-8 (SWP) (Type UX)**

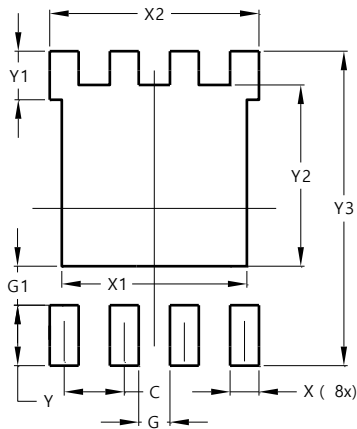


PowerDI5060-8 (SWP) (Type UX)			
Dim	Min	Max	Typ
A	0.90	1.10	1.00
A1	0	0.05	--
b	0.30	0.50	0.41
b2	0.20	0.35	0.25
b4	0.25REF		
c	0.230	0.330	0.277
D	5.15 BSC		
D1	4.70	5.10	4.90
D2	3.56	3.96	3.76
D2a	3.78	4.18	3.98
E	6.40 BSC		
E1	5.60	6.00	5.80
E2	3.46	3.86	3.66
E2a	4.195	4.595	4.395
e	1.27BSC		
k	1.05	--	--
L	0.635	0.835	0.735
La	0.635	0.835	0.735
L1	0.200	0.400	0.300
L1a	0.050REF		
L4	0.025	0.225	0.125
M	3.205	4.005	3.605
theta	10°	12°	11°
theta1	6°	8°	7°
All Dimensions in mm			

**Suggested Pad Layout**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**PowerDI5060-8 (SWP) (Type UX)**



Dimensions	Value (in mm)
C	1.270
G	0.660
G1	0.820
X	0.610
X1	4.100
X2	4.420
Y	1.270
Y1	1.020
Y2	3.810
Y3	6.610

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