

Product Summary

BV _{DSS}	R _{DS(ON)} Max	I _D Max T _A = +25°C
30V	16mΩ @ V _{GS} = 10V	9.8A
	22mΩ @ V _{GS} = 4.5V	8.4A

Description

This MOSFET has been designed to minimize the on-state resistance (R_{DS(ON)}) yet maintain superior switching performance, making it ideal for high efficiency power management applications.

Applications

- Backlighting
- Power management functions
- DC-DC converters

Features and Benefits

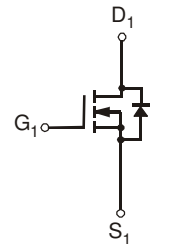
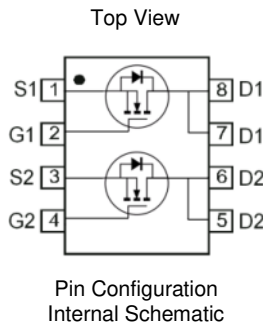
- 100% Avalanche Rated Part
- Low R_{DS(ON)} – Minimizes Conduction Losses
- Low Q_g – Minimizes Switching Losses
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**

Mechanical Data

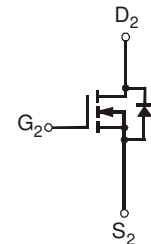
- Package: SO-8
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections Indicator: See Diagram
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 
- Weight: 0.076 grams (Approximate)



Top View



N-Channel MOSFET



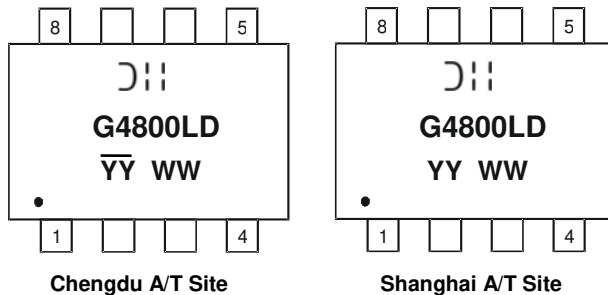
N-Channel MOSFET

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DMG4800LSD-13	SO-8	2,500	Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 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



三三三 = Manufacturer's Marking
 G4800LD = Product Type Marking Code
 YYWW = Date Code Marking
 YY or YY = Year (ex: 22 = 2022)
 WW = Week (01 to 53)
 YY = Date Code Marking for SAT (Shanghai Assembly/Test Site)
YY = Date Code Marking for CAT (Chengdu Assembly/Test Site)

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DS}	30	V
Gate-Source Voltage			V_{GS}	±25	V
Continuous Drain Current (Note 5) $V_{GS} = 10V$	Steady State	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	I_D	7.5 6.0	A
	t < 10s	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	I_D	9.8 7.7	A
Continuous Drain Current (Note 5) $V_{GS} = 4.5V$	Steady State	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	I_D	6.4 5.0	A
	t < 10s	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	I_D	8.4 6.6	A
Maximum Continuous Body Diode Forward Current (Note 5)			I_S	2	A
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%)			I_{DM}	42	A
Avalanche Current (Notes 6 & 7) L = 0.1mH			I_{AR}	17	A
Repetitive Avalanche Energy (Notes 6 & 7) L = 0.1mH			E_{AR}	14	mJ

Thermal Characteristics

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 8)		P _D	1.17	W
Thermal Resistance, Junction to Ambient (Note 8)	Steady State	R _{θJA}	107	°C/W
	t < 10s		61	
Total Power Dissipation (Note 5)		P _D	1.5	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	R _{θJA}	83	°C/W
	t < 10s		49	
Thermal Resistance, Junction to Case		R _{θJC}	14.5	
Operating and Storage Temperature Range		T _J , T _{STG}	-55 to +150	°C

Notes:

5. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
6. I_{AR} and E_{AR} ratings are based on low frequency and duty cycles to keep $T_J = +25^{\circ}\text{C}$.
7. Applicable to products manufactured with Data Code "1146" (Nov, 2011) and newer.
8. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 9)						
Drain-Source Breakdown Voltage	BV _{DSS}	30	—	—	V	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	—	—	1.0	μA	V _{DS} = 30V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 9)						
Gate Threshold Voltage	V _{GS(TH)}	0.8	—	1.6	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	12	16	mΩ	V _{GS} = 10V, I _D = 9A
			16	22		V _{GS} = 4.5V, I _D = 7A
Forward Transfer Admittance	Y _{fs}	—	8	—	S	V _{DS} = 10V, I _D = 9A
Diode Forward Voltage	V _{SD}	—	0.72	0.94	V	V _{GS} = 0V, I _S = 1A
DYNAMIC CHARACTERISTICS (Note 10)						
Input Capacitance	C _{iss}	—	798	—	pF	V _{DS} = 10V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	128	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	122	—	pF	
Gate Resistance	R _g	—	1.37	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge	Q _g	—	8.56	—	nC	V _{GS} = 5V, V _{DS} = 15V I _D = 9A
Gate-Source Charge	Q _{gs}	—	1.8	—	nC	
Gate-Drain Charge	Q _{gd}	—	2.5	—	nC	
Turn-On Delay Time	t _{d(ON)}	—	5.03	—	ns	V _{DD} = 15V, V _{GEN} = 10V R _L = 15Ω, R _G = 6Ω, I _D = 1A
Turn-On Rise Time	t _r	—	4.50	—	ns	
Turn-Off Delay Time	t _{d(OFF)}	—	26.33	—	ns	
Turn-Off Fall Time	t _f	—	8.55	—	ns	

Notes: 9. Short duration pulse test used to minimize self-heating effect.
10. Guaranteed by design. Not subject to product testing.

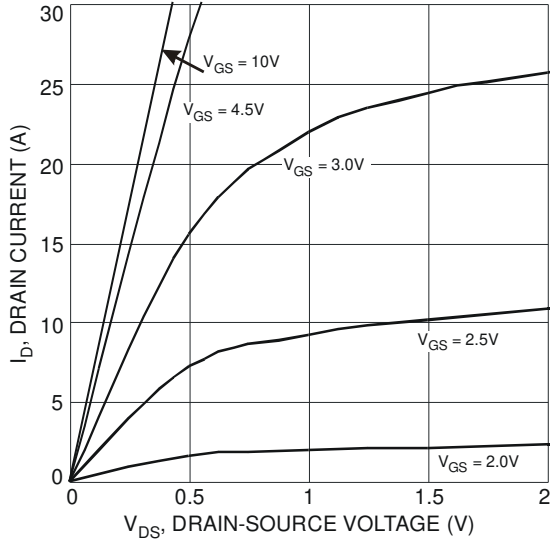


Fig. 1 Typical Output Characteristic

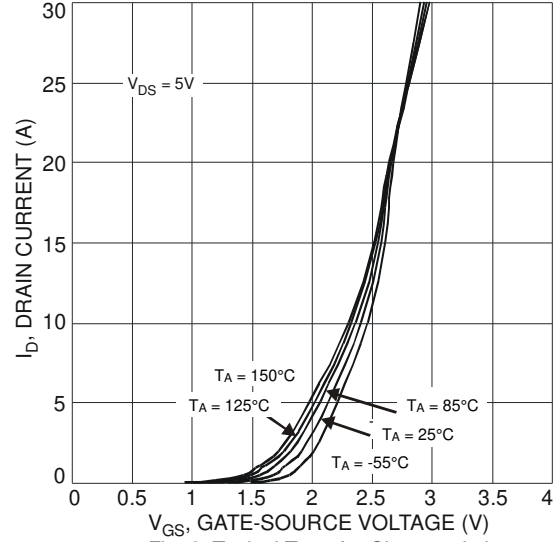


Fig. 2 Typical Transfer Characteristic

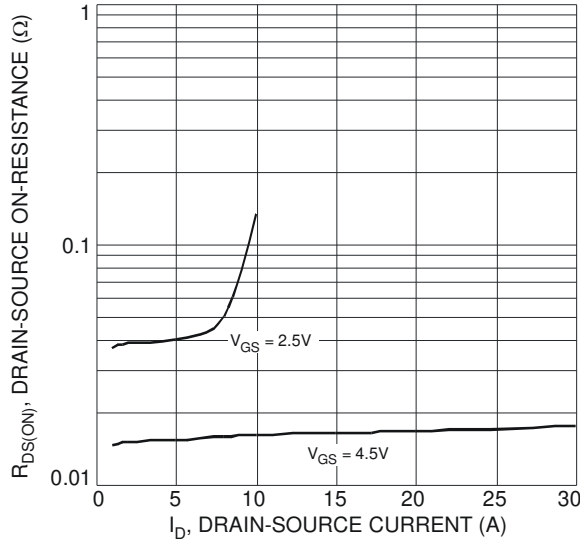


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

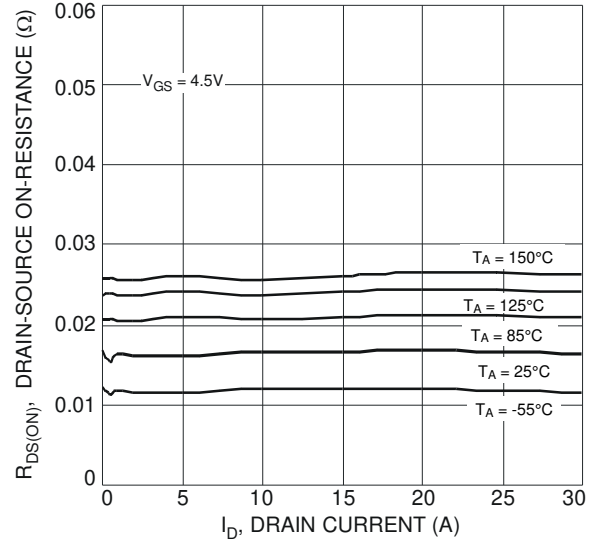


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

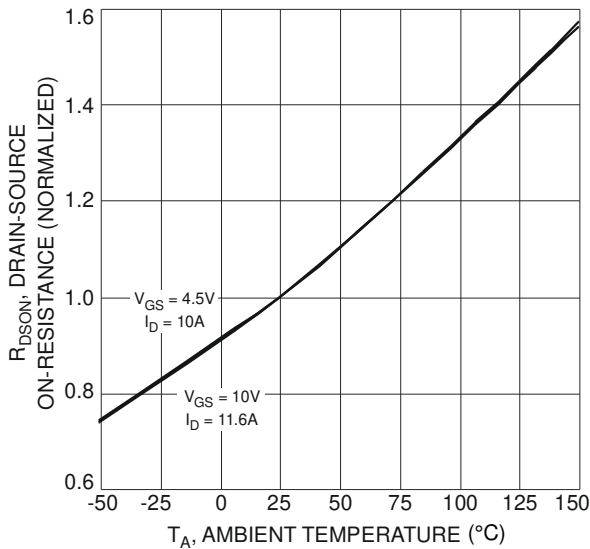


Fig. 5 On-Resistance Variation with Temperature

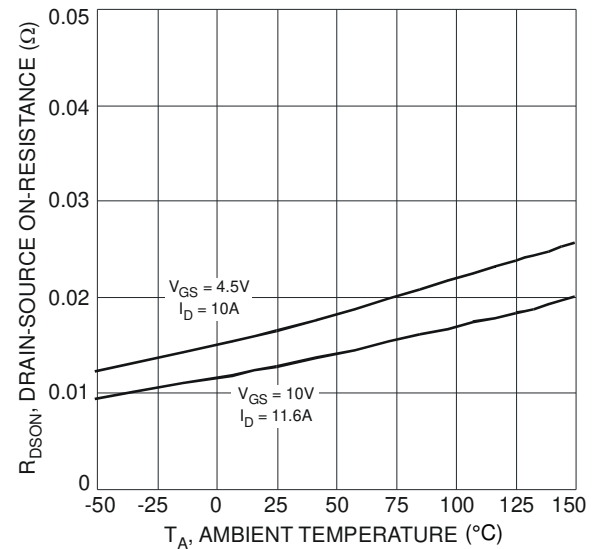


Fig. 6 On-Resistance Variation with Temperature

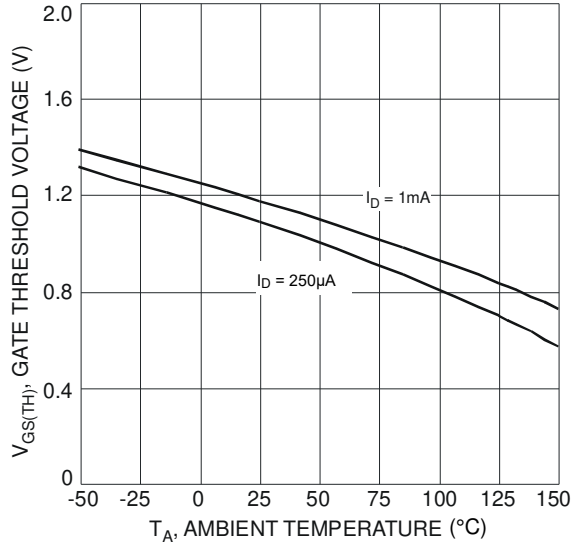


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

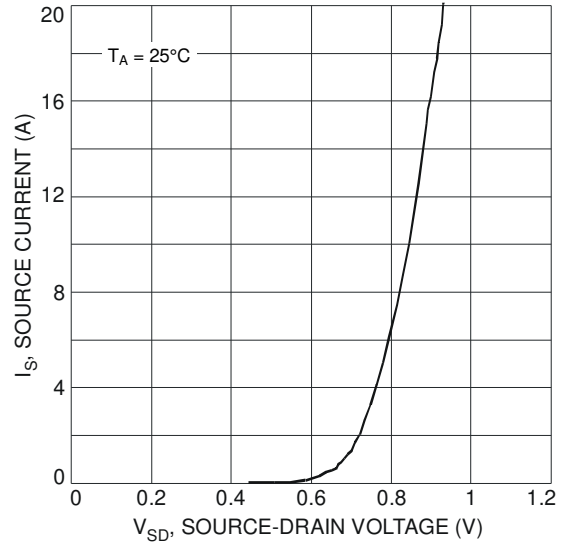


Fig. 8 Diode Forward Voltage vs. Current

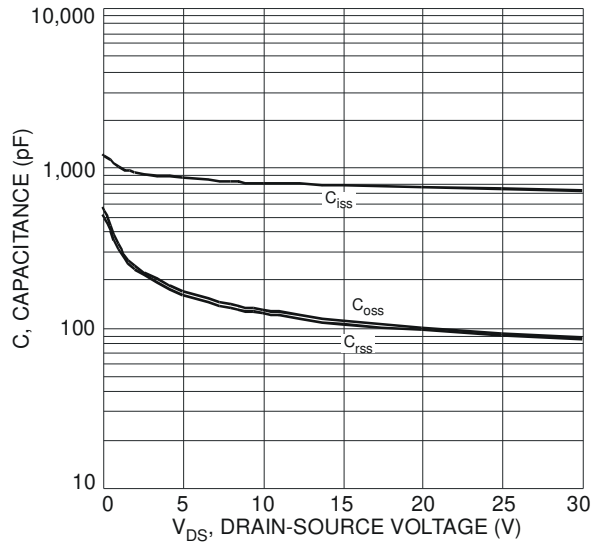


Fig. 9 Typical Total Capacitance

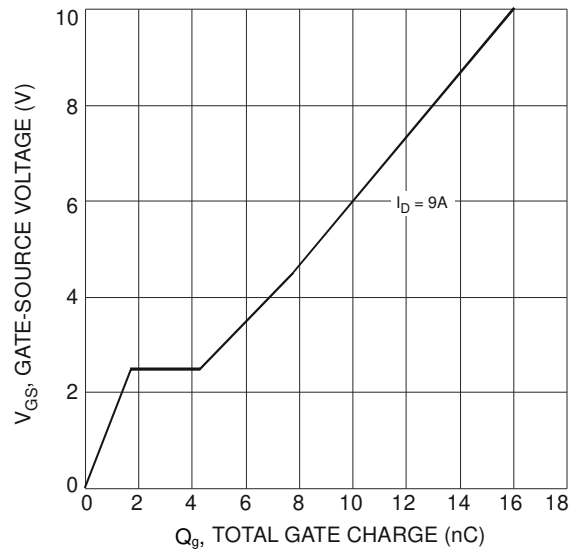


Fig. 10 Total Gate Charge

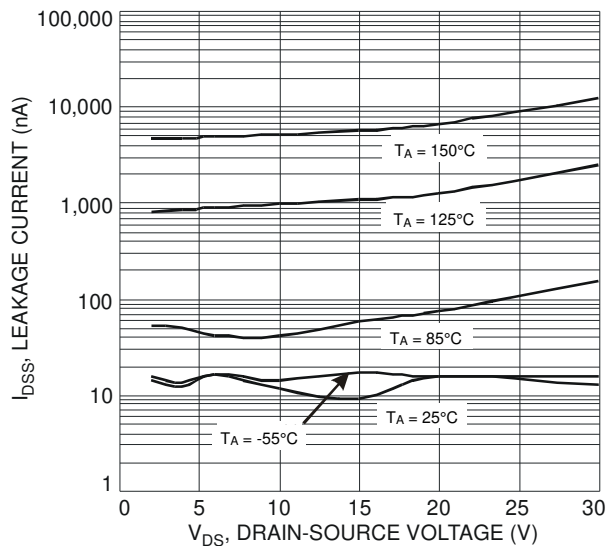


Fig. 11 Typical Leakage Current vs. Drain-Source Voltage

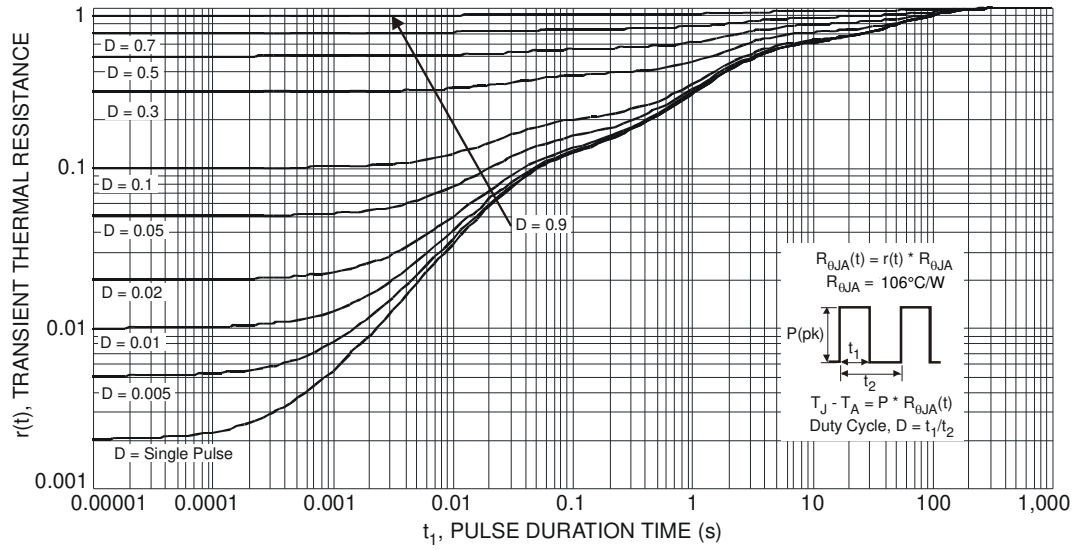
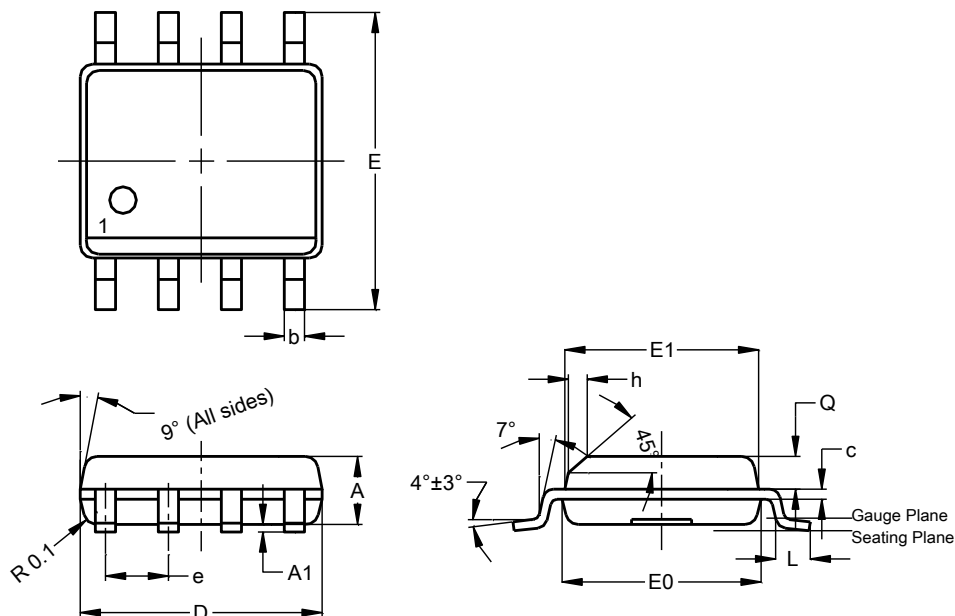


Fig. 12 Transient Thermal Response

Package Outline Dimensions

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

SO-8

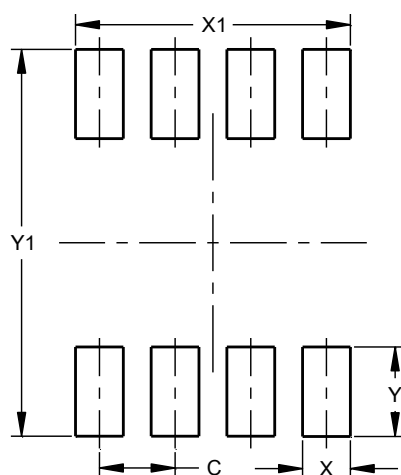


SO-8			
Dim	Min	Max	Typ
A	1.40	1.50	1.45
A1	0.10	0.20	0.15
b	0.30	0.50	0.40
c	0.15	0.25	0.20
D	4.85	4.95	4.90
E	5.90	6.10	6.00
E1	3.80	3.90	3.85
E0	3.85	3.95	3.90
e	--	--	1.27
h	-	--	0.35
L	0.62	0.82	0.72
Q	0.60	0.70	0.65
All Dimensions in mm			

Suggested Pad Layout

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

SO-8



Dimensions	Value (in mm)
C	1.27
X	0.802
X1	4.612
Y	1.505
Y1	6.50

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