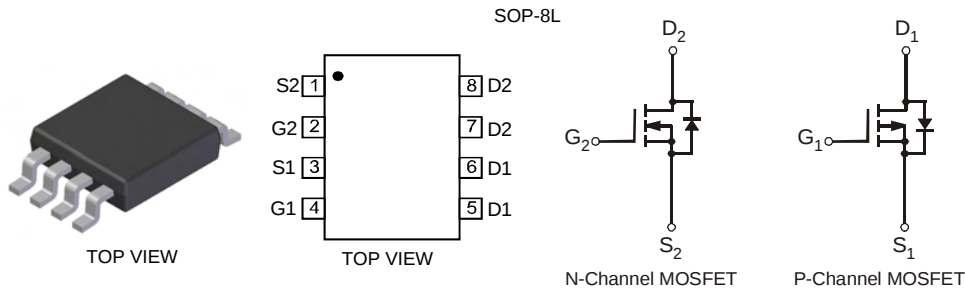


Features

- Complementary Pair MOSFET
- Low On-Resistance
 - N-Channel: 20mΩ @ 10V
32mΩ @ 4.5V
 - P-Channel: 45mΩ @ -10V
65mΩ @ -4.5V
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Lead Free By Design/RoHS Compliant (Note 2)
- "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

- Case: SOP-8L
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals Connections: See Diagram
- Terminals: Finish - Matte Tin annealed over Copper lead frame. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 5
- Ordering Information: See Page 5
- Weight: 0.072g (approximate)



Maximum Ratings N-CHANNEL @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Drain Source Voltage	V _{DSS}	30	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current (Note 1)	I _D	9.1	A
		7.7	
Pulsed Drain Current (Note 4)	I _{DM}	32	A

Maximum Ratings P-CHANNEL @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Drain Source Voltage	V _{DSS}	-30	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current (Note 1)	I _D	-6	A
		-5	
Pulsed Drain Current (Note 4)	I _{DM}	-21	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P _D	2.5	W
Thermal Resistance, Junction to Ambient	R _{θJA}	50	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
- Device mounted on FR-4 PCB, on 2oz. Copper pads with R_{θJA} = 50°C/W
 - No purposefully added lead.
 - Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 - Repetitive rating, pulse width limited by junction temperature.

Electrical Characteristics N-CHANNEL @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Drain-Source Breakdown Voltage	BV _{DSS}	30	—	—	V	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	1	μA	V _{DS} = 24V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	± 100	nA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	V _{GS(th)}	1	1.9	2.1	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(on)}	—	18 29	20 32	mΩ	V _{GS} = 10V, I _D = 6.9A V _{GS} = 4.5V, I _D = 5.0A
Forward Transfer Admittance	Y _{fs}	—	10	—	S	V _{DS} = 5V, I _D = 6.9A
Diode Forward Voltage (Note 5)	V _{SD}	0.5	—	1.2	V	V _{GS} = 0V, I _S = 1A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	—	631	—	pF	V _{DS} = 15V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	—	147	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	99	—	pF	
Gate Resistance	R _G	—	0.9	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1.0MHz
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q _g	—	5.9 12.4	—	nC	V _{DS} = 15V, V _{GS} = 4.5V, I _D = 7A
Gate-Source Charge	Q _{gs}	—	1.8	—		V _{DS} = 15V, V _{GS} = 10V, I _D = 9A
Gate-Drain Charge	Q _{gd}	—	3.4	—		V _{DS} = 15V, V _{GS} = 10V, I _D = 9A
						V _{DS} = 15V, V _{GS} = 10V, I _D = 9A

Electrical Characteristics P-CHANNEL @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Drain-Source Breakdown Voltage	BV _{DSS}	-30	—	—	V	V _{GS} = 0V, I _D = -250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-1.0	μA	V _{DS} = -24V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	± 100	nA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	V _{GS(th)}	-1	-1.7	-2.1	V	V _{DS} = V _{GS} , I _D = -250μA
Static Drain-Source On-Resistance	R _{DS(on)}	—	35 56	45 65	mΩ	V _{GS} = -10V, I _D = -6A V _{GS} = -4.5V, I _D = -5.0A
Forward Transfer Admittance	Y _{fs}	—	8.2	—	S	V _{DS} = -5V, I _D = -6A
Diode Forward Voltage (Note 5)	V _{SD}	-0.5	—	-1.2	V	V _{GS} = 0V, I _S = -1A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	—	722	—	pF	V _{DS} = -15V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	—	114	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	92	—	pF	
Gate Resistance	R _G	—	1.9	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1.0MHz
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q _g	—	7.0 13.7	—	nC	V _{DS} = -15V, V _{GS} = -4.5V, I _D = -6A
Gate-Source Charge	Q _{gs}	—	1.7	—		V _{DS} = -15V, V _{GS} = -10V, I _D = -6A
Gate-Drain Charge	Q _{gd}	—	4.1	—		V _{DS} = -15V, V _{GS} = -4.5V, I _D = -6A
						V _{DS} = -15V, V _{GS} = -4.5V, I _D = -6A

Notes: 5. Short duration pulse test used to minimize self-heating effect.

N-CHANNEL

NEW PRODUCT

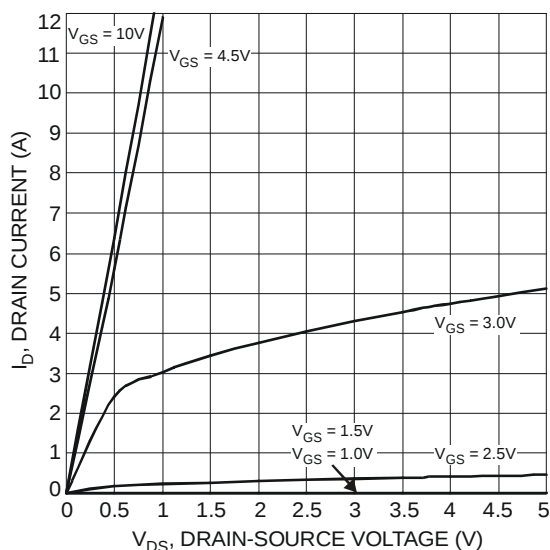


Fig. 1 Typical Output Characteristics

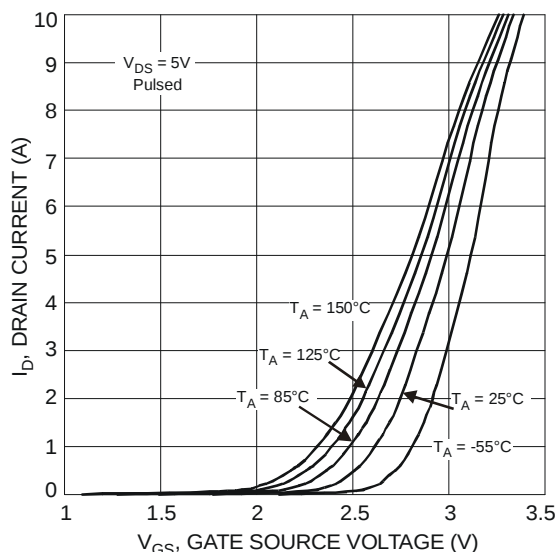


Fig. 2 Typical Transfer Characteristics

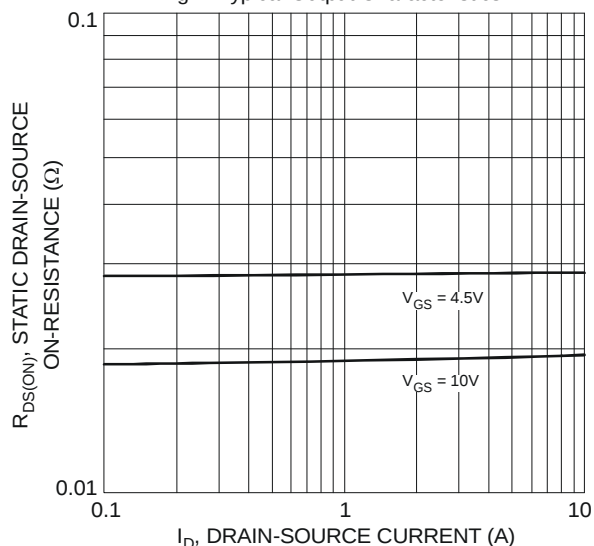


Fig. 3 On-Resistance vs. Drain Current & Gate Voltage

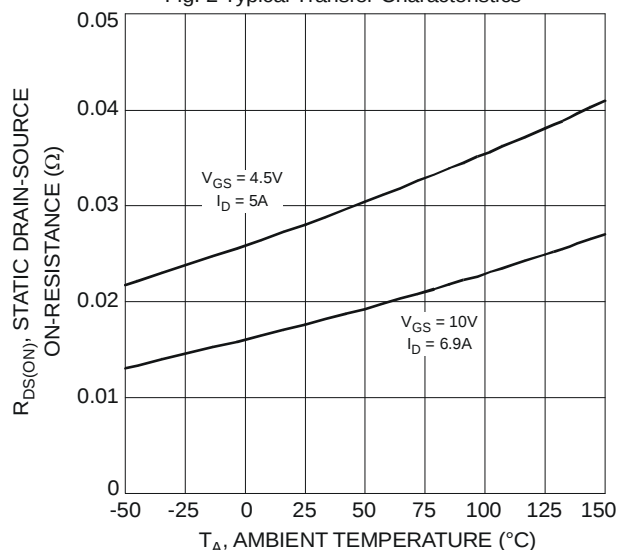


Fig. 4 Static Drain-Source On-Resistance vs. Ambient Temperature

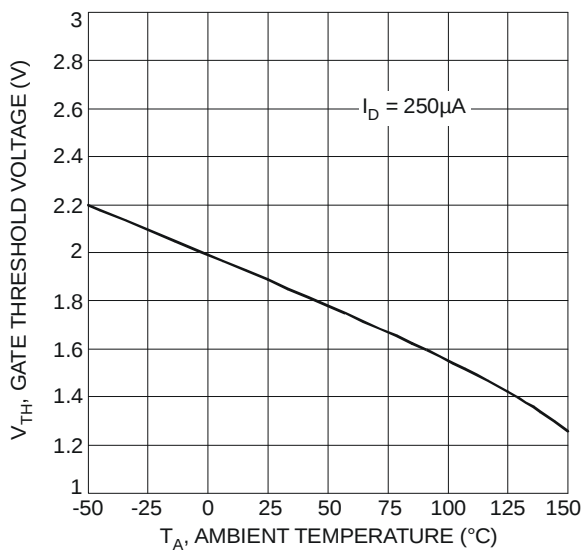


Fig. 5 Gate Threshold Variation vs. Ambient Temperature

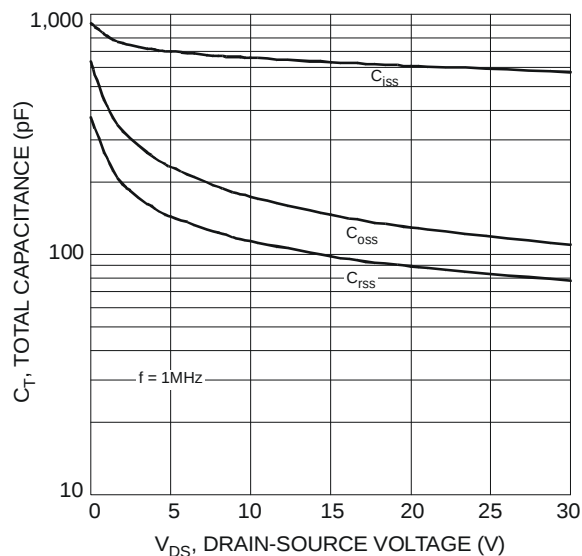


Fig. 6 Typical Total Capacitance

N-CHANNEL (continued)

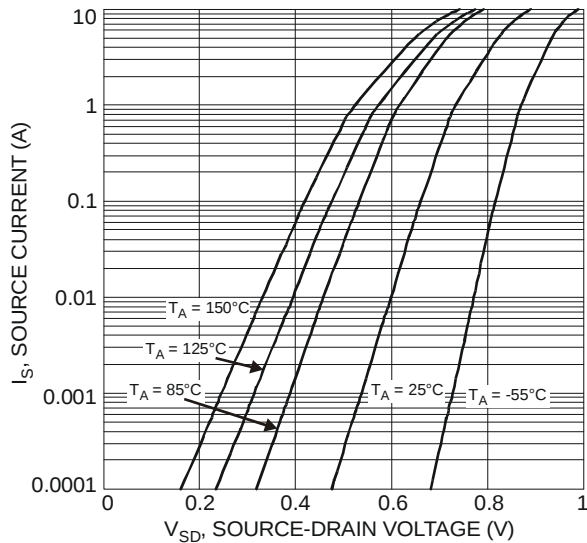


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

P-CHANNEL

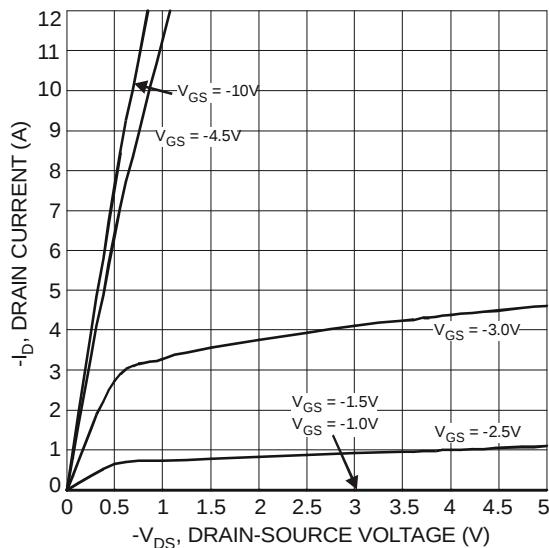


Fig. 8 Typical Output Characteristics

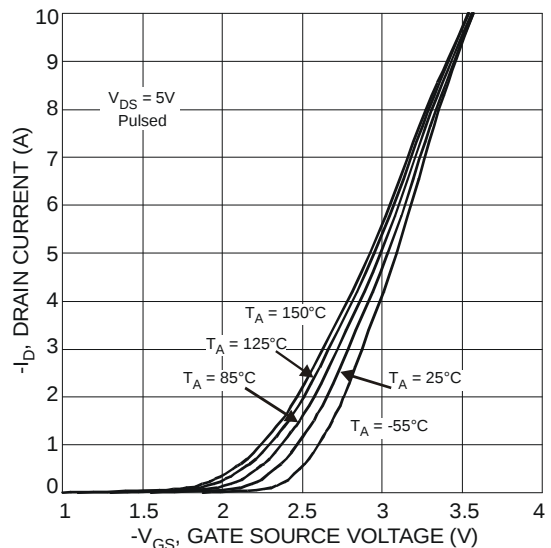


Fig. 9 Typical Transfer Characteristics

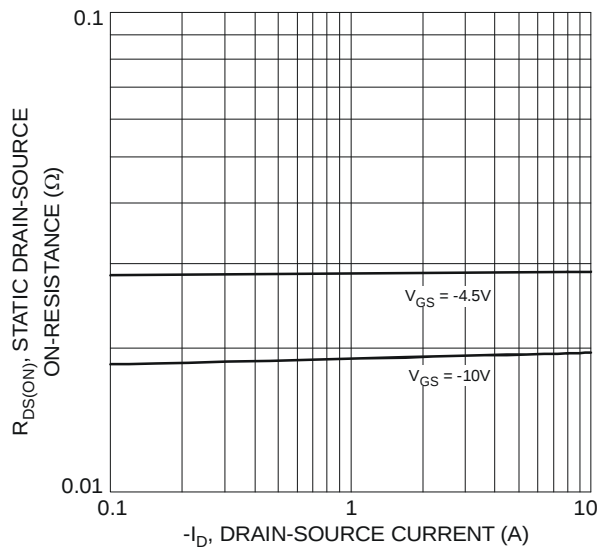


Fig. 10 On-Resistance vs. Drain Current & Gate Voltage

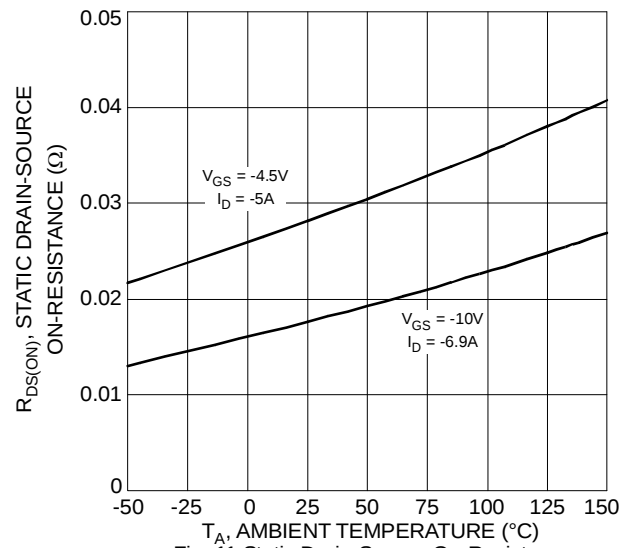


Fig. 11 Static Drain-Source On-Resistance vs. Ambient Temperature

P-CHANNEL (continued)

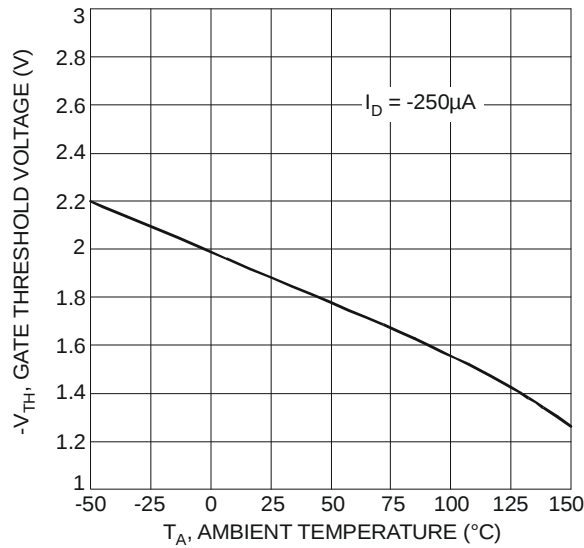


Fig. 12 Gate Threshold Variation vs. Ambient Temperature

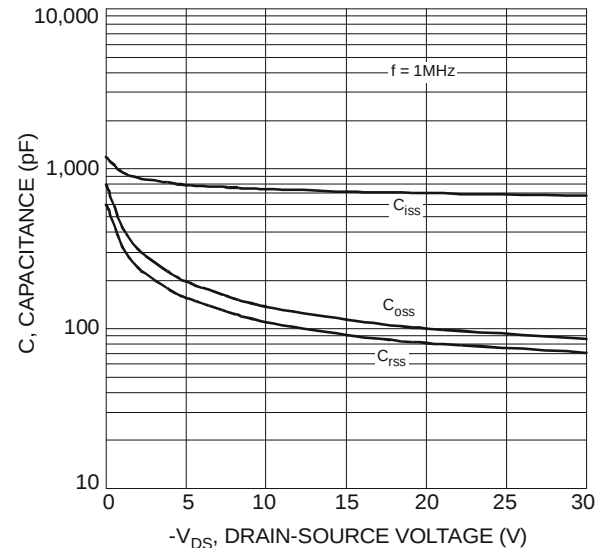


Fig. 13 Typical Total Capacitance

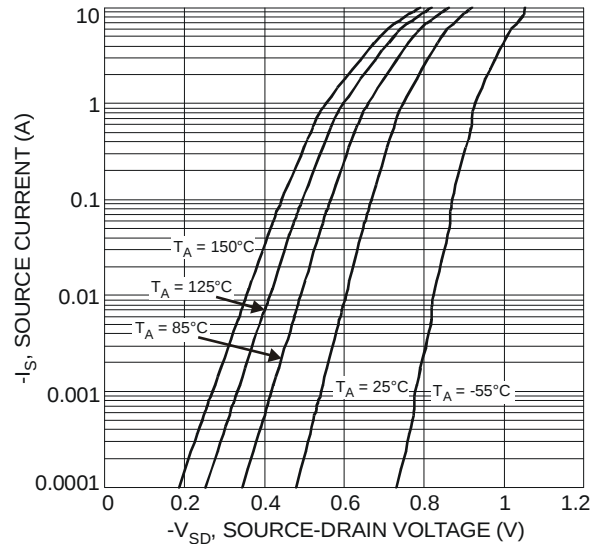


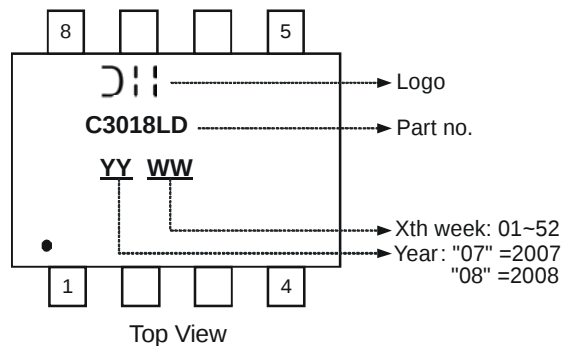
Fig. 14 Reverse Drain Current vs. Source-Drain Voltage

Ordering Information (Note 6)

Part Number	Case	Packaging
DMC3018LSD-13	SOP-8L	2500/Tape & Reel

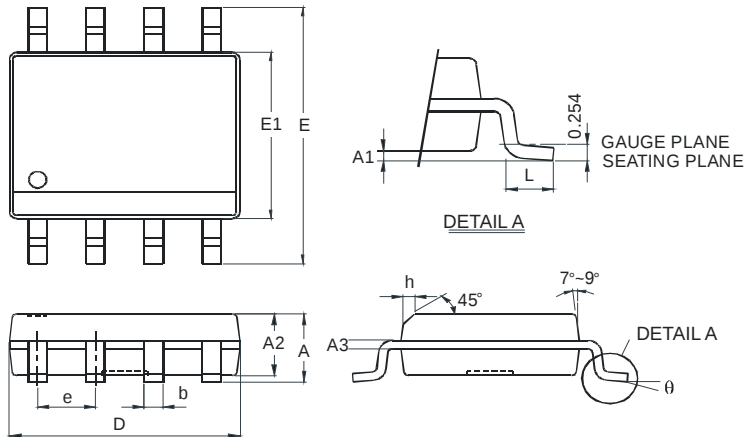
Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



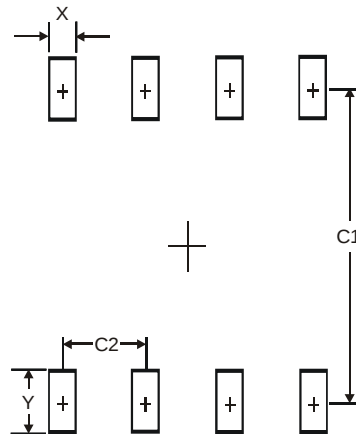
Top View

Package Outline Dimensions



SOP-8L		
Dim	Min	Max
A	-	1.75
A1	0.08	0.25
A2	1.30	1.50
A3	0.20 Typ.	
b	0.3	0.5
D	4.80	5.30
E	5.79	6.20
E1	3.70	4.10
e	1.27 Typ.	
h	-	0.35
L	0.38	1.27
θ	0°	8°
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
X	0.60
Y	1.55
C1	5.4
C2	1.27

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