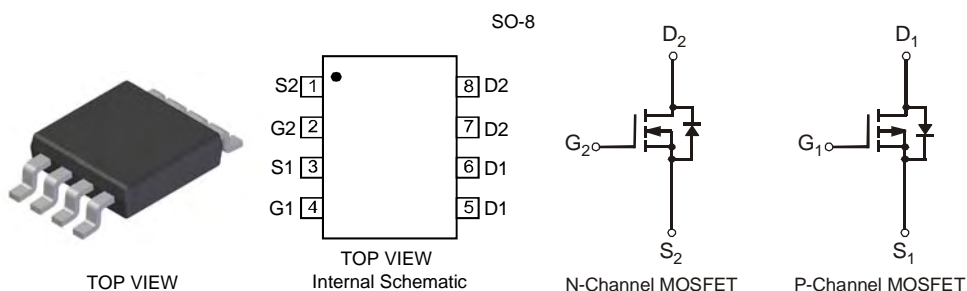


Features

- Complementary Pair MOSFETs
- Low On-Resistance
 - N-Channel: 35mΩ @ 10V
61mΩ @ 4.5V
 - P-Channel: 65mΩ @ -10V
115mΩ @ -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: SO-8
- 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 6
- Ordering Information: See Page 6
- 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	6.9	A
		5.8	A
Pulsed Drain Current (Note 4)	I _{DM}	30	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	-5	A
		-4.2	A
Pulsed Drain Current (Note 4)	I _{DM}	-20	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P _D	2	W
Thermal Resistance, Junction to Ambient	R _{θJA}	62.5	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
- Device mounted on 2oz. copper pads on 2" x 2" FR4 PCB.
 - 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

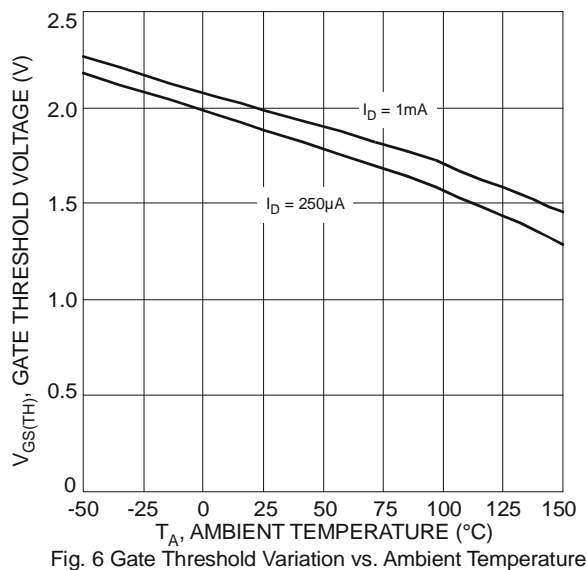
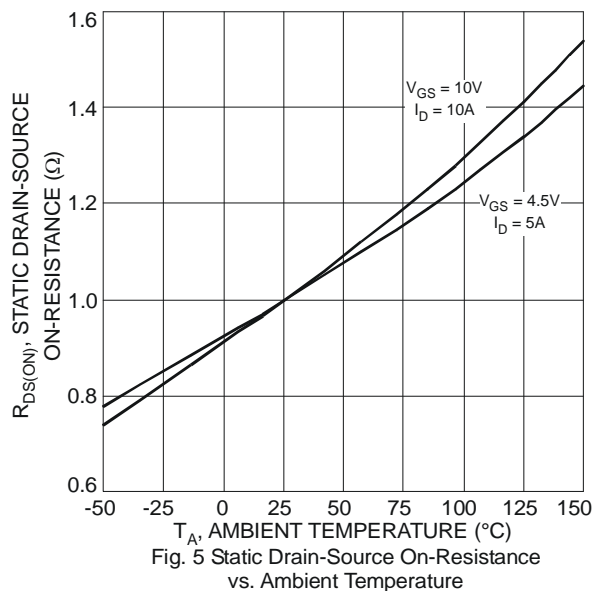
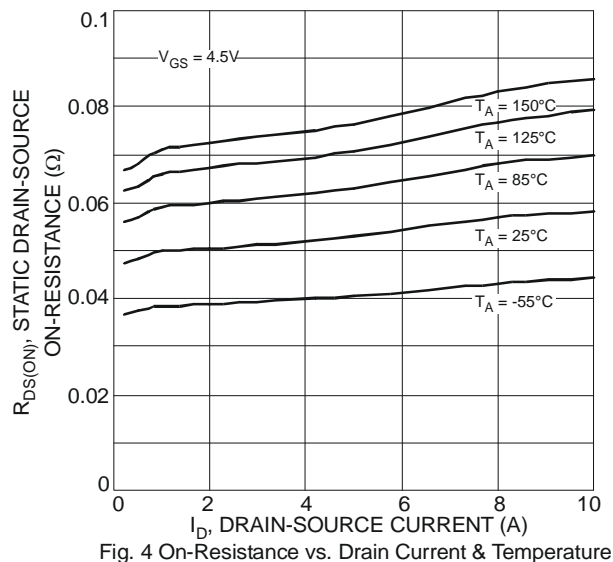
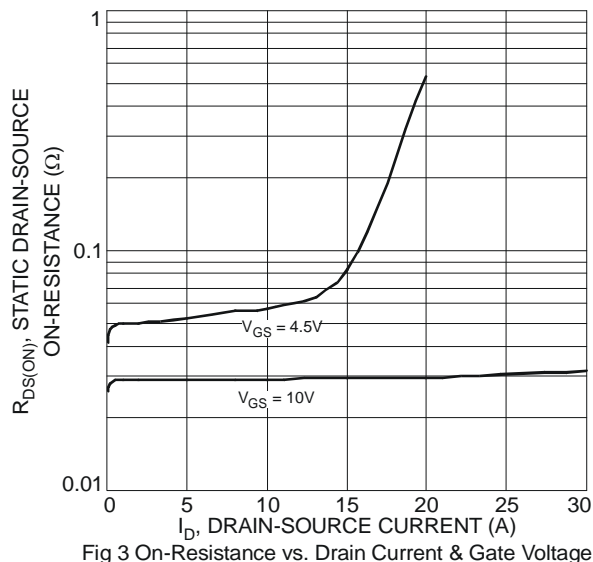
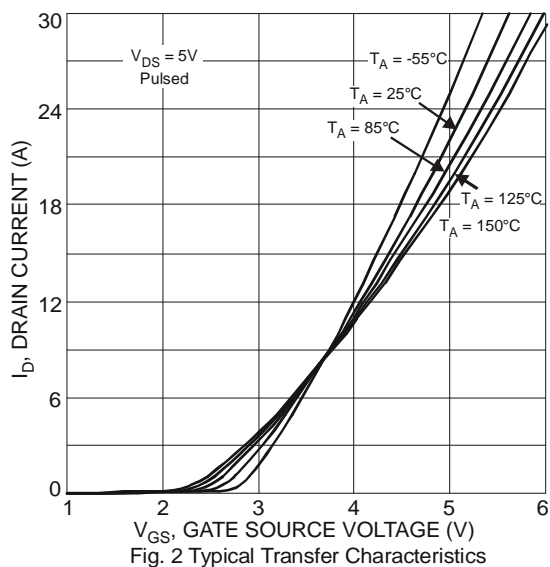
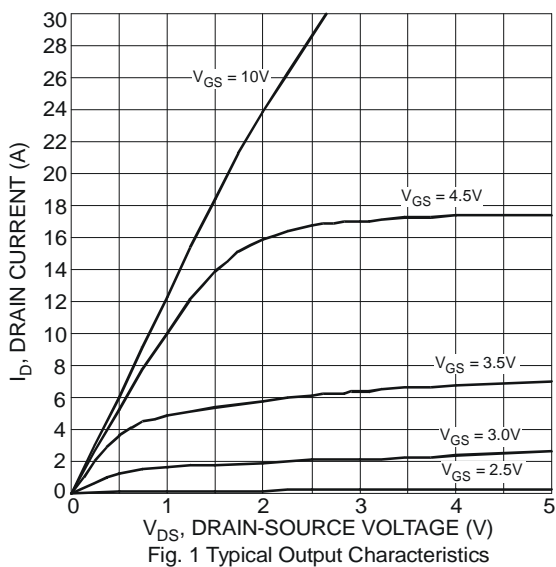
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Drain-Source Breakdown Voltage	BV _{DSS}	30	—	—	V	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	1	μA	V _{DS} = 24V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	± 100	nA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	V _{GS(th)}	1	—	2.1	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	28 51	35 61	mΩ	V _{GS} = 10V, I _D = 6.9A V _{GS} = 4.5V, I _D = 5.0A
Forward Transfer Admittance	Y _{fs}	—	7.7	—	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}	—	384	—	pF	V _{DS} = 15V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	—	67	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	48	—	pF	
Gate Resistance	R _G	—	1.3	—	Ω	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q _g	—	4.3 8.6	—	nC	V _{DS} = 10V, V _{GS} = 4.5V, I _D = 10A V _{DS} = 10V, V _{GS} = 10V, I _D = 10A
Gate-Source Charge	Q _{gs}	—	1.2	—		V _{DS} = 10V, V _{GS} = 10V, I _D = 10A
Gate-Drain Charge	Q _{gd}	—	2.5	—		V _{DS} = 10V, V _{GS} = 10V, I _D = 10A

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	—	-2.1	V	V _{DS} = V _{GS} , I _D = -250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	56 98	65 115	mΩ	V _{GS} = -10V, I _D = -5A V _{GS} = -4.5V, I _D = -4A
Forward Transfer Admittance	Y _{fs}	—	—	5.2	S	V _{DS} = -10V, I _D = -5A
Diode Forward Voltage (Note 5)	V _{SD}	-0.5	—	-1.2	V	V _{GS} = 0V, I _S = -2.6A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	—	336	—	pF	V _{DS} = -25V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	—	70	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	49	—	pF	
Gate Resistance	R _G	—	4.6	—	Ω	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q _g	—	4.0 7.8	—	nC	V _{DS} = 15V, V _{GS} = -4.5V, I _D = -5A V _{DS} = 15V, V _{GS} = -10V, I _D = -5A
Gate-Source Charge	Q _{gs}	—	1.0	—		V _{DS} = 15V, V _{GS} = -10V, I _D = -5A
Gate-Drain Charge	Q _{gd}	—	2.5	—		V _{DS} = 15V, V _{GS} = -10V, I _D = -5A

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

N-CHANNEL



N-CHANNEL (cont.)

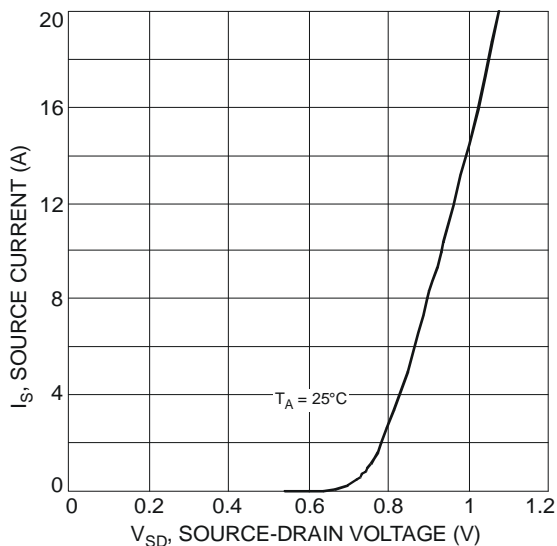


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

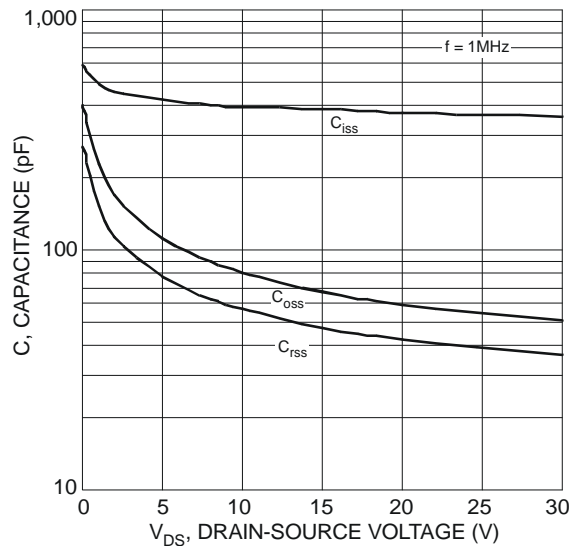


Fig. 8 Typical Total Capacitance

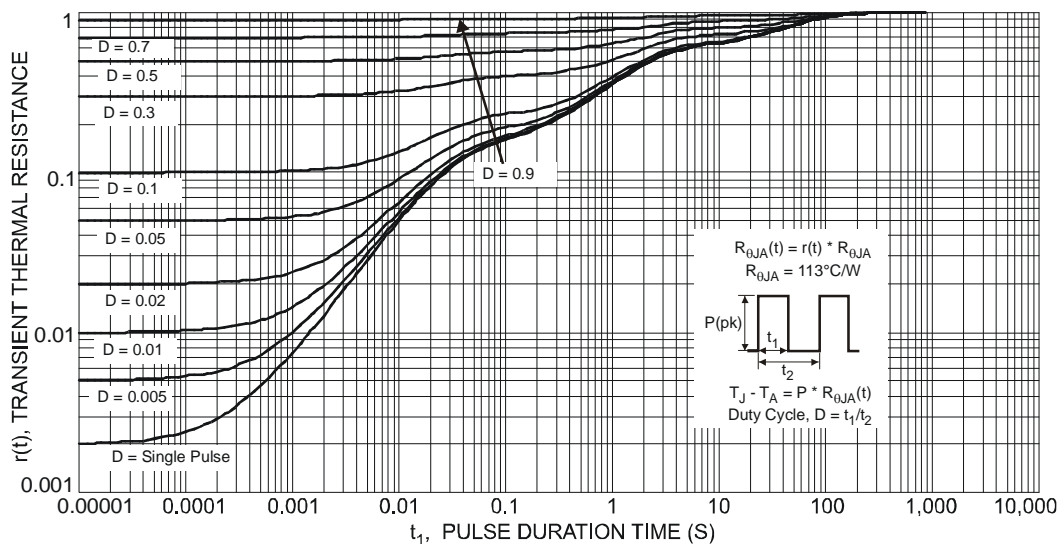


Fig. 9 Transient Thermal Resistance

P-CHANNEL

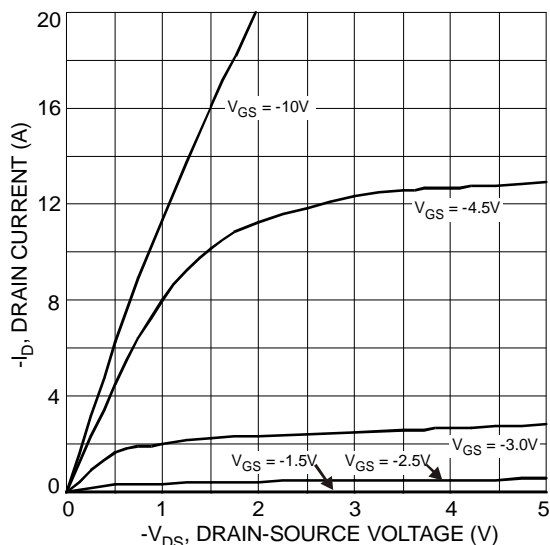


Fig. 10 Typical Output Characteristics

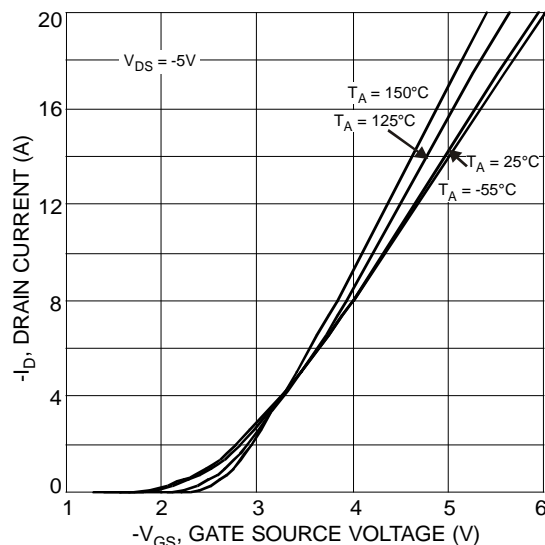


Fig. 11 Typical Transfer Characteristics

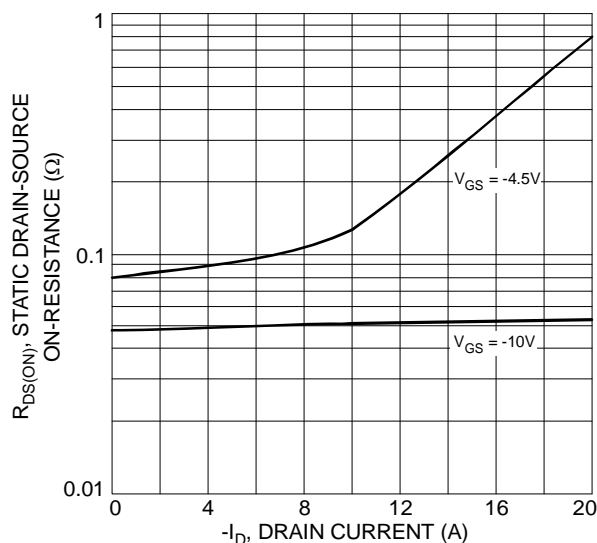


Fig. 12 Typical On-Resistance vs. Drain Current and Gate Voltage

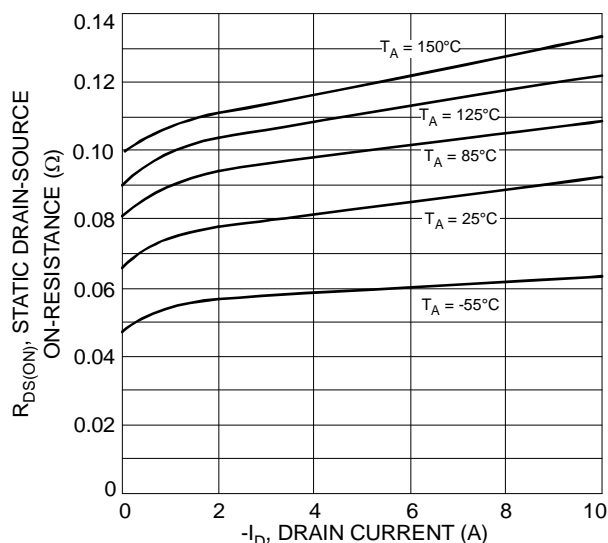


Fig. 13 Typical On-Resistance vs. Drain Current and Temperature

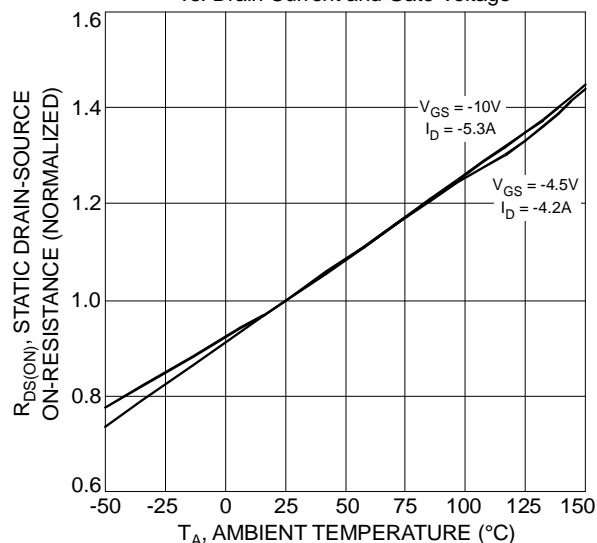


Fig. 14 On-Resistance Variation with Temperature

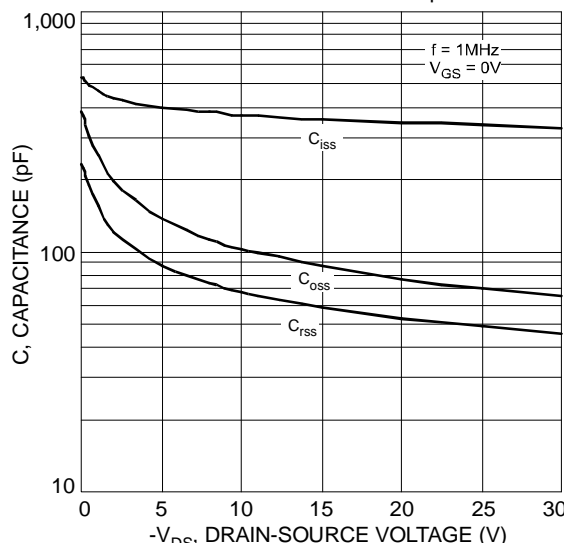


Fig. 15 Typical Capacitance

P-CHANNEL (cont.)

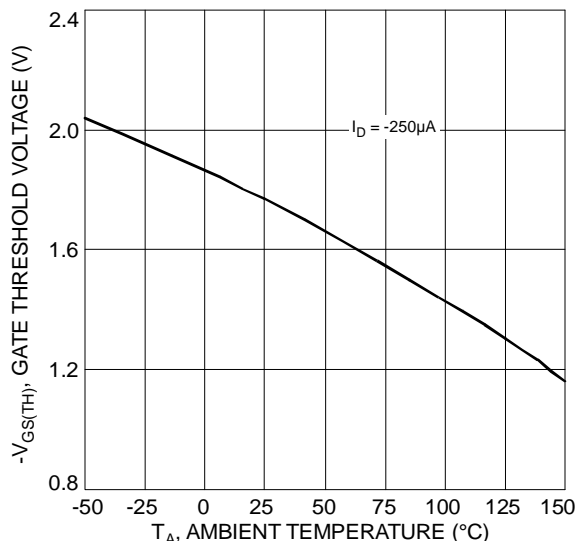


Fig. 16 Gate Threshold Variation vs. Ambient Temperature

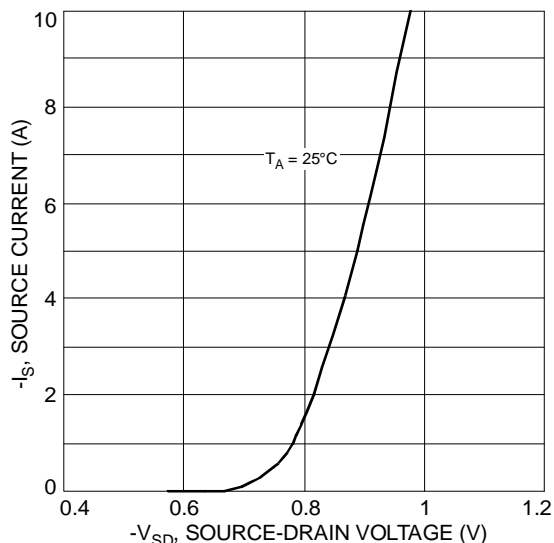


Fig. 17 Diode Forward Voltage vs. Current

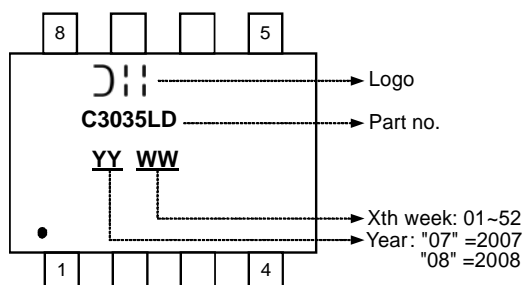
Ordering Information (Note 6)

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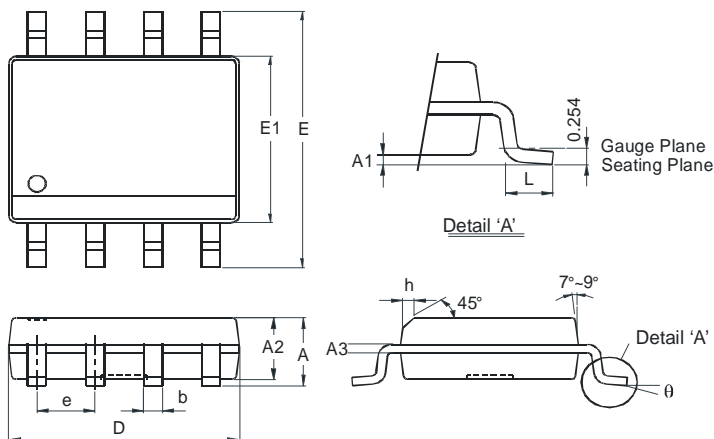
Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information

(Top View)

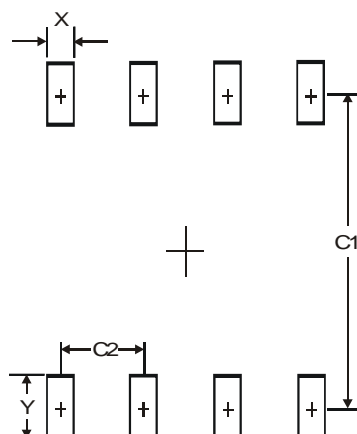


Package Outline Dimensions



SO-8		
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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