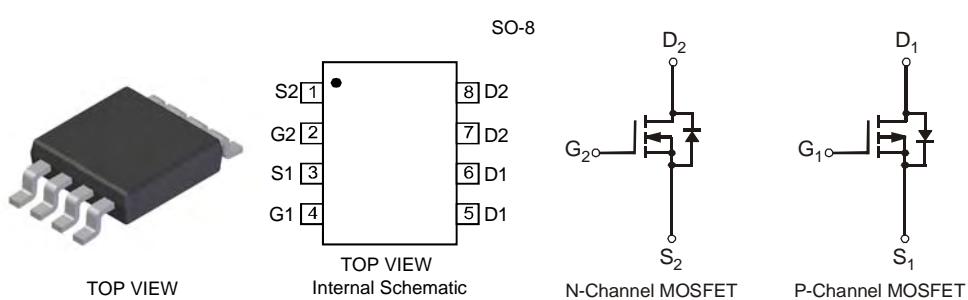


## Features

- Complementary Pair MOSFETs
- Low On-Resistance
  - N-Channel:  $35\text{m}\Omega$  @ 10V  
 $61\text{m}\Omega$  @ 4.5V
  - P-Channel:  $65\text{m}\Omega$  @ -10V  
 $115\text{m}\Omega$  @ -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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Drain Source Voltage	$V_{DSS}$	30	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current (Note 1)	$I_D$	6.9	A
		5.8	
Pulsed Drain Current (Note 4)	$I_{DM}$	30	A

## Maximum Ratings P-CHANNEL @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Drain Source Voltage	$V_{DSS}$	-30	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current (Note 1)	$I_D$	-5	A
		-4.2	
Pulsed Drain Current (Note 4)	$I_{DM}$	-20	A

## Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	$P_D$	2	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_j, T_{STG}$	-55 to +150	$^\circ\text{C}$

Notes:

1. Device mounted on 2oz. copper pads on 2" x 2" FR4 PCB.
2. No purposefully added lead.
3. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
4. Repetitive rating, pulse width limited by junction temperature.

**Electrical Characteristics N-CHANNEL** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

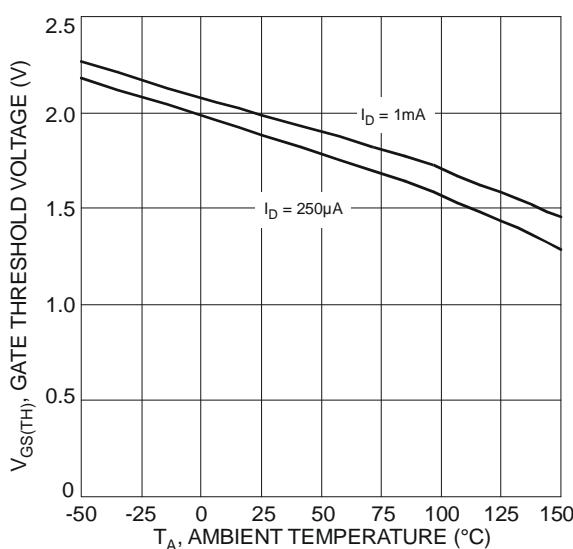
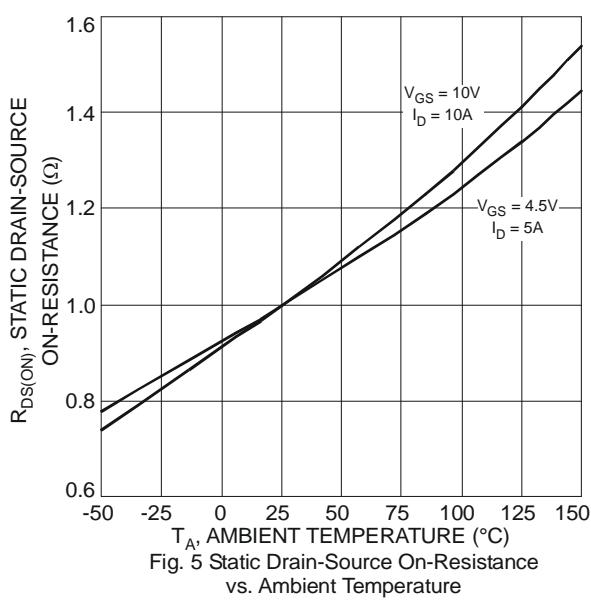
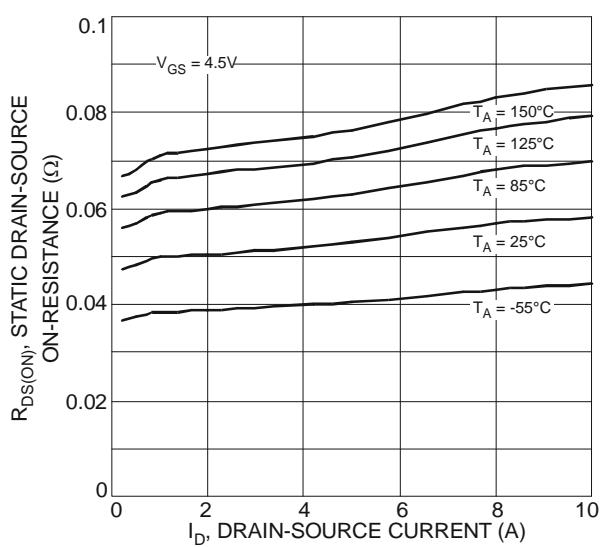
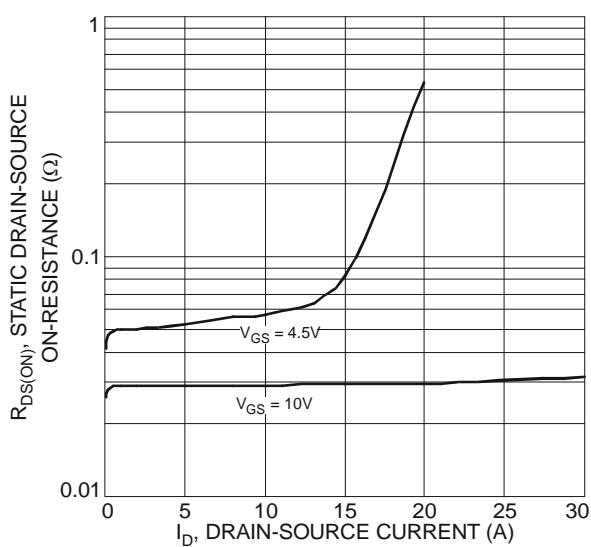
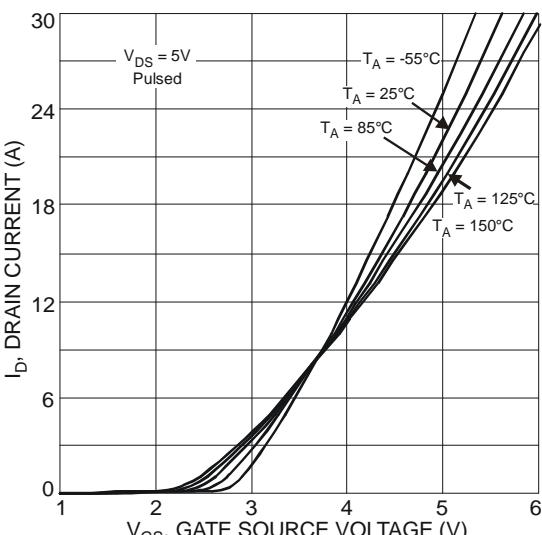
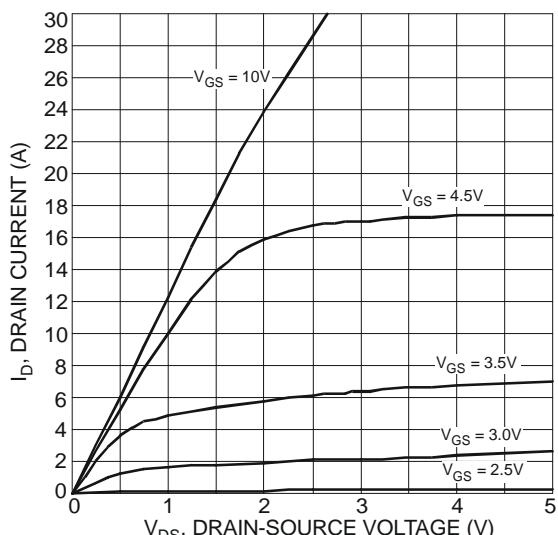
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 5)</b>						
Drain-Source Breakdown Voltage	$\text{BV}_{\text{DSS}}$	30	—	—	V	$V_{\text{GS}} = 0\text{V}$ , $I_D = 250\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{\text{DSS}}$	—	—	1	$\mu\text{A}$	$V_{\text{DS}} = 24\text{V}$ , $V_{\text{GS}} = 0\text{V}$
Gate-Source Leakage	$I_{\text{GSS}}$	—	—	$\pm 100$	nA	$V_{\text{GS}} = \pm 20\text{V}$ , $V_{\text{DS}} = 0\text{V}$
<b>ON CHARACTERISTICS (Note 5)</b>						
Gate Threshold Voltage	$V_{\text{GS}(\text{th})}$	1	—	2.1	V	$V_{\text{DS}} = V_{\text{GS}}$ , $I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{\text{DS}(\text{ON})}$	—	28	35	$\text{m}\Omega$	$V_{\text{GS}} = 10\text{V}$ , $I_D = 6.9\text{A}$
Forward Transfer Admittance	$ Y_{\text{fs}} $	—	7.7	—	S	$V_{\text{DS}} = 5\text{V}$ , $I_D = 6.9\text{A}$
Diode Forward Voltage (Note 5)	$V_{\text{SD}}$	0.5	—	1.2	V	$V_{\text{GS}} = 0\text{V}$ , $I_S = 1\text{A}$
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{\text{iss}}$	—	384	—	pF	$V_{\text{DS}} = 15\text{V}$ , $V_{\text{GS}} = 0\text{V}$ , $f = 1.0\text{MHz}$
Output Capacitance	$C_{\text{oss}}$	—	67	—	pF	
Reverse Transfer Capacitance	$C_{\text{rss}}$	—	48	—	pF	
Gate Resistance	$R_G$	—	1.3	—	$\Omega$	
<b>SWITCHING CHARACTERISTICS</b>						
Total Gate Charge	$Q_g$	—	4.3	—	nC	$V_{\text{DS}} = 10\text{V}$ , $V_{\text{GS}} = 4.5\text{V}$ , $I_D = 10\text{A}$
		—	8.6	—		$V_{\text{DS}} = 10\text{V}$ , $V_{\text{GS}} = 10\text{V}$ , $I_D = 10\text{A}$
Gate-Source Charge	$Q_{\text{gs}}$	—	1.2	—		$V_{\text{DS}} = 10\text{V}$ , $V_{\text{GS}} = 10\text{V}$ , $I_D = 10\text{A}$
Gate-Drain Charge	$Q_{\text{qd}}$	—	2.5	—		$V_{\text{DS}} = 10\text{V}$ , $V_{\text{GS}} = 10\text{V}$ , $I_D = 10\text{A}$

**Electrical Characteristics P-CHANNEL** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 5)</b>						
Drain-Source Breakdown Voltage	$\text{BV}_{\text{DSS}}$	-30	—	—	V	$V_{\text{GS}} = 0\text{V}$ , $I_D = -250\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{\text{DSS}}$	—	—	-1.0	$\mu\text{A}$	$V_{\text{DS}} = -24\text{V}$ , $V_{\text{GS}} = 0\text{V}$
Gate-Source Leakage	$I_{\text{GSS}}$	—	—	$\pm 100$	nA	$V_{\text{GS}} = \pm 20\text{V}$ , $V_{\text{DS}} = 0\text{V}$
<b>ON CHARACTERISTICS (Note 5)</b>						
Gate Threshold Voltage	$V_{\text{GS}(\text{th})}$	-1	—	-2.1	V	$V_{\text{DS}} = V_{\text{GS}}$ , $I_D = -250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{\text{DS}(\text{ON})}$	—	56	65	$\text{m}\Omega$	$V_{\text{GS}} = -10\text{V}$ , $I_D = -5\text{A}$
Forward Transfer Admittance	$ Y_{\text{fs}} $	—	98	115	$\text{m}\Omega$	$V_{\text{GS}} = -4.5\text{V}$ , $I_D = -4\text{A}$
Diode Forward Voltage (Note 5)	$V_{\text{SD}}$	-0.5	—	-1.2	V	$V_{\text{GS}} = 0\text{V}$ , $I_S = -2.6\text{A}$
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{\text{iss}}$	—	336	—	pF	$V_{\text{DS}} = -25\text{V}$ , $V_{\text{GS}} = 0\text{V}$ , $f = 1.0\text{MHz}$
Output Capacitance	$C_{\text{oss}}$	—	70	—	pF	
Reverse Transfer Capacitance	$C_{\text{rss}}$	—	49	—	pF	
Gate Resistance	$R_G$	—	4.6	—	$\Omega$	
<b>SWITCHING CHARACTERISTICS</b>						
Total Gate Charge	$Q_g$	—	4.0	—	nC	$V_{\text{DS}} = 15\text{V}$ , $V_{\text{GS}} = -4.5\text{V}$ , $I_D = -5\text{A}$
		—	7.8	—		$V_{\text{DS}} = 15\text{V}$ , $V_{\text{GS}} = -10\text{V}$ , $I_D = -5\text{A}$
Gate-Source Charge	$Q_{\text{gs}}$	—	1.0	—		$V_{\text{DS}} = 15\text{V}$ , $V_{\text{GS}} = -10\text{V}$ , $I_D = -5\text{A}$
Gate-Drain Charge	$Q_{\text{qd}}$	—	2.5	—		$V_{\text{DS}} = 15\text{V}$ , $V_{\text{GS}} = -10\text{V}$ , $I_D = -5\text{A}$

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

**N-CHANNEL**



N-CHANNEL (cont.)

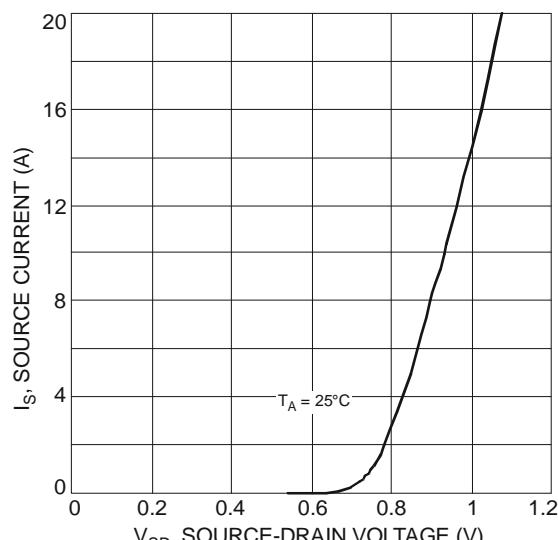


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

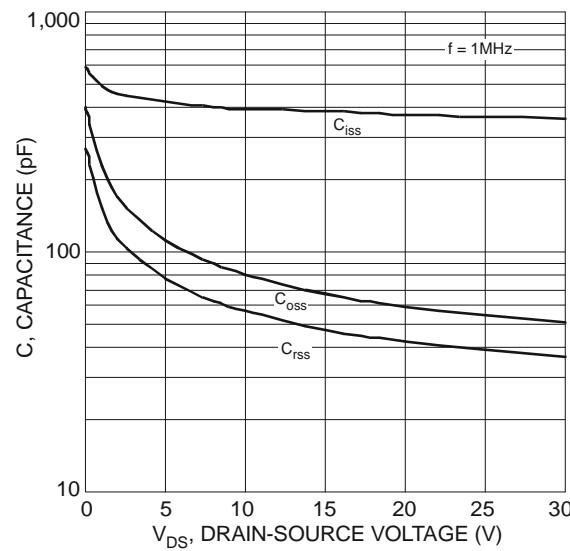


Fig. 8 Typical Total Capacitance

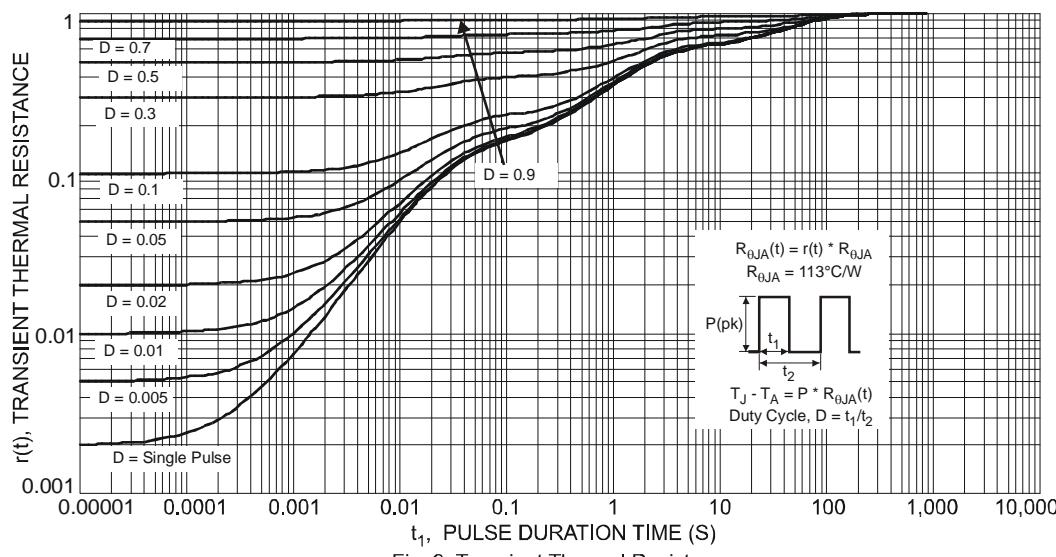
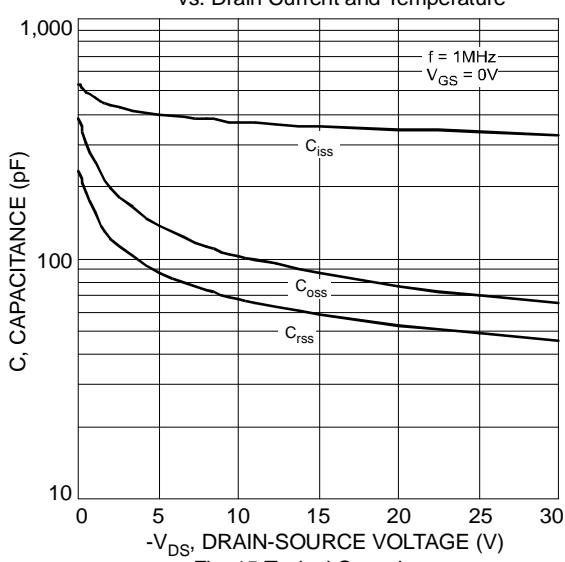
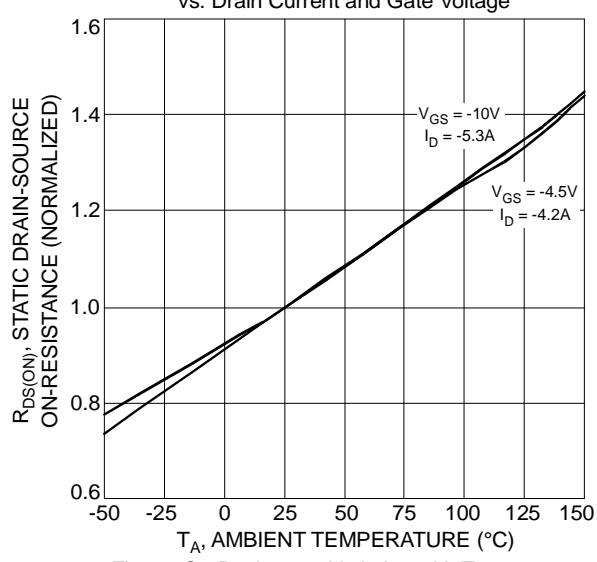
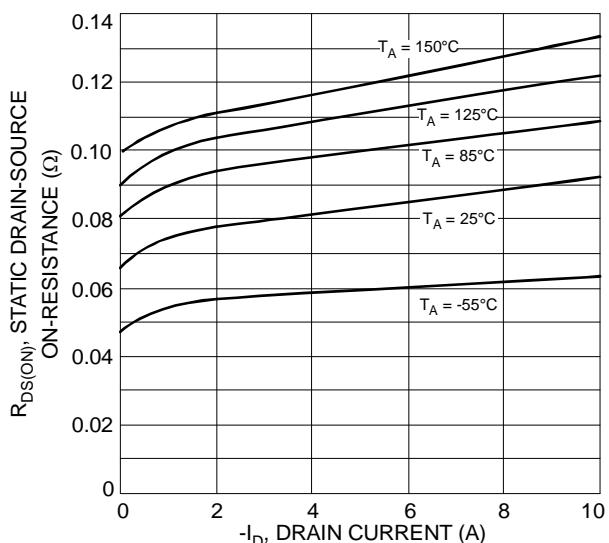
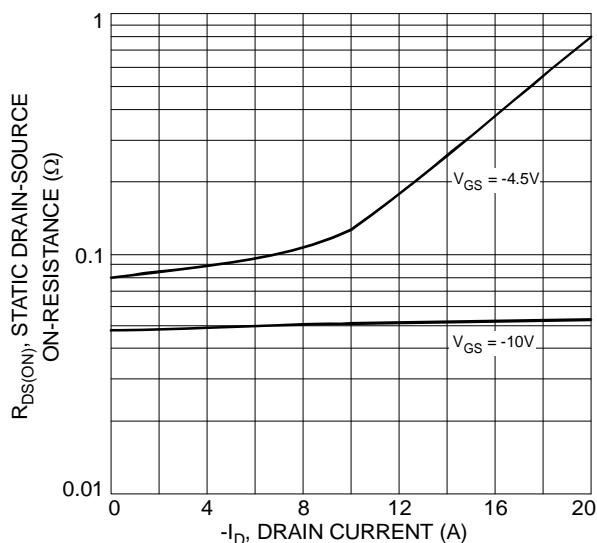
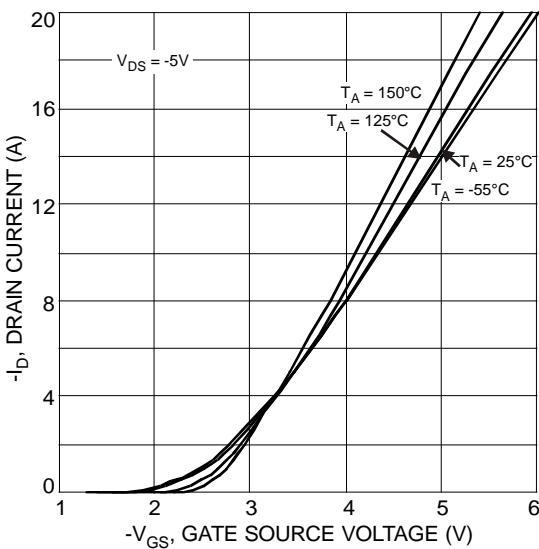
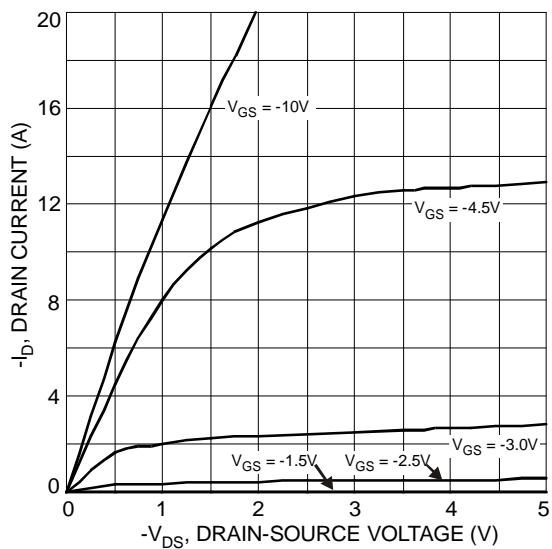


Fig. 9 Transient Thermal Resistance

**P-CHANNEL**



**P-CHANNEL (cont.)**

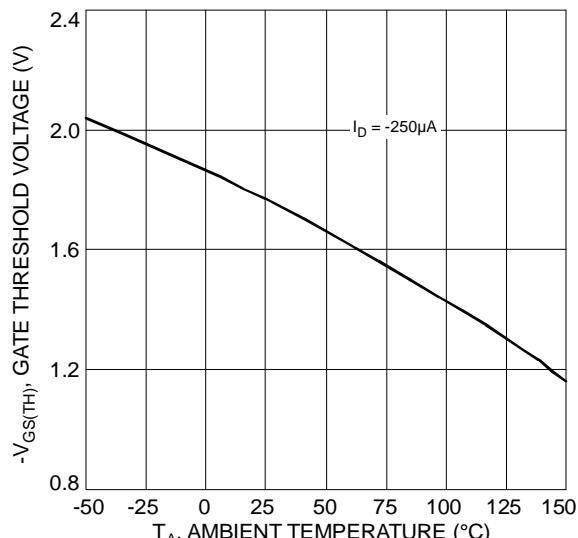


Fig. 16 Gate Threshold Variation vs. Ambient Temperature

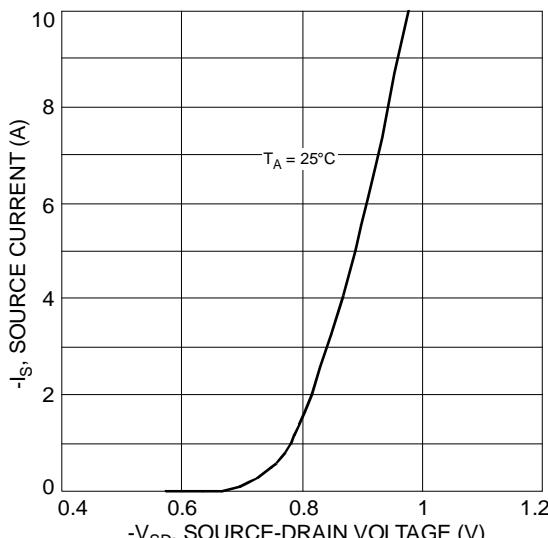


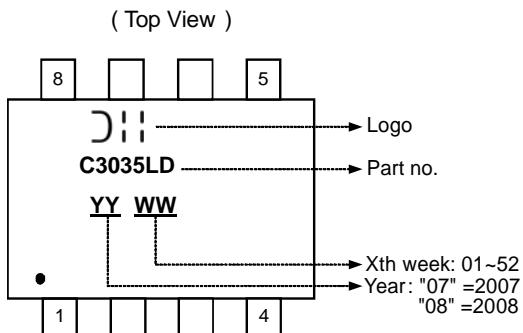
Fig. 17 Diode Forward Voltage vs. Current

**Ordering Information** (Note 6)

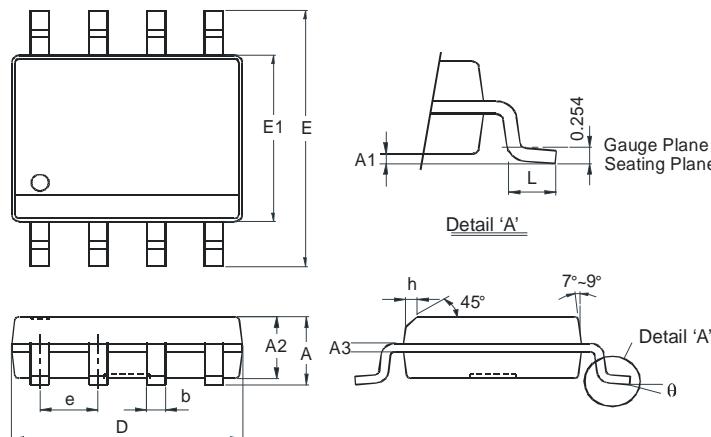
Part Number	Case	Packaging
DMC3035LSD-13	SO-8	2500/Tape & Reel

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

**Marking Information**



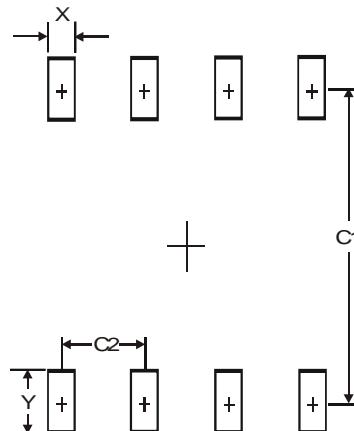
**Package Outline Dimensions**



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
$\theta$	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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