

Product Summary

BV _{DSS}	R _{DSON} Max	I _D Max T _A = +25°C
-30V	14mΩ @ V _{GS} = -20V	-10A
	18mΩ @ V _{GS} = -10V	-8.8A
	36mΩ @ V _{GS} = -4.5V	-6.2A

Description

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

Applications

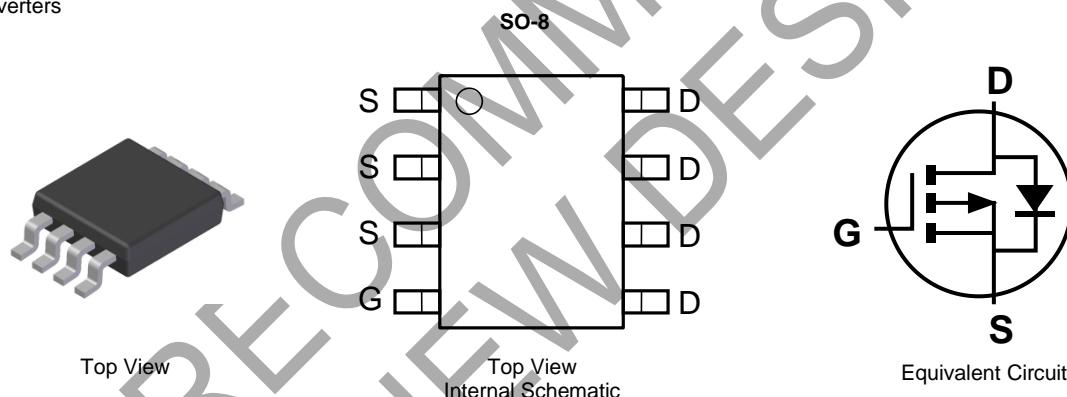
- Backlighting
- Power Management Functions
- DC-DC Converters

Features and Benefits

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "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-020
- Terminals Connections: See Diagram
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (83)
- Weight: 0.074 grams (Approximate)



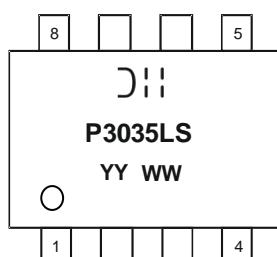
Ordering Information (Note 4)

Part Number	Case	Packaging
DMP3035LSS-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) compliant.
2. See http://www.diodes.com/quality/lead_free.html 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



DII = Manufacturer's Marking
P3035LS = Product Type Marking Code
YYWW = Date Code Marking
YY or YY = Year (ex: 17 = 2017)
WW = Week (01 to 53)

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	-30	V
Gate-Source Voltage			V_{GSS}	± 25	V
Drain Current (Note 5) ($V_{GS} = -20\text{V}$)	Steady State	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	I_D	-10 -8	A
Pulsed Drain Current (Note 6)			I_{DM}	-80	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P_D	2.0	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	60	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

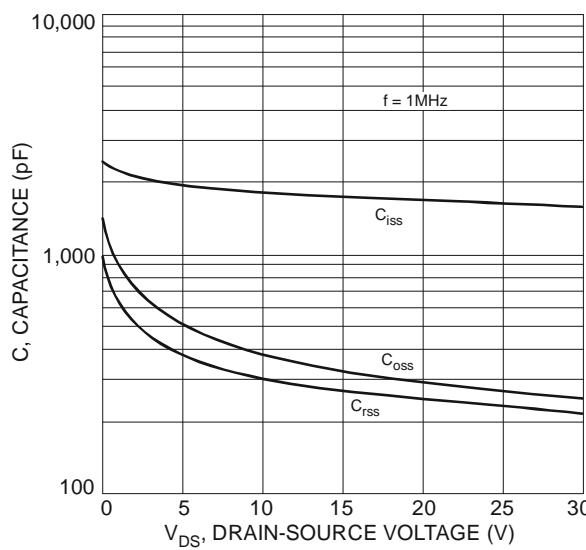
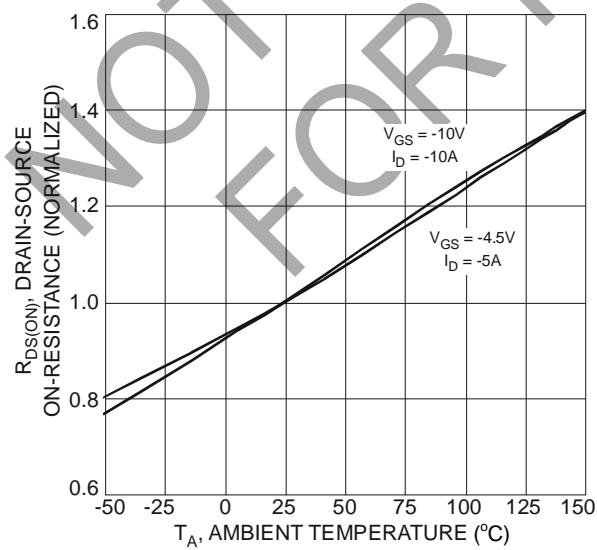
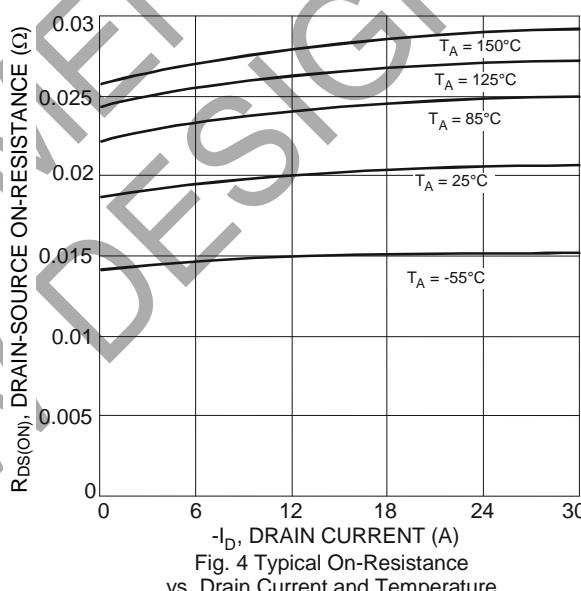
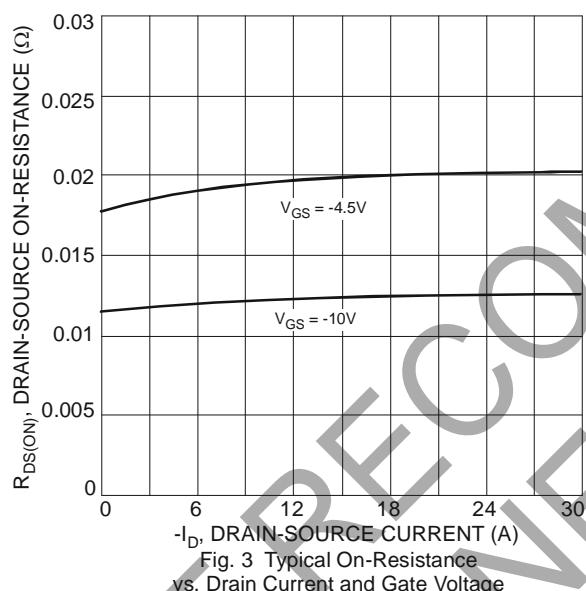
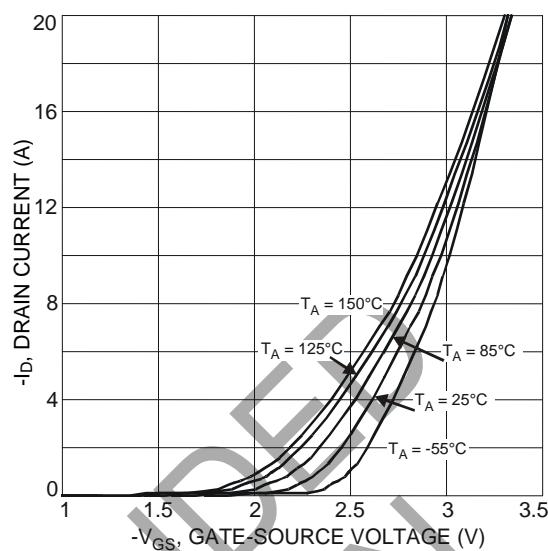
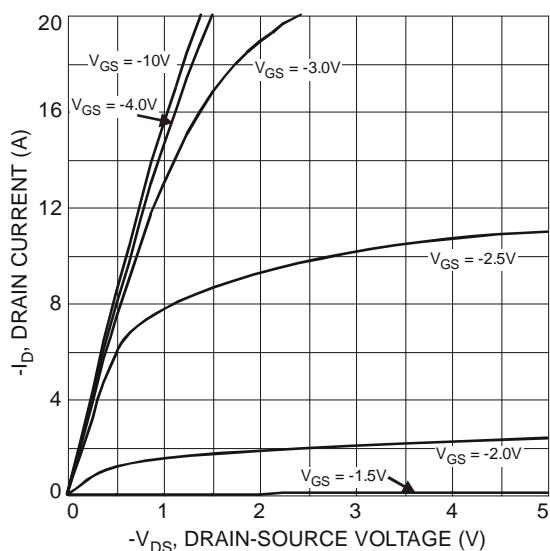
Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	-30	—	—	V	$V_{GS} = 0\text{V}$, $I_D = -250\mu\text{A}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-1	μA	$V_{DS} = -30\text{V}$, $V_{GS} = 0\text{V}$
Gate-Source Leakage	I_{GS}	—	—	± 100 ± 800	nA	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$ $V_{GS} = \pm 25\text{V}$, $V_{DS} = 0\text{V}$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(TH)}$	-1	—	-2	V	$V_{DS} = V_{GS}$, $I_D = -250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	11 15 27	14 18 36	$\text{m}\Omega$	$V_{GS} = -20\text{V}$, $I_D = -11\text{A}$ $V_{GS} = -10\text{V}$, $I_D = -8\text{A}$ $V_{GS} = -4.5\text{V}$, $I_D = -5\text{A}$
Forward Transconductance	G_f	—	12	—	S	$V_{DS} = -10\text{V}$, $I_D = -12\text{A}$
Diode Forward Voltage (Note 7)	V_{SD}	-0.5	—	-1.1	V	$V_{GS} = 0\text{V}$, $I_S = -2\text{A}$
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	1,655	—	pF	$V_{DS} = -20\text{V}$, $V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	C_{oss}	—	286	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	240	—	pF	
Gate Resistance	R_G	—	2.3	—	Ω	$V_{GS} = 0\text{V}$, $V_{DS} = 0\text{V}$, $f = 1\text{MHz}$
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q_g	—	15.3 30.7	—	nC	$V_{DS} = -15\text{V}$, $V_{GS} = -4.5\text{V}$, $I_D = -8\text{A}$ $V_{DS} = -15\text{V}$, $V_{GS} = -10\text{V}$, $I_D = -8\text{A}$
Gate-Source Charge	Q_{gs}	—	3.5	—		$V_{DS} = -15\text{V}$, $V_{GS} = -10\text{V}$, $I_D = -8\text{A}$
Gate-Drain Charge	Q_{gd}	—	7.9	—		$V_{DS} = -15\text{V}$, $V_{GS} = -10\text{V}$, $I_D = -8\text{A}$
Turn-On Delay Time	$t_{D(ON)}$	—	5.1	—		$V_{DS} = -15\text{V}$, $V_{GS} = -10\text{V}$, $I_D = -8\text{A}$
Rise Time	t_R	—	8	—	ns	$V_{GS} = -10\text{V}$, $V_{DS} = -15\text{V}$, $R_D = 15\Omega$, $R_G = 6\Omega$
Turn-Off Delay Time	$t_{D(OFF)}$	—	46	—		
Fall Time	t_F	—	30	—		

Notes: 5. Device mounted on 1 inch² FR-4 board with 2 oz. copper, in a still-air environment with $T_A = +25^\circ\text{C}$.

6. Repetitive rating, pulse width limited by junction temperature.

7. Short duration pulse test used to minimize self-heating effect.



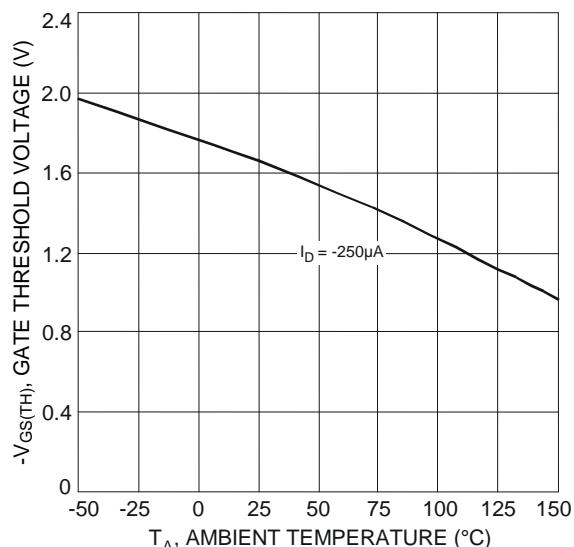


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

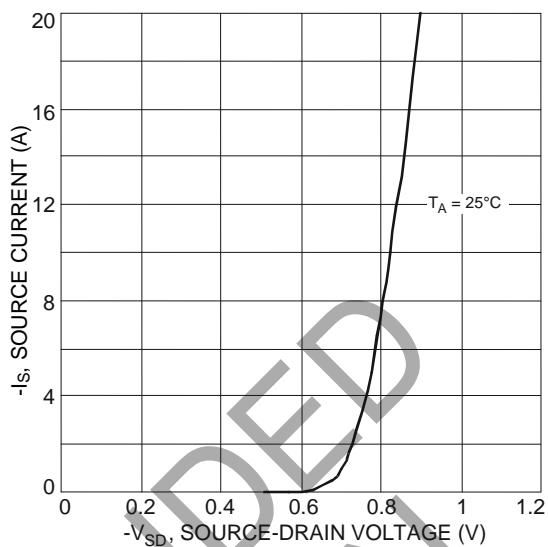


Fig. 8 Diode Forward Voltage vs. Current

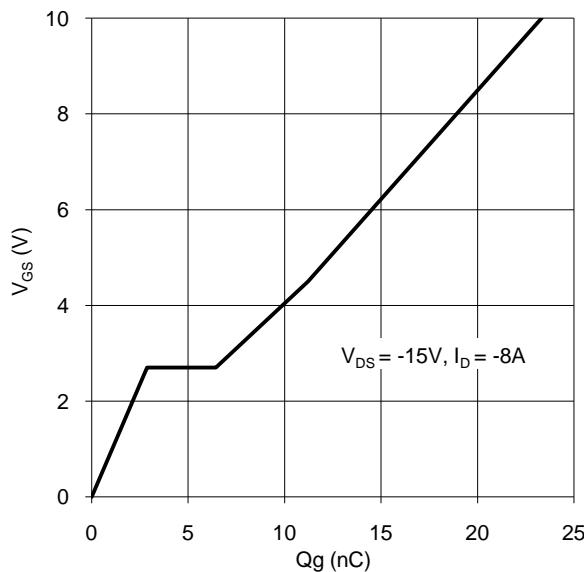


Fig. 9 Gate Charge

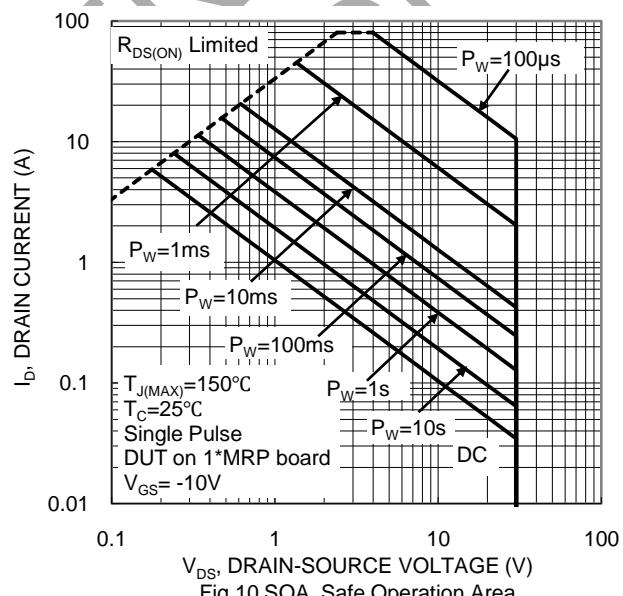


Fig. 10 SOA, Safe Operation Area

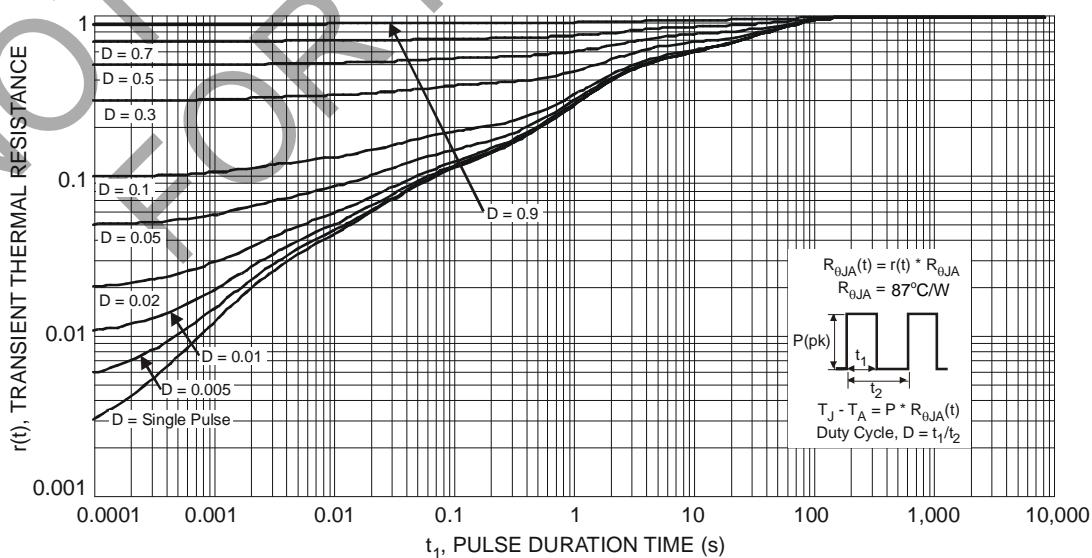
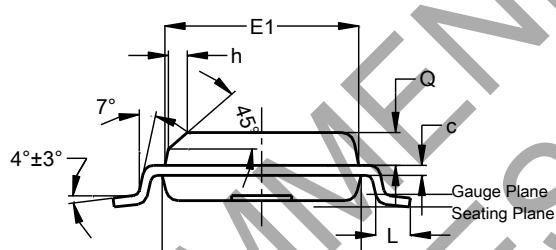
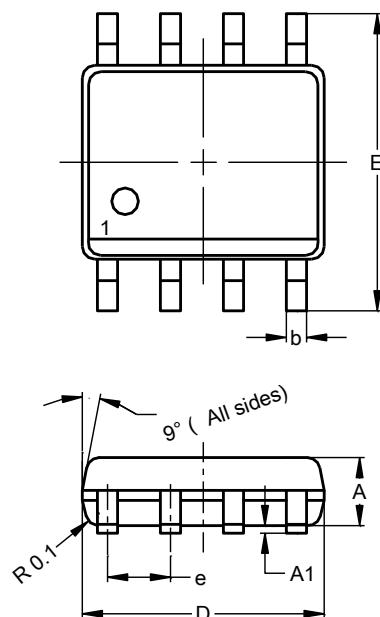


Fig. 11 Transient Thermal Response

Package Outline Dimensions

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

SO-8

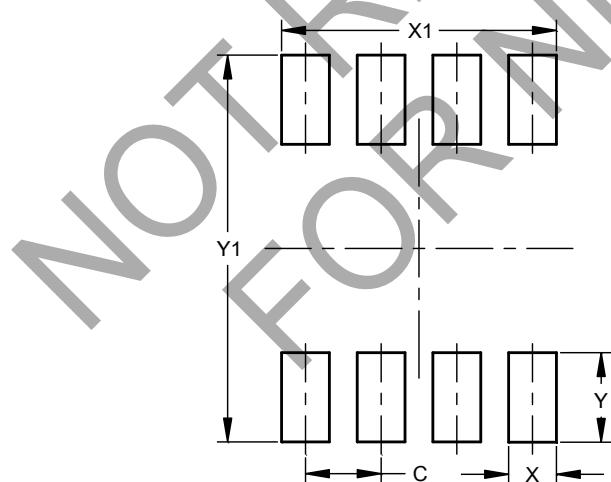


SO-8			
Dim	Min	Max	Typ
A	1.40	1.50	1.45
A1	0.10	0.20	0.15
b	0.30	0.50	0.40
c	0.15	0.25	0.20
D	4.85	4.95	4.90
E	5.90	6.10	6.00
E1	3.80	3.90	3.85
E0	3.85	3.95	3.90
e	--	--	1.27
h	-	--	0.35
L	0.62	0.82	0.72
Q	0.60	0.70	0.65
All Dimensions in mm			

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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