

SINGLE P-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

BV_{DSS}	$R_{DS(ON)}$ Max	I_D Max $T_A = +25^\circ C$
-30V	14m Ω @ $V_{GS} = -20V$	-10A
	18m Ω @ $V_{GS} = -10V$	-8.8A
	36m Ω @ $V_{GS} = -4.5V$	-6.2A

Description

This MOSFET is 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

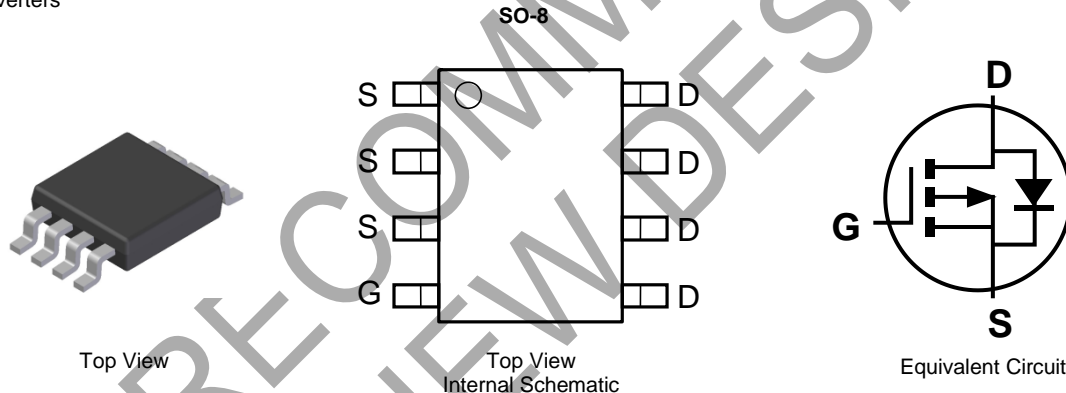
- Backlighting
- Power Management Functions
- DC-DC Converters

Features and Benefits

- 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 ^(e3)
- Weight: 0.074 grams (Approximate)

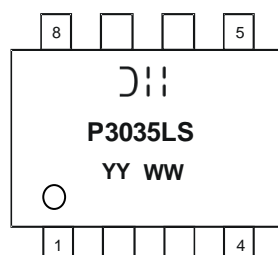


Ordering Information (Note 4)

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



☺||| = 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°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} = -20V)	Steady State	T _A = +25°C T _A = +70°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 _{θJA}	60	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°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} = 0V, I _D = -250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-1	μA	V _{DS} = -30V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100 ±800	nA	V _{GS} = ±20V, V _{DS} = 0V V _{GS} = ±25V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	-1	—	-2	V	V _{DS} = V _{GS} , I _D = -250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	11	14	mΩ	V _{GS} = -20V, I _D = -11A
		—	15	18		V _{GS} = -10V, I _D = -8A
		—	27	36		V _{GS} = -4.5V, I _D = -5A
Forward Transconductance	G _{fs}	—	12	—	S	V _{DS} = -10V, I _D = -12A
Diode Forward Voltage (Note 7)	V _{SD}	-0.5	—	-1.1	V	V _{GS} = 0V, I _S = -2A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iSS}	—	1,655	—	pF	V _{DS} = -20V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	286	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	240	—	pF	
Gate Resistance	R _G	—	2.3	—	Ω	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q _g	—	15.3 30.7	—	nC	V _{DS} = -15V, V _{GS} = -4.5V, I _D = -8A V _{DS} = -15V, V _{GS} = -10V, I _D = -8A
Gate-Source Charge	Q _{gs}	—	3.5	—		V _{DS} = -15V, V _{GS} = -10V, I _D = -8A
Gate-Drain Charge	Q _{gd}	—	7.9	—		V _{DS} = -15V, V _{GS} = -10V, I _D = -8A
Turn-On Delay Time	t _{D(ON)}	—	5.1	—	ns	V _{GS} = -10V, V _{DS} = -15V, R _D = 15Ω, R _G = 6Ω
Rise Time	t _R	—	8	—		
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°C.
6. Repetitive rating, pulse width limited by junction temperature.
7. Short duration pulse test used to minimize self-heating effect.

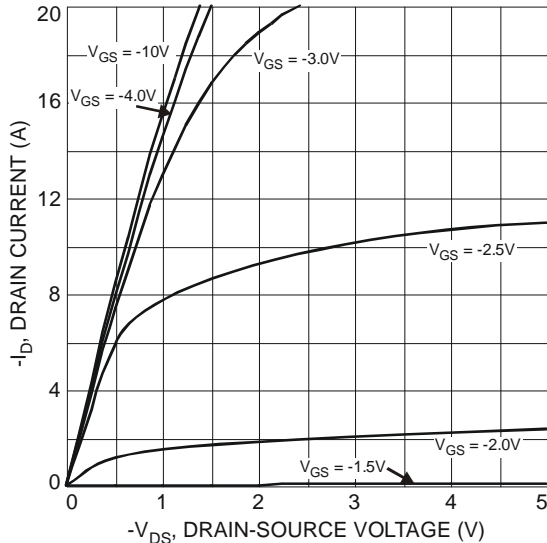


Fig. 1 Typical Output Characteristic

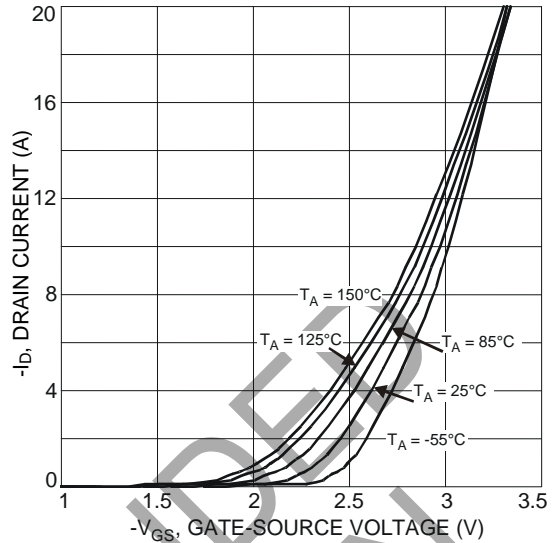


Fig. 2 Typical Transfer Characteristic

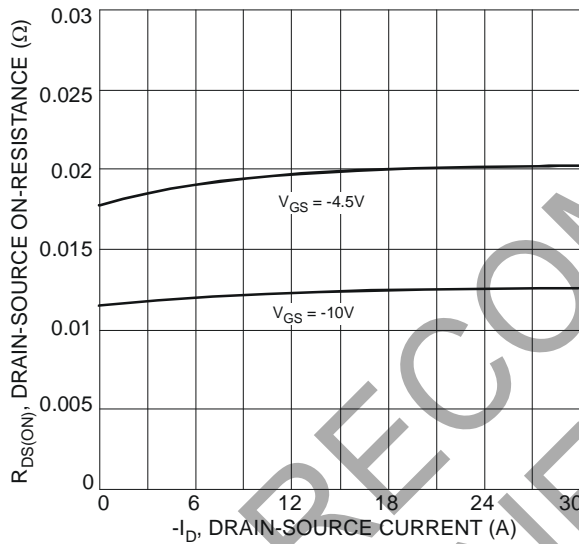


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

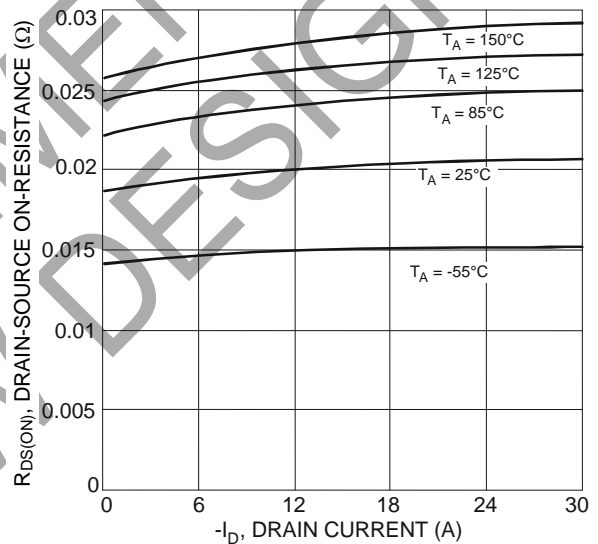


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

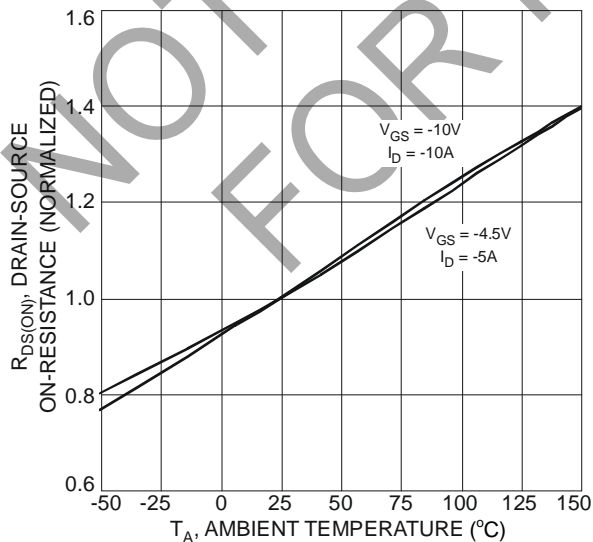


Fig. 5 Normalized On-Resistance vs. Ambient Temperature

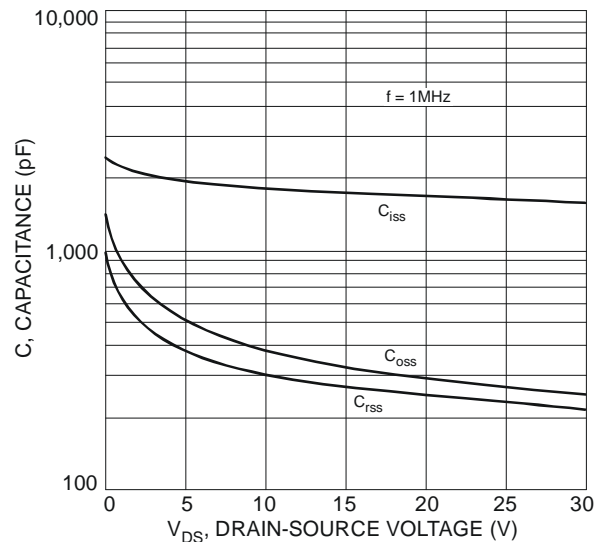


Fig. 6 Typical Total Capacitance

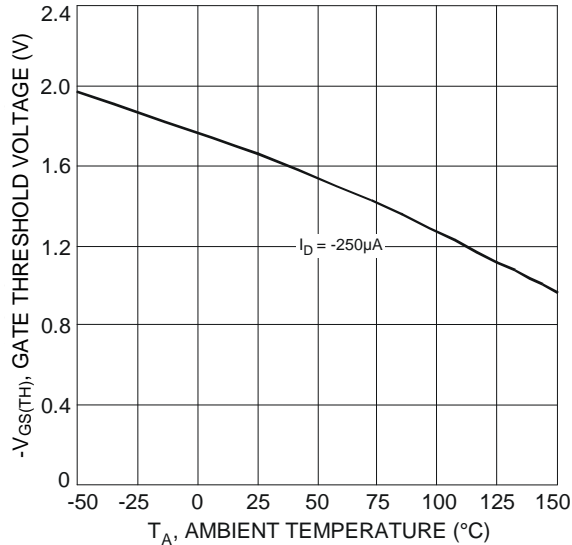


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

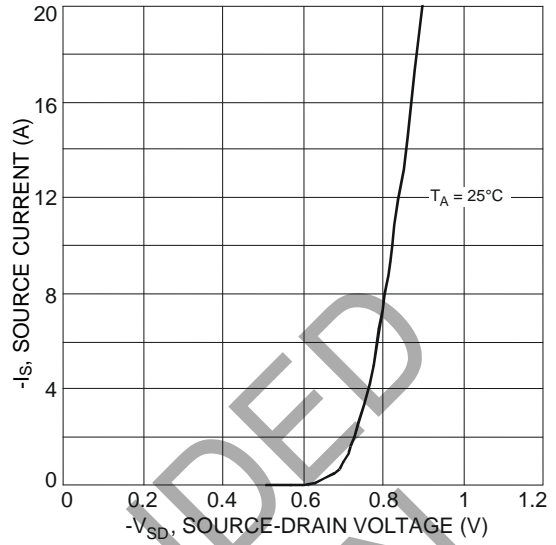


Fig. 8 Diode Forward Voltage vs. Current

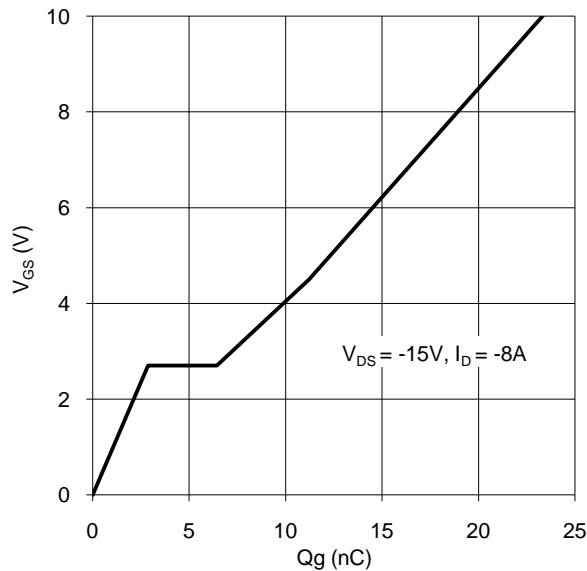


Fig. 9 Gate Charge

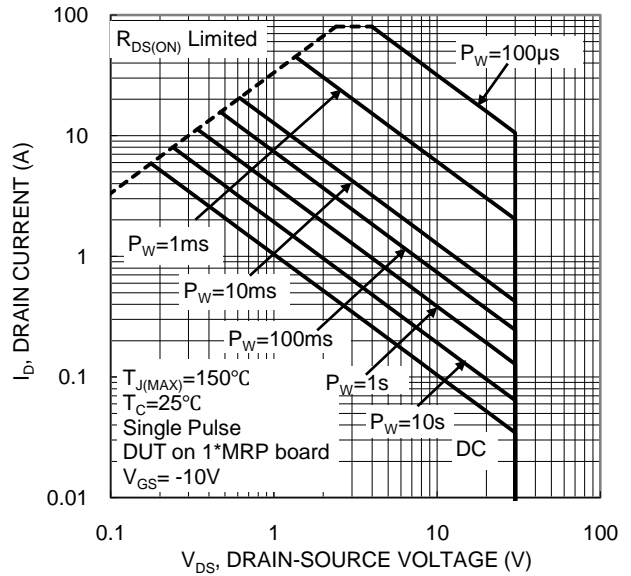


Fig. 10 SOA, Safe Operation Area

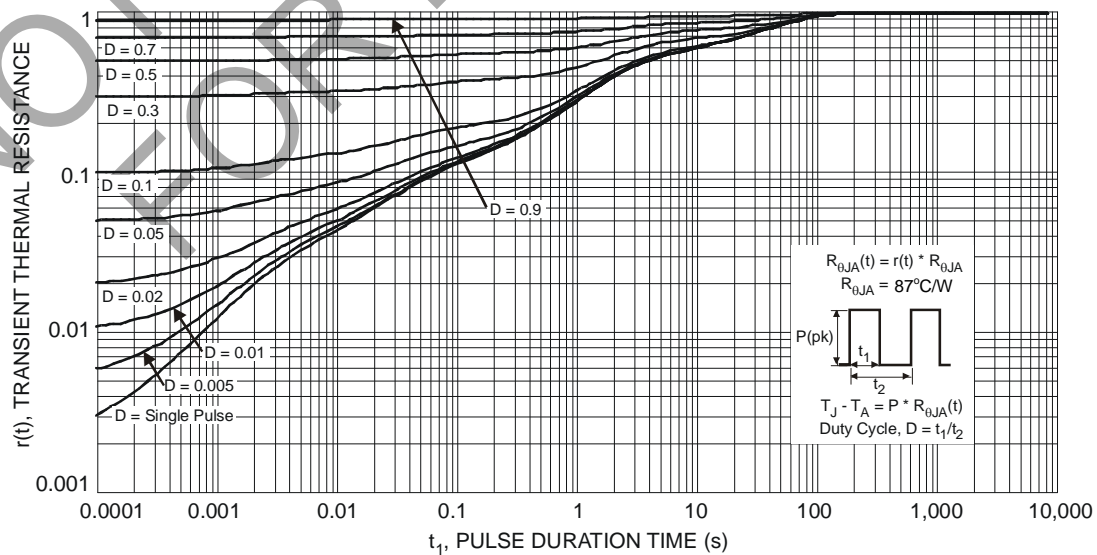
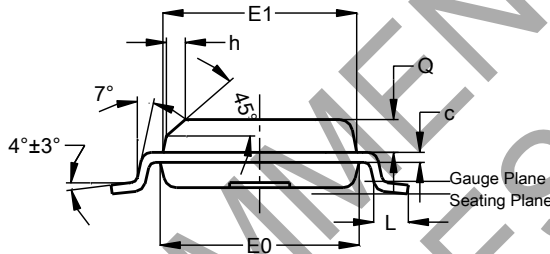
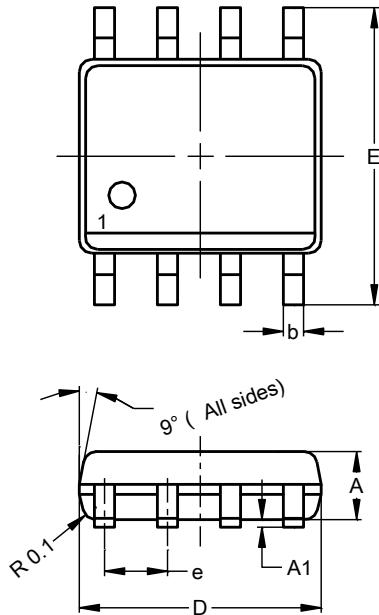


Fig. 11 Transient Thermal Response

Package Outline Dimensions

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

SO-8



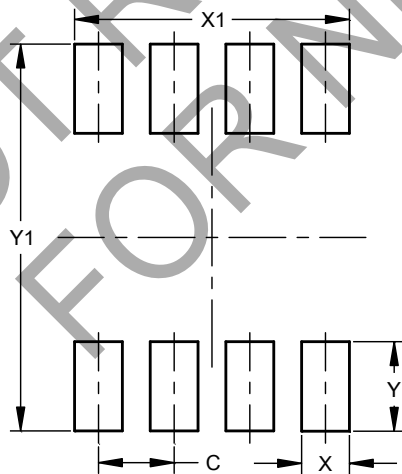
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Dim	Min	Max	Typ
A	1.40	1.50	1.45
A1	0.10	0.20	0.15
b	0.30	0.50	0.40
c	0.15	0.25	0.20
D	4.85	4.95	4.90
E	5.90	6.10	6.00
E1	3.80	3.90	3.85
E0	3.85	3.95	3.90
e	--	--	1.27
h	-	--	0.35
L	0.62	0.82	0.72
Q	0.60	0.70	0.65

All Dimensions in mm

Suggested Pad Layout

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

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

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