

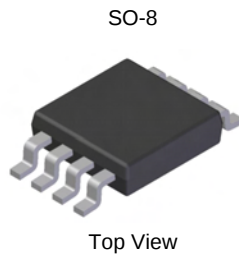
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)}$ max	I_D max $T_A = 25^\circ\text{C}$
-30V	40m Ω @ $V_{GS} = -4.5\text{V}$	-6.5A
	70m Ω @ $V_{GS} = -2.5\text{V}$	-5.0A

Description and Applications

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

- Backlighting
- Power Management Functions
- DC-DC Converters

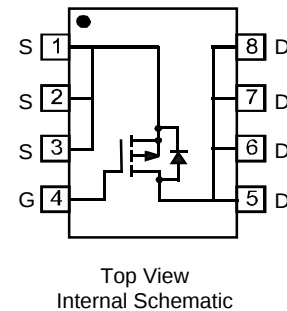


Features and Benefits

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **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 lead frame. Solderable per MIL-STD-202, Method 208
- Weight: 0.072g (approximate)

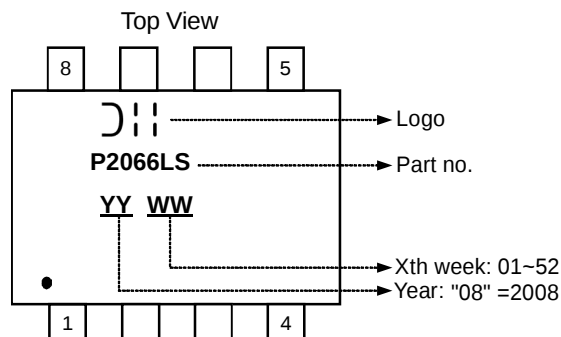


Ordering Information (Note 3)

Part Number	Case	Packaging
DMP2066LSS-13	SO-8	2500/Tape & Reel

- Notes:
1. No purposefully added lead.
 2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
 3. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information



Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V _{DSS}	-20	V
Gate-Source Voltage			V _{GSS}	±12	V
Drain Current (Note 4)	Steady State	T _A = 25°C	I _D	-6.5	A
		T _A = 70°C		-5.2	
Pulsed Drain Current (10µs pulse, duty cycle = 1%)			I _{DM}	-26	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 4)	P _D	2.5	W
Thermal Resistance, Junction to Ambient (Note 4)	R _{θJA}	50	°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 5)						
Drain-Source Breakdown Voltage	BV _{DSS}	-20	—	—	V	V _{GS} = 0V, I _D = -250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-1	μA	V _{DS} = -20V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±12V, V _{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	V _{GS(th)}	-0.6	—	-1.2	V	V _{DS} = V _{GS} , I _D = -250μA
Static Drain-Source On-Resistance	R _{DS(on)}	—	—	40	mΩ	V _{GS} = -4.5V, I _D = -5.8A
		—	—	70		V _{GS} = -2.5V, I _D = -3.8A
Forward Transconductance	g _{fs}	—	9	—	S	V _{DS} = -10V, I _D = -4.6A
Diode Forward Voltage	V _{SD}	-0.5	-0.72	-1.4	V	V _{GS} = 0V, I _S = -2.1A
DYNAMIC CHARACTERISTICS (Note 6)						
Input Capacitance	C _{iss}	—	820	—	pF	V _{DS} = -15V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	200	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	160	—	pF	
Gate Resistance	R _g	—	10.4	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1.0MHz
Total Gate Charge	Q _g	—	14.4	—	nC	V _{DS} = -10V, V _{GS} = -4.5V I _D = -4.5A
Gate-Source Charge	Q _{gs}	—	2.6	—		
Gate-Drain Charge	Q _{gd}	—	2.7	—		
Turn-On Delay Time	t _{D(on)}	—	13.7	—	ns	V _{DD} = -10V, V _{GS} = -4.5V, R _G = 6Ω, R _L = 10Ω, I _D = -1A
Turn-On Rise Time	t _r	—	14.0	—		
Turn-Off Delay Time	t _{D(off)}	—	79.1	—		
Turn-Off Fall Time	t _f	—	35.5	—		

- Notes:
4. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
 5. Short duration pulse test used to minimize self-heating effect.
 6. Guaranteed by design. Not subject to product testing.

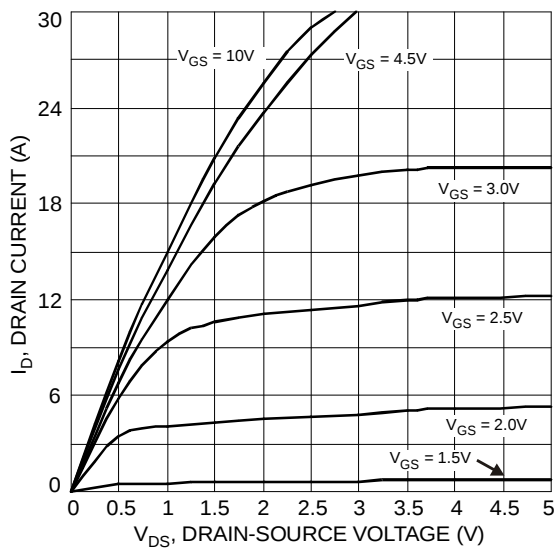


Fig. 1 Typical Output Characteristic

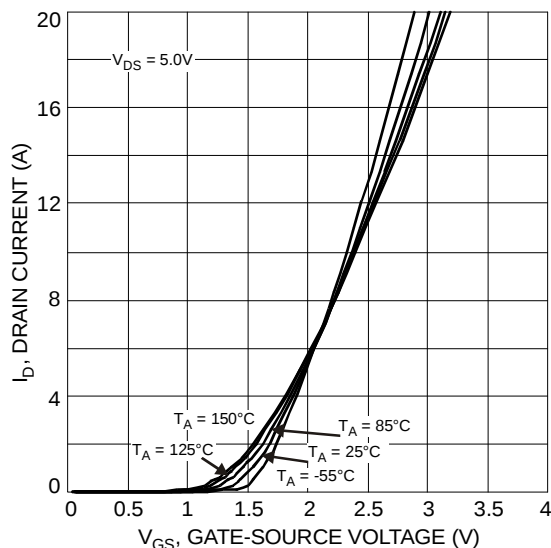


Fig. 2 Typical Transfer Characteristic

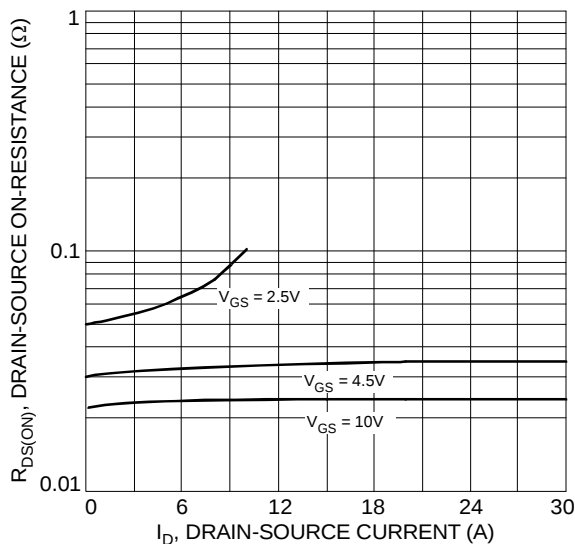


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

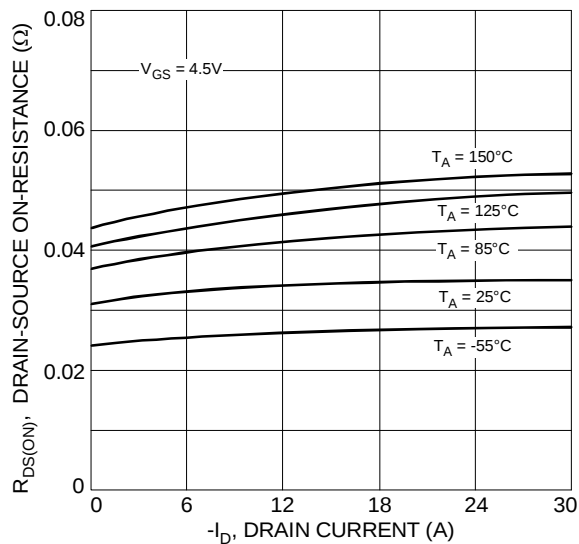


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

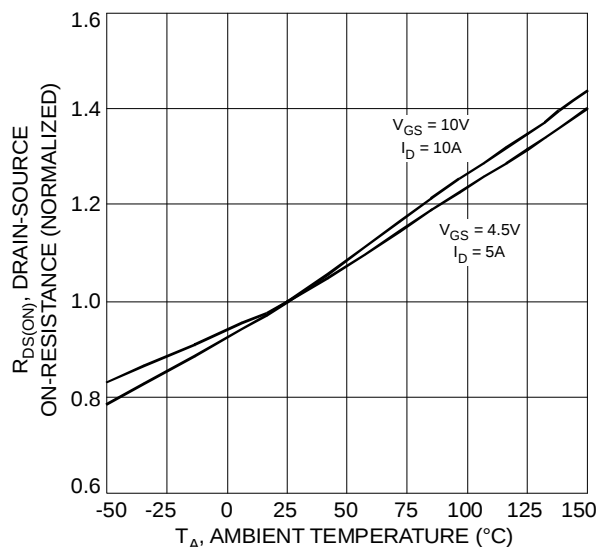


Fig. 5 Normalized On-Resistance vs. Ambient Temperature

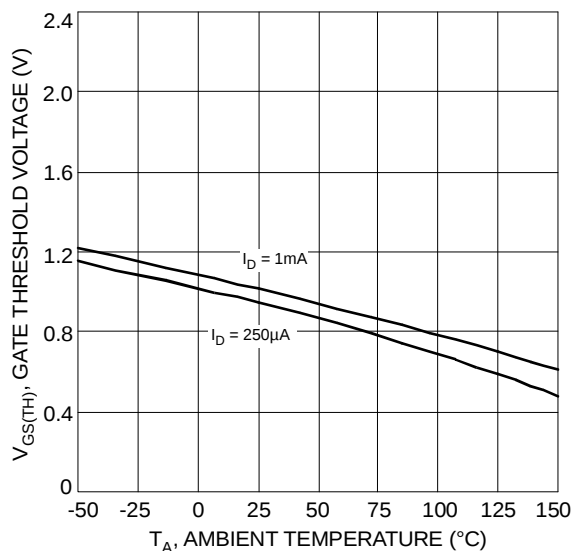


Fig. 6 Gate Threshold Variation vs. Ambient Temperature

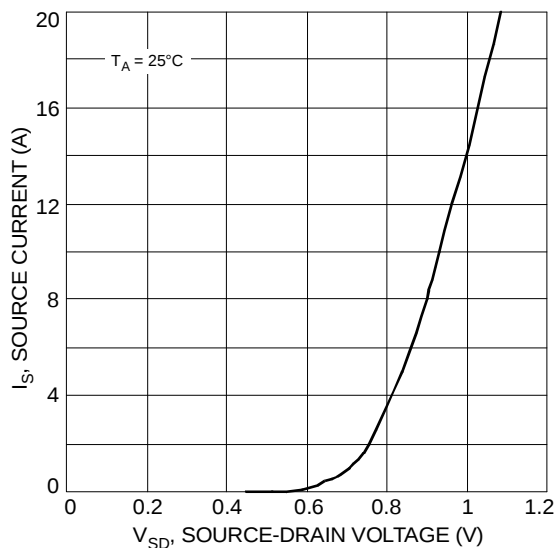


Fig. 7 Diode Forward Voltage vs. Current

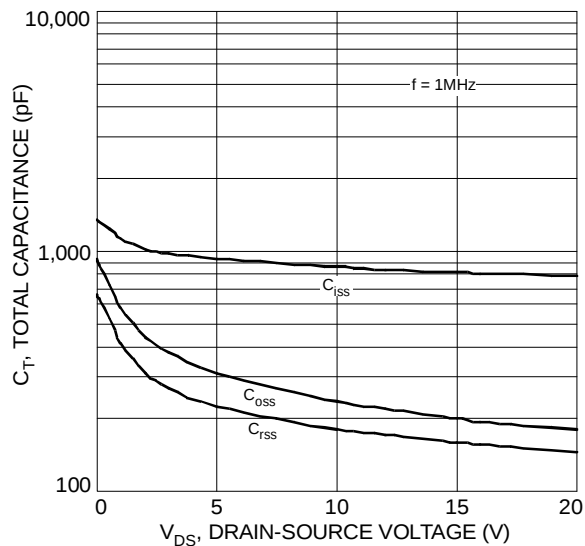


Fig. 8 Typical Total Capacitance

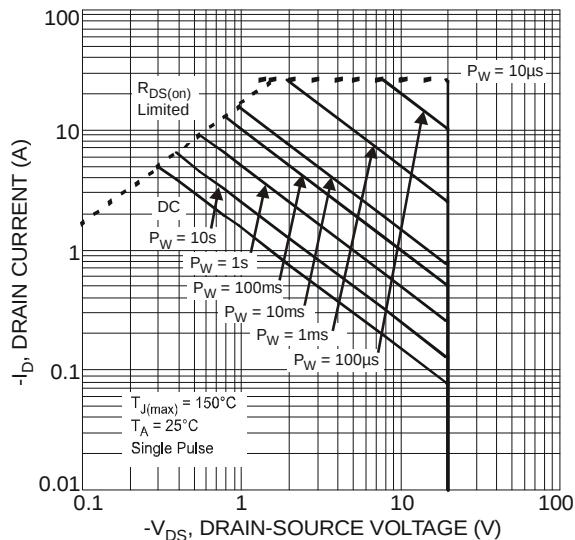
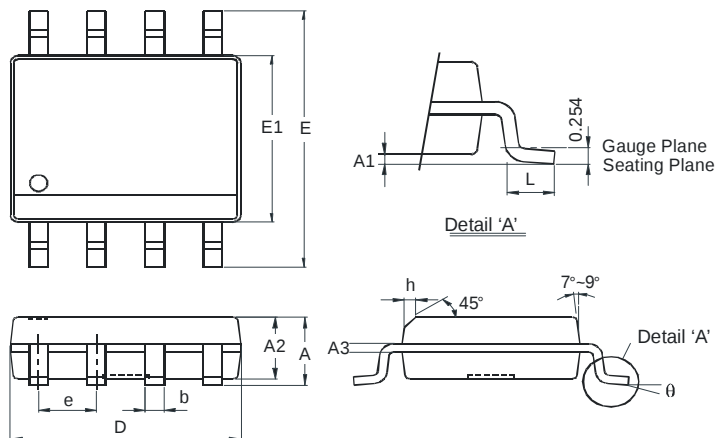


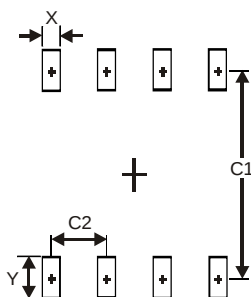
Fig. 9 SOA, Safe Operation Area

Package Outline Dimensions



SO-8		
Dim	Min	Max
A	-	1.75
A1	0.10	0.20
A2	1.30	1.50
A3	0.15	0.25
b	0.3	0.5
D	4.85	4.95
E	5.90	6.10
E1	3.85	3.95
e	1.27 Typ	
h	-	0.35
L	0.62	0.82
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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