



P-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

V _{(BR)DSS}	R _{DS(on) max}	I _D T _C = +25°C
-30V	$20m\Omega @ V_{GS} = -10V$	-18.0A
-307	$29mΩ @ V_{GS} = -5V$	-15.0A

Description

This new generation MOSFET is 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.

Applications

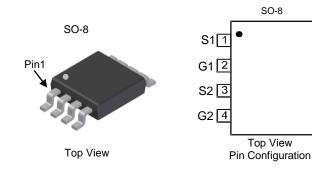
- DC-DC Converters
- Power Management Functions
- Backlighting

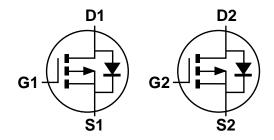
Features

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

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
- Terminal Connections: See Diagram
- Terminals: Finish Matte Tin Annealed over Copper Leadframe;
 Solderable per MIL-STD-202, Method 208 (23)
- Weight: 0.074 grams (Approximate)





Equivalent Circuit

Ordering Information (Note 4)

Part Number	Case	Packaging
DMP3036SSD-13	SO-8	2,500 / Tape & Reel

8 D1 7 D1

6 D2

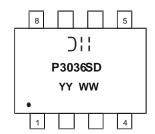
5 D2

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 http"//www.diodes.com/products/packages.html.

Marking Information

Notes:



⊃;; = Manufacturer's Marking
P3036SD = Product Type Marking Code
YYWW = Date Code Marking
YY or YY = Year (ex: 14 = 2014)
WW = Week (01 - 53)



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

Characteristic	Symbol	Value	Unit	
Drain-Source Voltage	V _{DSS}	-30	V	
Gate-Source Voltage		V _{GSS}	±25	V
Continuous Drain Current (Note 6) V _{GS} = -10V	$T_{C} = +25^{\circ}C$ $T_{C} = +70^{\circ}C$	I _D	-18.0 -14.3	А
	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	I _D	-10.6 -8.5	А
Pulsed Drain Current (10µs pulse, duty cycle = 1%)		I _{DM}	-80	Α
Maximum Continuous Body Diode Forward Current (Note 6)		Is	-3.6	Α
Avalanche Current (Note 7) L = 0.3mH		I _{AS}	-17.5	Α
Avalanche Energy (Note 7) L = 0.3mH		E _{AS}	64	mJ

Thermal Characteristics (@TA = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)	T _A = +25°C	D.	1.2	W
	T _A = +70°C	P_D	0.9	
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	D	104	°C/W
	t<10s	$R_{ heta JA}$	45	
Total Power Dissipation (Note 6)	T _A = +25°C	D-	1.7	W
	T _A = +70°C	P_D	1.1	
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	D	72	°C/W
	t<10s	$R_{\theta JA}$	37	
Thermal Resistance, Junction to Case (Note 6)		$R_{\theta JC}$	13	
Operating and Storage Temperature Range		T _J , T _{STG}	-55 to +150	°C

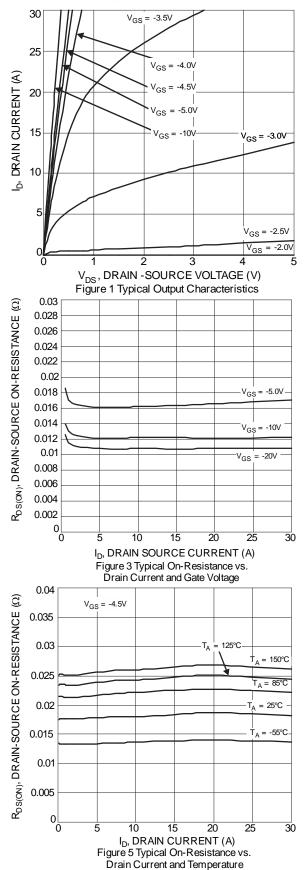
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

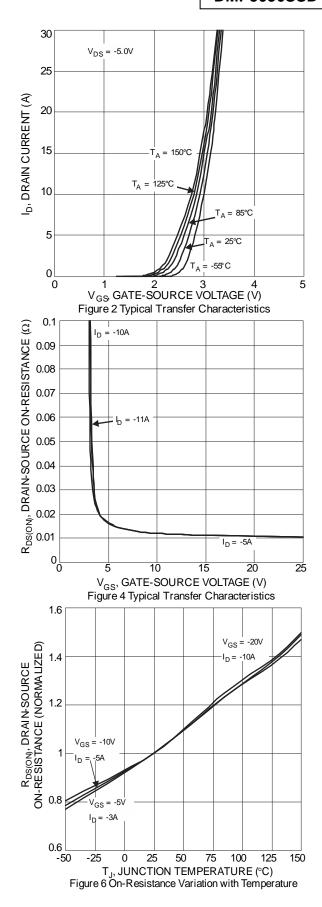
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 8)							
Drain-Source Breakdown Voltage	BV _{DSS}	-30	-	-	V	$V_{GS} = 0V$, $I_D = -1mA$	
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	-	-	-1.0	μΑ	$V_{DS} = -30V$, $V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	-	-	±100	nA	$V_{GS} = \pm 25V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 8)							
Gate Threshold Voltage	V _{GS(th)}	-1.0	-1.7	-3.0	V	$V_{DS} = V_{GS}, I_{D} = -250 \mu A$	
Static Drain-Source On-Resistance		-	16	20	mΩ	$V_{GS} = -10V, I_D = -9A$	
Static Dialii-Source Off-Resistance	R _{DS} (ON)	-	22	29	11122	$V_{GS} = -5V, I_D = -7A$	
Diode Forward Voltage	V _{SD}	-	-0.7	-1.0	V	$V_{GS} = 0V, I_{S} = -1A$	
DYNAMIC CHARACTERISTICS (Note 9)							
Input Capacitance	C _{iss}	-	1931	-	pF	V 45V V 0V	
Output Capacitance	Coss	-	226	-	pF	$V_{DS} = -15V, V_{GS} = 0V,$ f = 1.0MHz	
Reverse Transfer Capacitance	C _{rss}	-	168	-	pF	1 = 1.0IVII 12	
Gate Resistance	R_g	-	10.9	-	Ω	$V_{DS} = 0V$, $V_{GS} = 0V$, $f = 1MHz$	
Total Gate Charge at V _{GS} = -5V	Qg	-	8.8	-	nC	$V_{DS} = -15V, I_{D} = -10A$	
Total Gate Charge at V _{GS} = -10V	Qg	-	16.5	-	nC		
Gate-Source Charge	Q _{gs}	-	2.6	-	nC	$V_{DS} = -15V, I_{D} = -10A$	
Gate-Drain Charge	Q _{qd}	-	3.6	-	nC		
Turn-On Delay Time	t _{D(on)}	-	8.2	-	ns		
Turn-On Rise Time	t _r	-	14	-	ns	$V_{GEN} = -10V, V_{DD} = -15V,$	
Turn-Off Delay Time	t _{D(off)}	-	65	-	ns	$R_{GEN} = 3\Omega$, $I_D = -10A$	
Turn-Off Fall Time	t _f	-	31.6	-	ns]	

Notes:

- 5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
 6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
- 7. IAs and EAs rating are based on low frequency and duty cycles to keep $T_J = +25$ °C.
- 8. Short duration pulse test used to minimize self-heating effect.
- 9. Guaranteed by design. Not subject to product testing.









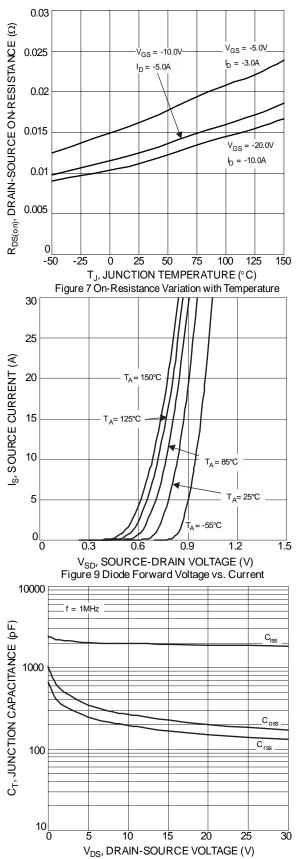
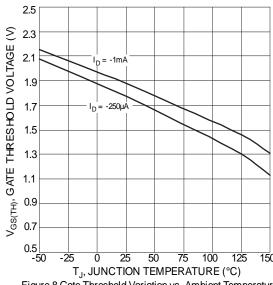
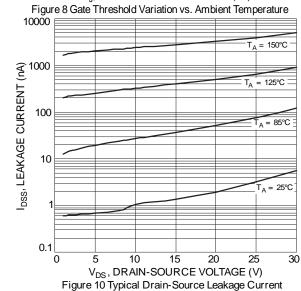
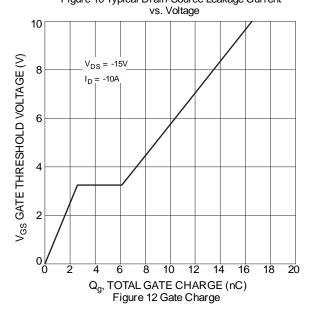


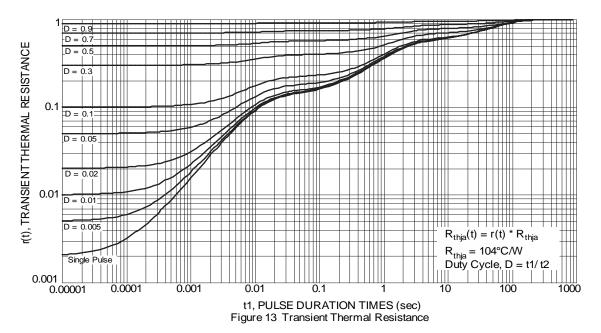
Figure 11 Typical Junction Capacitance





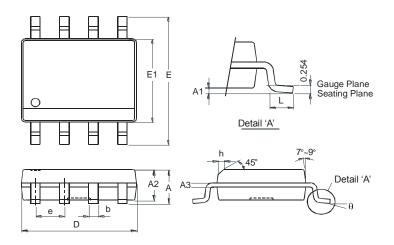






Package Outline Dimensions

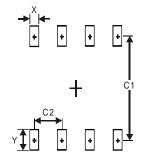
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



SO-8				
Dim	Min	Max		
Α	-	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		
Е	5.90	6.10		
E1	3.85	3.95		
е	1.27 Typ			
h	ı	0.35		
L	0.62	0.82		
θ	0°	8°		
All Dimensions in mm				

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
Х	0.60
Y	1.55
C1	5.4
C2	1.27



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