



P-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

V _{(BR)DSS}	R _{DS(on) max}	I _D T _C = +25°C
-30V	$20m\Omega @ V_{GS} = -10V$	-19.5A
	29mΩ @ V _{GS} = -5V	-16.2A

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

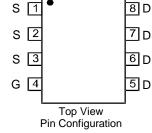
Features

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

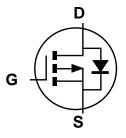
Mechanical Data

- 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 Below
- Weight: 0.076 grams (Approximate)





SO-8



Equivalent Circuit

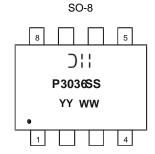
Ordering Information (Note 4)

Part Number	Case	Packaging
DMP3036SSS-13	SO-8	2500 / 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 http"//www.diodes.com/products/packages.html.

Marking Information



⊃;; = Manufacturer's Marking
 P3036SS = Product Type Marking Code
 YYWW = Date Code Marking
 YY or YY = Year (ex: 14 = 2014)
 WW = Week (01 - 53)



Characteristic	Symbol	Value	Unit	
Drain-Source Voltage	V_{DSS}	-30	V	
Gate-Source Voltage		V_{GSS}	±25	V
Continuous Dusin Courset (Note 5) V	$T_C = +25^{\circ}C$ $T_C = +70^{\circ}C$	I _D	-19.5 -15.6	А
Continuous Drain Current (Note 5) V _{GS} = -10V	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	I _D	-11.4 -9.2	А
Pulsed Drain Current (10µs pulse, duty cycle = 1%)		I _{DM}	-80	Α
Maximum Continuous Body Diode Forward Current (Note 6)		Is	-3.6	А
Avalanche Current (Note 7) L = 0.3mH		I _{AS}	-17.5	А
Avalanche Energy (Note 7) L = 0.3mH		Eas	64	mJ

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

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)	T _A = +25°C		1.4	W
Total Fower Dissipation (Note 5)	T _A = +70°C	P_{D}	0.9	
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	D	88	°C/W
Thermal Resistance, Junction to Ambient (Note 5)	t<10s	$R_{\theta JA}$	37	
Total Power Dissipation (Note 6)	T _A = +25°C	D-	1.9	W
Total Fower Dissipation (Note 0)	$T_A = +70^{\circ}C$	P_{D}	1.2	
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	D	65	°C/W
Thermal Resistance, Junction to Ambient (Note 0)	t<10s	$R_{\theta JA}$	32	
Thermal Resistance, Junction to Case (Note 6)	$R_{ heta JC}$	11		
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)						1	
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	μA	$V_{DS} = -30V, V_{GS} = 0V$	
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	D	-	16	20	mΩ	$V_{GS} = -10V, I_D = -9A$	
Static Diain-Source On-Resistance	R _{DS (ON)}	-	22	29		$V_{GS} = -5V, I_D = -7A$	
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	15)/)/	
Output Capacitance	Coss	-	226	-	pF	$V_{DS} = -15V, V_{GS} = 0V,$ - f = 1.0MHz	
Reverse Transfer Capacitance	C _{rss}	-	168	-	pF	1 = 1.000112	
Gate Resistance	Rg	-	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	Qgs	-	2.6	-	nC	$V_{DS} = -15V, I_{D} = -10A$	
Gate-Drain Charge	Q _{gd}	-	3.6	-	nC	1	
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		

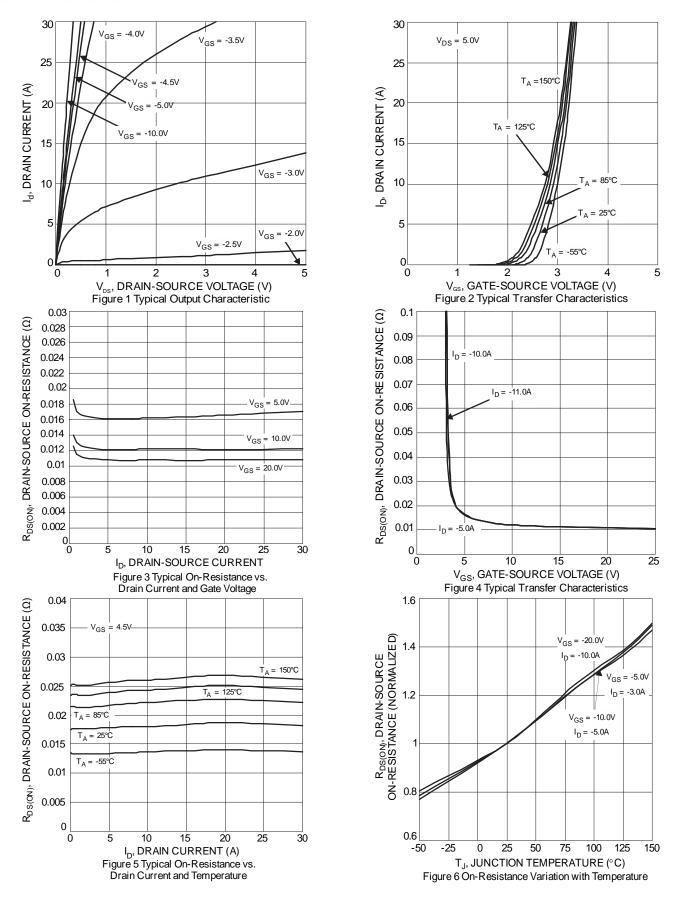
5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate.

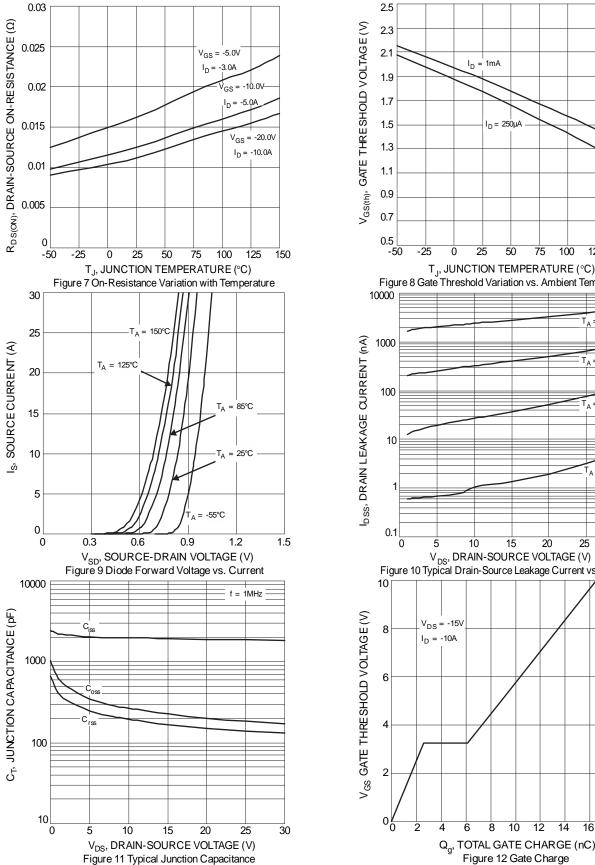
7. IAs and EAs rating are based on low frequency and duty cycles to keep T_J = +25°C. 8. Short duration pulse test used to minimize self-heating effect.

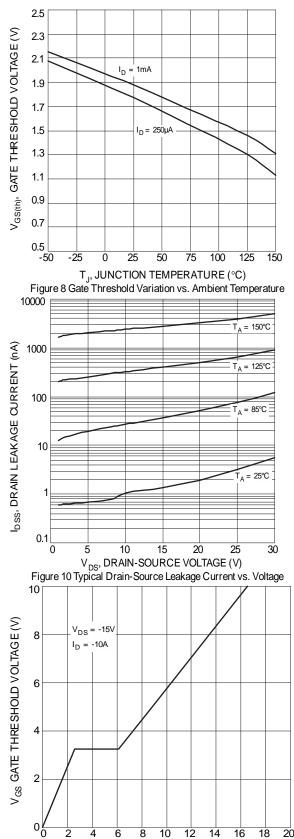
9. Guaranteed by design. Not subject to product testing.



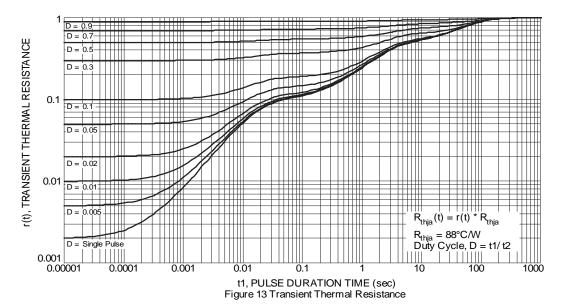






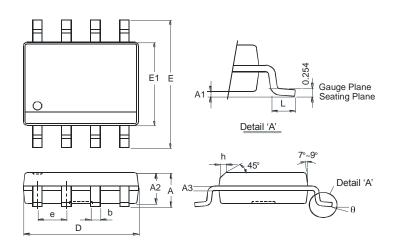






Package Outline Dimensions

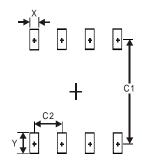
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



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		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
Υ	1.55
C1	5.4
C2	1.27



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