



100V P-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

V _{(BR)DSS}	R _{DS(ON)}	I _D T _A = +25°C
100V	4.2Ω @ V _{GS} = -10V	-0.27A
100 V	5.0Ω @ V _{GS} = -4.0V	-0.24A

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
- · Battery Operated Systems and Solid-State Relays
- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories, Transistors, etc.

SOT23





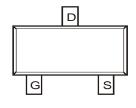
Top View

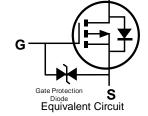
Features and Benefits

- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Small Surface Mount Package
- ESD Protected
- 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: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound.
 UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.008 grams (Approximate)





Top View Pin Configuration

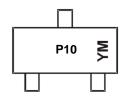
Ordering Information (Note 4)

Part Number	Case	Packaging
DMP10H4D2S-7	SOT23	3,000/Tape & Reel
DMP10H4D2S-13	SOT23	10,000/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.

Marking Information



P10 = Product Type Marking Code YM = Date Code Marking Y or Y = Year (ex: C = 2015) M = Month (ex: 9 = September)

Date Code Key

Year	2015		2016	2017		2018	2019		2020		2021		2022
Code	С		D	E		F	G		Н				J
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	g Se	p	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9		0	N	D



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

Characteristic	Symbol	Value	Units		
Drain-Source Voltage	V_{DSS}	-100	V		
Gate-Source Voltage	V_{GSS}	±20	V		
Continuous Drain Current (Note 6) V _{GS} = -10V Stea		$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	I _D	-0.27 -0.21	А
Pulsed Drain Current (10µs Pulse, Duty Cycle ≤1%)	I_{DM}	-1.0	Α		
Maximum Body Diode Continuous Current (Note 6)	•	•	Is	-0.42	Α

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

Characteristic	Symbol	Value	Units			
Total Power Dissipation		(Note 5)	P_{D}	0.38	W	
		(Note 6)		0.44	VV	
Thermal Resistance, Junction to Ambient Steady		(Note 5)	$R_{\theta JA}$	333		
Thermal Resistance, Junction to Ambient State		(Note 6)	$R_{\theta JA}$	282	°C/W	
Thermal Resistance, Junction to Case		(Note 6)	R _{θJC}	115		
Operating and Storage Temperature Range			T_J,T_STG	-55 to +150	°C	

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

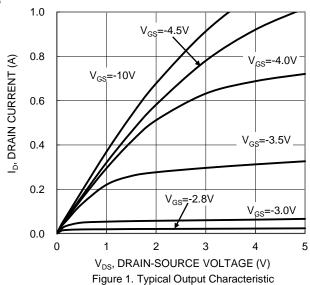
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 7)						1	
Drain-Source Breakdown Voltage	BV _{DSS}	-100	_	—	V	$V_{GS} = 0V, I_D = -250\mu A$	
Zero Gate Voltage Drain Current	I _{DSS}	_	_	1	μΑ	$V_{DS} = -100V, V_{GS} = 0V$	
Gate-Body Leakage	I _{GSS}	_	_	±10	μΑ	$V_{GS} = \pm 20V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 7)							
Gate Threshold Voltage	$V_{GS(TH)}$	-1.0	-2.3	-3.0	V	$V_{DS} = V_{GS}, I_{D} = -250 \mu A$	
Static Drain-Source On-Resistance			2.8	4.2	Ω	$V_{GS} = -10V, I_D = -0.5A$	
Static Drain-Source On-Nesistance	R _{DS(ON)}	_	3.2	5.0	32	$V_{GS} = -4.0V, I_{D} = -0.1A$	
Diode Forward Voltage	V_{SD}	_	-0.82	-1.3	V	$V_{GS} = 0V, I_{S} = -0.2A$	
DYNAMIC CHARACTERISTICS (Note 8)							
Input Capacitance	C _{iss}	_	87	_			
Output Capacitance	Coss	_	5.6	_	pF	$V_{DS} = -25V, V_{GS} = 0V,$ f = 1.0MHz	
Reverse Transfer Capacitance	C _{rss}	_	2.9	_			
Gate Resistance	R _G	_	15.3	_	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz$	
Total Gate Charge	Qg		1.8	_		V 00V V 40V	
Gate-Source Charge	Q _{gs}	_	0.3	_	nC	$V_{DS} = -80V, V_{GS} = -10V,$ $I_{D} = -0.5A$	
Gate-Drain Charge	Q_gd	_	0.5	_		ID = -0.5A	
Turn-On Delay Time	t _{D(ON)}	_	3.3	_			
Turn-On Rise Time	t _R	_	2.6	_		$V_{DS} = -50V, I_{D} = -0.5A,$	
Turn-Off Delay Time	t _{D(OFF)}	_	8.4	_	ns	$V_{GS} = -10V, R_{G} = 10\Omega$	
Turn-Off Fall Time	t _F	_	4.9	_			
Reverse Recovery Time	t _{RR}	_	17.8	_	ns	$V_R = -100V$, $I_F = -1.0A$, $di/dt =$	
Reverse Recovery Charge	Q _{rr}	_	24.8	_	nC	100A/μs	

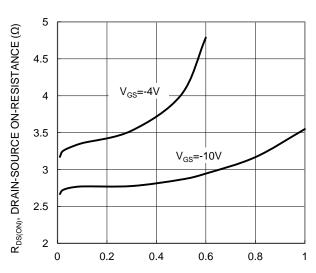
Notes:

- 5. Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
- Device mounted on FR-4 substrate PC board, 202 copper, with 1inch square copper pad layout.
 Short duration pulse test used to minimize self-heating effect.
 Guaranteed by design. Not subject to production testing.



DMP10H4D2S





I_D, DRAIN-SOURCE CURRENT (A) Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

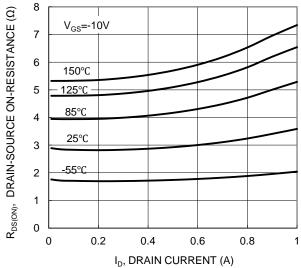
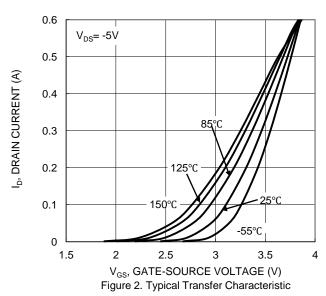
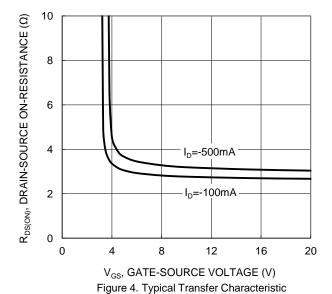


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature





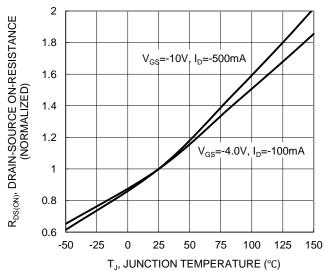
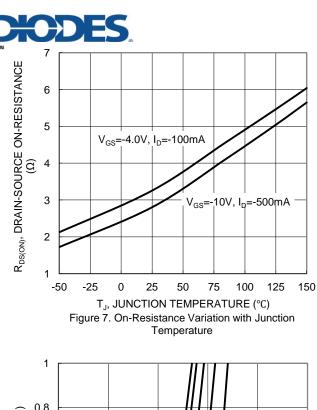
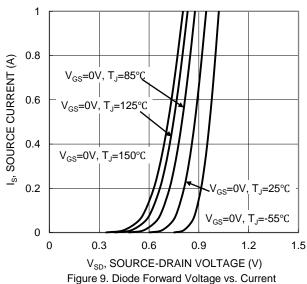
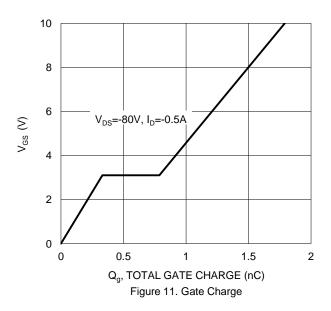


Figure 6. On-Resistance Variation with Junction Temperature







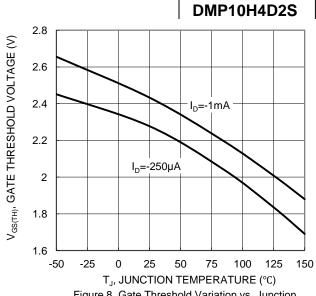
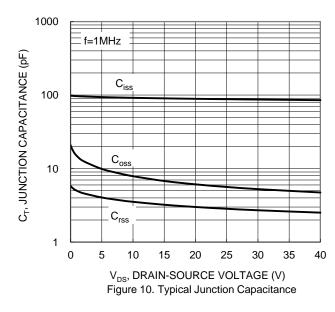
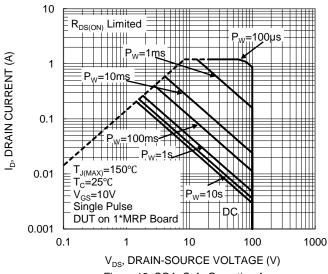
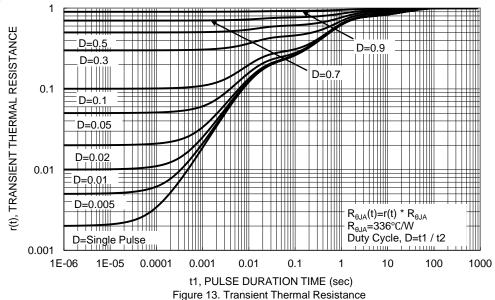


Figure 8. Gate Threshold Variation vs. Junction Temperature



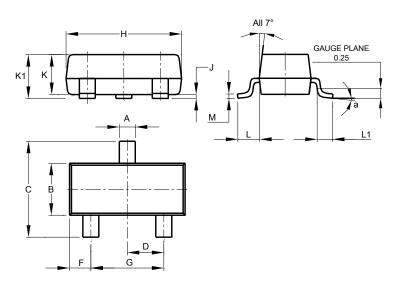






Package Outline Dimensions

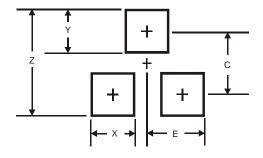
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



SOT23						
Dim	Min	Max	Тур			
Α	0.37	0.51	0.40			
В	1.20	1.40	1.30			
С	2.30	2.50	2.40			
D	0.89	1.03	0.915			
F	0.45	0.60	0.535			
G	1.78	2.05	1.83			
Н	2.80 3.00		2.90			
J	0.013	0.10	0.05			
K	0.890	1.00	0.975			
K 1	0.903 1.10		1.025			
L	0.45	0.61	0.55			
L1	0.25	0.55	0.40			
М	0.085	0.150	0.110			
а	8°					
All Dimensions in mm						

Suggested Pad Layout

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



Dimension	Value (in mm)
S	
Z	2.9
Х	0.8
Υ	0.9
С	2.0
E	1.35



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Офис по работе с юридическими лицами:

105318, г. Москва, ул. Щербаковская д. 3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru moschip.ru_6 moschip.ru 4 moschip.ru 9