



DMP2123LQ

P-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

Features

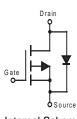
- Low R_{DS(ON)}
 - $72m\Omega$ @V_{GS} = -4.5V
 - $108m\Omega @V_{GS} = -2.7V$
 - $123m\Omega @V_{GS} = -2.5V$
- Low Input/Output Leakage
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- **PPAP Capable (Note 4)**

Mechanical Data

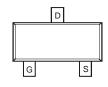
- Case: SOT23
- Case Material Molded Plastic, "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (3)
- Terminal Connections: See Diagram Below
- Weight: 0.008 grams (Approximate)







SOT23



Top View

Internal Schematic

Top View

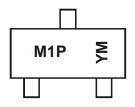
Ordering Information (Note 5)

Part Number	Case	Packaging
DMP2123LQ-7	SOT23	3,000/Tape & Reel
DMP2123LQ-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. Automotive products are AEC-Q101 qualified and are PPAP capable. For more information, please refer to http://www.diodes.com/product_compliance_definitions.html.
- 5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



M1P = Product Type Marking Code YM = Date Code Marking Y = Year (ex: C = 2015)M = Month (ex: 9 = September)

Date Code Key

Year	2007		2015	2016	2017	20	18	2019	2020	2021	2022	2023
Code	U		С	D	E	F	-	G	Н	I	J	K
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec



Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Drain-Source Voltage		V _{DSS}	-20	V
Gate-Source Voltage		V _{GSS}	±12	V
Drain Current (Note 6) Continuous	$T_A = +25$ °C $T_A = +70$ °C	I _D	-3.0 -2.4	А
Pulsed Drain Current (Note 7)		I _{DM}	-15	A
Body-Diode Continuous Current (Note 6)		Is	-2.0	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 6)	P_{D}	1.4	W
Thermal Resistance, Junction to Ambient (Note 6); Steady-State	$R_{ heta JA}$	90	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

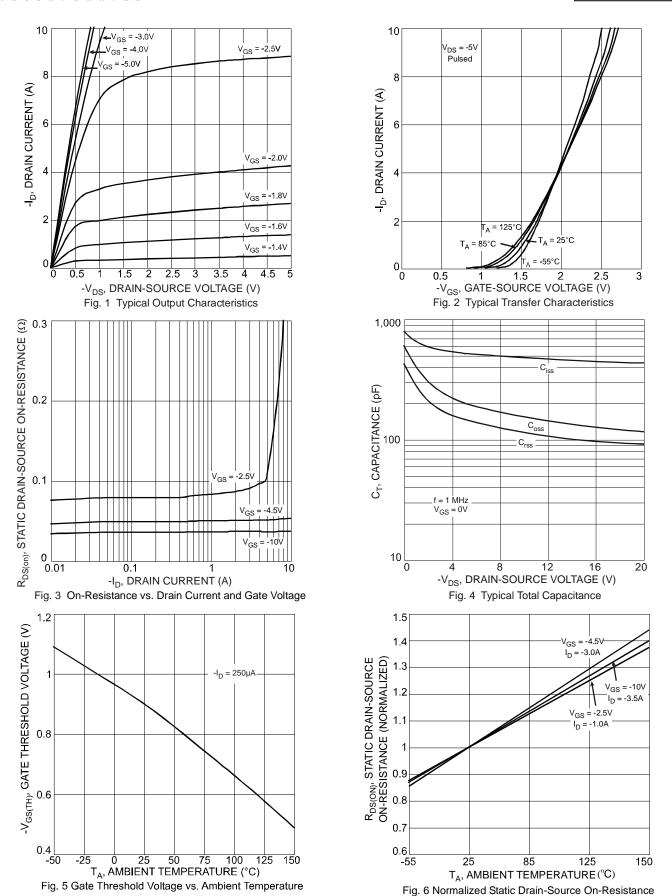
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
STATIC PARAMETERS				ı		
Drain-Source Breakdown Voltage	BV _{DSS}	-20	_	_	V	I _D = -250μA, V _{GS} = 0V
Zero Gate Voltage Drain Current $T_J = +25$ °C	I _{DSS}	_	_	-1	μΑ	V _{DS} = -20V, V _{GS} = 0V
Gate-Body Leakage Current	I _{GSS}	_	_	±100	nA	$V_{DS} = 0V, V_{GS} = \pm 12V$
Gate Threshold Voltage	V _{GS(TH)}	-0.6	_	-1.25	V	$V_{DS} = V_{GS}$, $I_D = -250\mu A$
On State Drain Current (Note 8)	I _{D(ON)}	-15		_	Α	V _{GS} = -4.5V, V _{DS} = -5V
Static Drain-Source On-Resistance (Note 8)			51 87 99	72 108 123	mΩ	V_{GS} = -4.5V, I_D = -3.5A V_{GS} = -2.7V, I_D = -3.0A V_{GS} = -2.5V, I_D = -2.6A
Forward Transconductance (Note 8)	g FS		7.3	_	S	$V_{DS} = -10V, I_D = -3.0A$
Diode Forward Voltage (Note 6)	V_{SD}	_	-0.79	-1.26	V	$I_S = -1.7A$, $V_{GS} = 0V$
Maximum Body-Diode Continuous Current (Note 6)	Is	_	_	-1.7	Α	_
DYNAMIC PARAMETERS (Note 9)						
Total Gate Charge	Q_g		7.3	_	nC	$V_{GS} = -4.5V$, $V_{DS} = -10V$, $I_{D} = -3.0A$
Gate-Source Charge	Q_{gs}		2.0	_	nC	$V_{GS} = -4.5V$, $V_{DS} = -10V$, $I_{D} = -3.0A$
Gate-Drain Charge			1.9	_	nC	$V_{GS} = -4.5V$, $V_{DS} = -10V$, $I_D = -3.0A$
Turn-On Delay Time			12	_	ns	
Turn-On Rise Time			20	_	ns	$V_{DS} = -10V, V_{GS} = -4.5V,$
Turn-Off Delay Time			38	_	ns	$R_L = 10\Omega$, $R_G = 6\Omega$
Turn-Off Fall Time			41	_	ns	
Input Capacitance	C _{iss}		443	_	pF	100/10/
Output Capacitance	Coss		128	_	pF	$V_{DS} = -16V, V_{GS} = 0V$ f = 1.0MHz
Reverse Transfer Capacitance	Crss	_	101	_	pF	1 - 1.01/11/12

Notes:

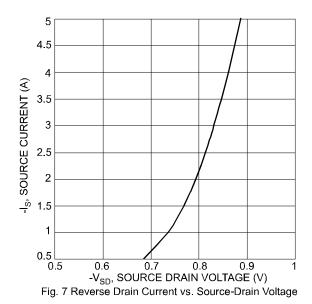
- 6. Device mounted on 1" x 1", FR-4 PC board with 2 oz. copper and test pulse width t \leq 10s. 7. Repetitive Rating, pulse width limited by junction temperature. 8. Test pulse width t = 300 μ s. 9. Guaranteed by design. Not subject to product testing.

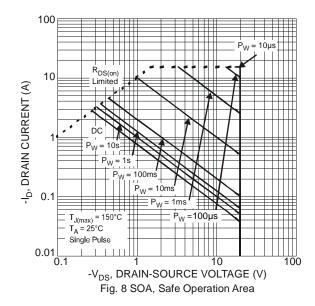




vs. Ambient Temperature

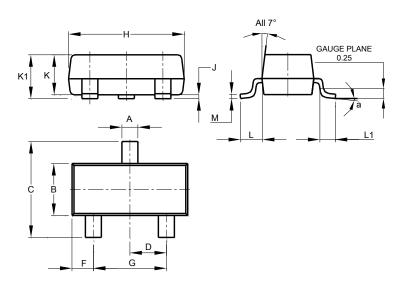






Package Outline Dimensions

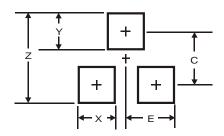
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



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			
K1	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	a 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)
Z	2.9
Х	0.8
Y	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