

Features

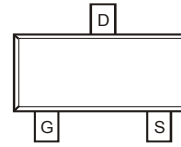
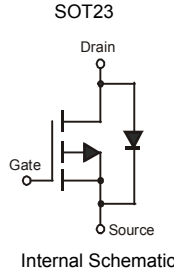
- Low $R_{DS(ON)}$
 - 72 m Ω @ $V_{GS} = -4.5V$
 - 108 m Ω @ $V_{GS} = -2.7V$
 - 123 m Ω @ $V_{GS} = -2.5V$
- Low Input/Output Leakage
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

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



TOP VIEW

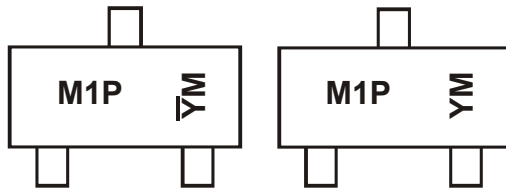


Ordering Information (Note 4)

Part Number	Case	Packaging
DMP2123L-7	SOT-23	3000/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



Chengdu A/T Site

Shanghai A/T Site

M1P = Product Type Marking Code
 YM = Date Code Marking for SAT (Shanghai Assembly/ Test site)
 Y \bar{M} = Date Code Marking for CAT (Chengdu Assembly/ Test site)
 Y or \bar{Y} = Year (ex: A = 2013)
 M = Month (ex: 9 = September)

Date Code Key

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Code	U	V	W	X	Y	Z	A	B	C	D	E	
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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 5) Continuous	I _D	T _A = +25°C T _A = +70°C	-3.0 -2.4	A
Pulsed Drain Current (Note 6)		I _{DM}	-15	A
Body-Diode Continuous Current (Note 5)	I _S	2.0	A	

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P _D	1.4	W
Thermal Resistance, Junction to Ambient (Note 5); Steady-State	R _{θJA}	90	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes: 5. Device mounted on 1"x1", FR-4 PC board with 2 oz. Copper and test pulse width t ≤ 10s.
6. Repetitive Rating, pulse width limited by junction temperature.

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV _{DSS}	-20	—	—	V	I _D = -250μA, V _{GS} = 0V
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-1	μA	V _{DS} = -20V, V _{GS} = 0V
Gate-Body Leakage Current	I _{GSS}	—	—	±100	nA	V _{DS} = 0V, V _{GS} = ±12V
Gate Threshold Voltage	V _{GS(th)}	-0.6	—	-1.25	V	V _{DS} = V _{GS} , I _D = -250μA
On State Drain Current (Note 7)	I _{D(ON)}	-15	—	—	A	V _{GS} = -4.5V, V _{DS} = -5V
Static Drain-Source On-Resistance (Note 7)	R _{DS(ON)}	—	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 7)	g _{FS}	—	7.3	—	S	V _{DS} = -10V, I _D = -3.0A
Diode Forward Voltage (Note 5)	V _{SD}	—	0.79	-1.26	V	I _S = -1.7A, V _{GS} = 0V
Maximum Body-Diode Continuous Current (Note 5)	I _S	—	—	1.7	A	—
DYNAMIC PARAMETERS (Note 8)						
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	Q _{gd}	—	1.9	—	nC	V _{GS} = -4.5V, V _{DS} = -10V, I _D = -3.0A
Turn-On Delay Time	t _{D(on)}	—	12	—	ns	V _{DS} = -10V, V _{GS} = -4.5V, R _L = 10Ω, R _G = 6Ω
Turn-On Rise Time	t _r	—	20	—	ns	
Turn-Off Delay Time	t _{D(off)}	—	38	—	ns	
Turn-Off Fall Time	t _f	—	41	—	ns	
Input Capacitance	C _{iss}	—	443	—	pF	V _{DS} = -16V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	128	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	101	—	pF	

Notes: 7. Test pulse width t = 300μs.
8. Guaranteed by design. Not subject to production testing.

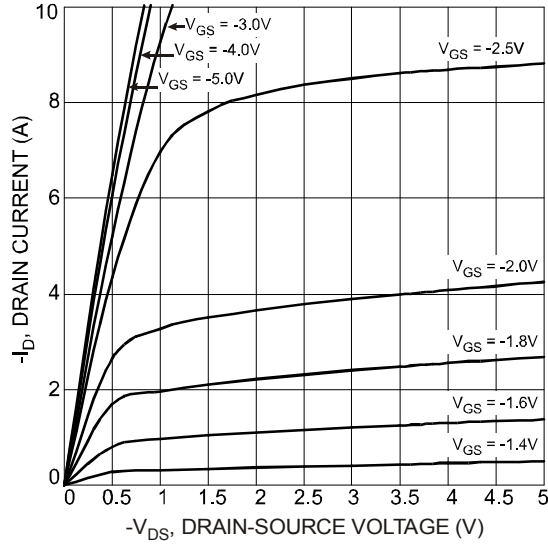


Fig. 1 Typical Output Characteristics

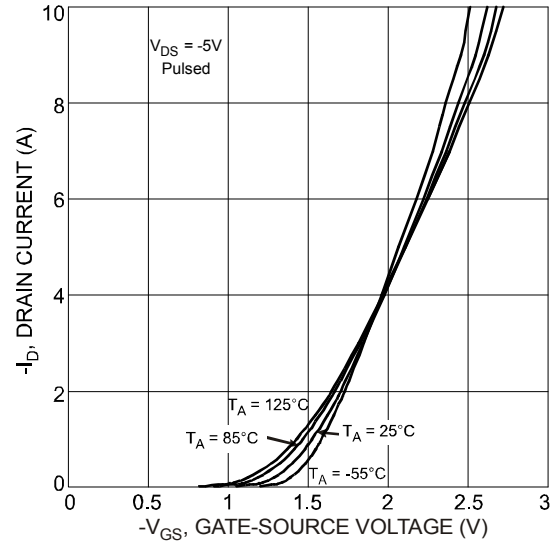


Fig. 2 Typical Transfer Characteristics

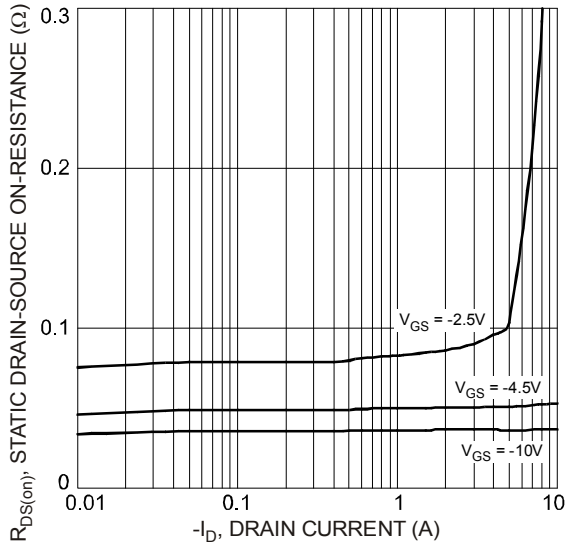


Fig. 3 On-Resistance vs. Drain Current and Gate Voltage

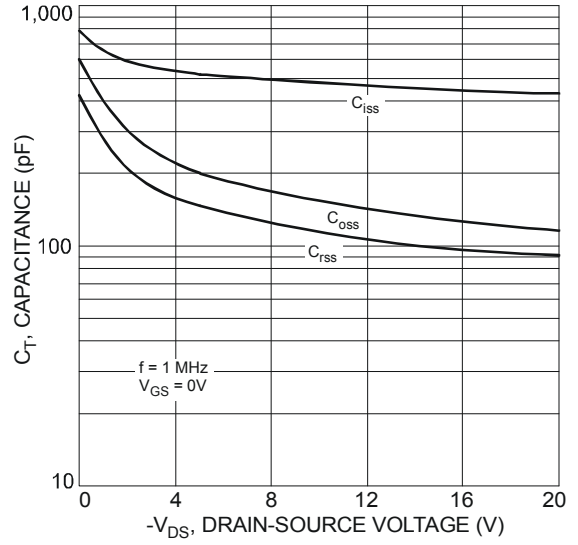


Fig. 4 Typical Total Capacitance

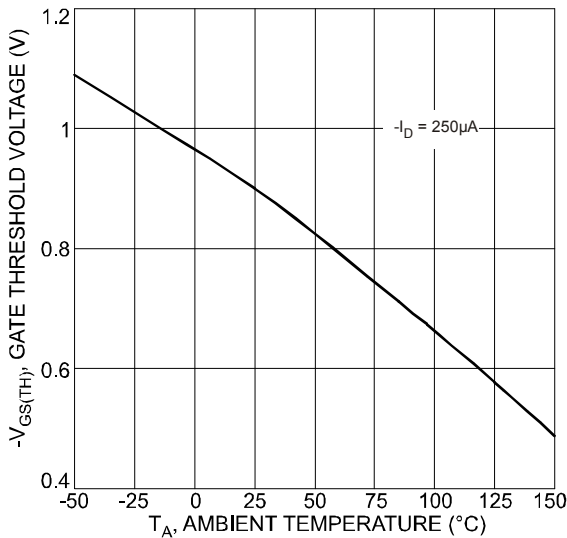


Fig. 5 Gate Threshold Voltage vs. Ambient Temperature

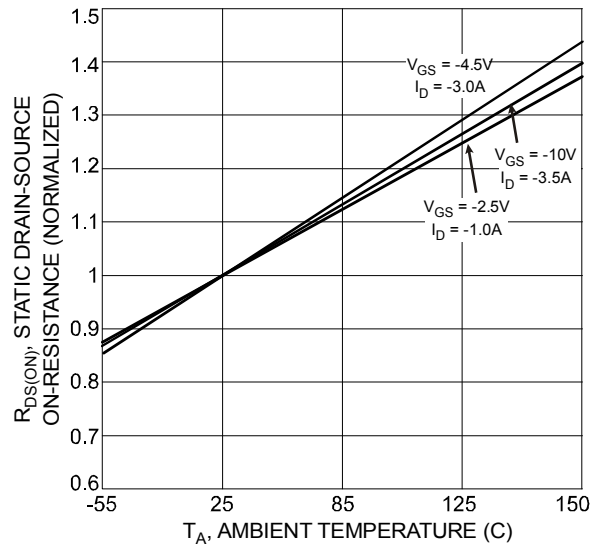


Fig. 6 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

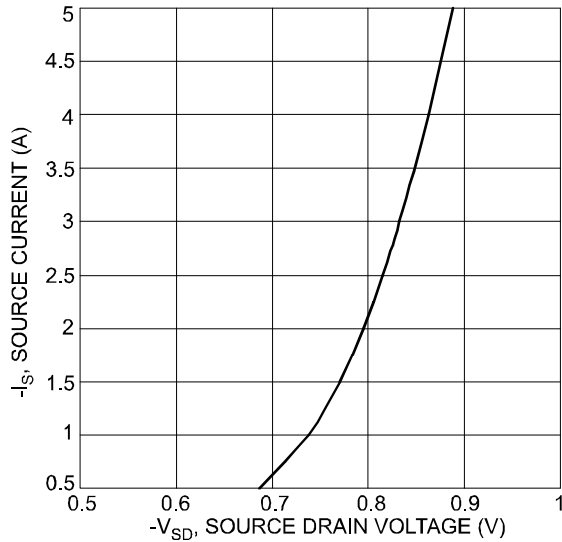
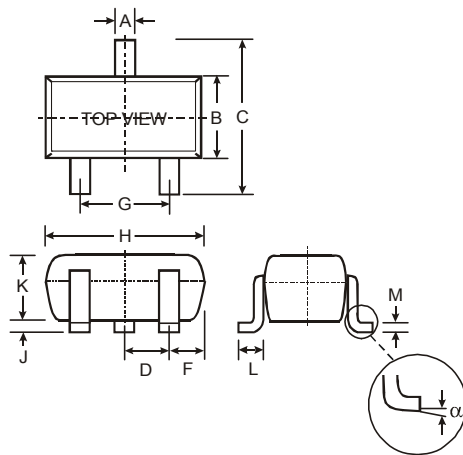


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

Package Outline Dimensions

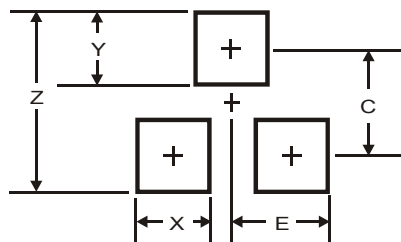
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SOT23		
Dim	Min	Max
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
F	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
All Dimensions in mm		

Suggested Pad Layout

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



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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