

**DMP3120L**

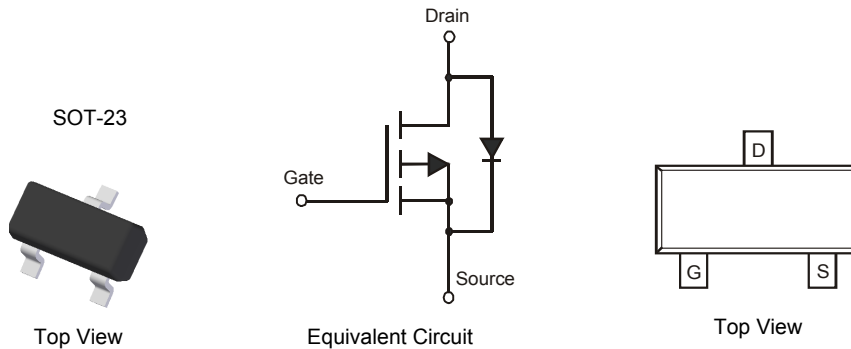
**P-CHANNEL ENHANCEMENT MODE MOSFET**

**Features**

- Low On-Resistance:  
 $R_{DS(ON)} < 120m\Omega @ V_{GS} = -4.5V$   
 $R_{DS(ON)} < 240m\Omega @ V_{GS} = -2.5V$
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

**Mechanical Data**

- Case: SOT-23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification 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
- Terminal Connections: See Diagram
- Weight: 0.008 grams (approximate)



**Maximum Ratings** @ $T_A = 25^\circ C$  unless otherwise specified

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	$V_{DSS}$	-30	V
Gate-Source Voltage	$V_{GSS}$	$\pm 12$	V
Drain Current (Note 1)	$I_D$	-2.8 -2.2	A
		$T_A = 25^\circ C$ $T_A = 70^\circ C$	
Drain Current (Note 1)	$I_{DM}$	-9	A
		Pulsed	
Body-Diode Continuous Current (Note 1)	$I_S$	-2.0	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 1)	$P_D$	1.4	W
Thermal Resistance, Junction to Ambient @ $T_A = 25^\circ C$ (Note 1)	$R_{\theta JA}$	90	$^\circ C/W$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ C$

- Notes: 1. Device mounted on FR-4 PCB.  $t \leq 5$  sec.  
 2. No purposefully added lead.



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**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 4)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	-30	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	-1	μA	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V
Gate-Body Leakage	I <sub>GSS</sub>	—	—	±100	nA	V <sub>GS</sub> = ±12V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 4)</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	-0.6	—	-1.4	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	—	—	120 240	mΩ	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -2.8A V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -1.8A
Forward Transconductance	g <sub>fs</sub>	—	5	—	S	V <sub>DS</sub> = -5V, I <sub>D</sub> = -2.8A
Source-Drain Diode Forward Voltage	V <sub>SD</sub>	—	—	-1.1	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = -2.0A
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	C <sub>iss</sub>	—	285	—	pF	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	56	—	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	—	40	—	pF	
Gate Resistance	R <sub>G</sub>	—	13	—	Ω	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V f = 1.0MHz
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	t <sub>d(on)</sub>	—	5.6	—	ns	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -1A, R <sub>G</sub> = 6.0Ω
Rise Time	t <sub>r</sub>	—	6.8	—		
Turn-Off Delay Time	t <sub>d(off)</sub>	—	35.3	—		
Fall Time	t <sub>f</sub>	—	19.2	—		
Total Gate Charge	Q <sub>G</sub>	—	6.7 3.0	—	nC	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10V, I <sub>D</sub> = -1.0A
Gate-Source Charge	Q <sub>GS</sub>	—	0.8	—		V <sub>DS</sub> = -15V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -1.0A
Gate-Drain Charge	Q <sub>GD</sub>	—	0.5	—		

Notes: 3. Short duration pulse test used to minimize self-heating effect.