



Description

The DMP510DL uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

General Features

$V_{DS} = -50V, I_D = -0.1A$

$R_{DS(ON)} < 5 \Omega @ V_{GS} = -10V$

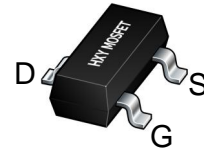
$R_{DS(ON)} < 6 \Omega @ V_{GS} = -4.5V$

Application

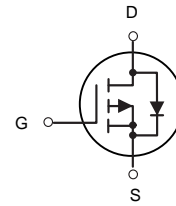
Power switching application

Hard switched and high frequency circuits

DC-DC converter



SOT-23



P-Channel MOSFET

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
DMP510DL	SOT-23	HXY MOSFET	3000

Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-50	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	-0.1	A
Pulsed Drain Current	I_{DM}	-0.5	A
Maximum Power Dissipation	P_D	0.35	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ C$
Thermal Resistance ,Junction-to-Ambient ^(Note 2)	$R_{\theta JA}$	62.5	$^\circ C/W$



Electrical Characteristics (Ta=25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-source breakdown voltage	$V_{GS}=0, I_D=250\mu A$	-50			V
$V_{GS(th)}$	Gate threshold voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.8		-2.0	V
I_{GSS}	Gate-body leakage current	$V_{DS}=0, V_{GS}=\pm 10V$			± 10	μA
I_{DSS}	Zero gate voltage drain current	$V_{DS}=-50V, V_{GS}=0V$			-10	μA
		$V_{DS}=-40V, V_{GS}=0V$			-100	nA
$R_{DS(on)}$	Drain-source on-resistance ^a	$V_{GS}=-10V, I_D=-0.13A$		2	5	Ω
		$V_{GS}=-4.5V, I_D=-0.13A$		2.5	6	Ω
g_{FS}	Forward transconductance ^a	$V_{DS}=-25V, I_D=-0.13A$	50			mS
V_{SD}	Diode forward voltage	$I_S=-0.13A, V_{GS}=0V$			-1.0	V
Dynamic						
C_{iss}	Input capacitance	$V_{DS}=-25V, V_{GS}=0V, f=1MHz$		25		pF
C_{oss}	Output capacitance			15		
C_{rss}	Reverse transfer capacitance ^b			3.5		
Switching^b						
$t_{d(on)}$	Turn-on delay time	$V_{GS}=-10V, V_{DS}=-15V$ $I_D=-200mA, R_{GEN}=25\Omega$		16.7		nS
t_r	Rise time			8.6		
$t_{d(off)}$	Turn-off delay time			17.9		
t_f	Fall time			5.3		

Notes :

a. Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

b. Guaranteed by design, not subject to producing.



Typical Characteristics

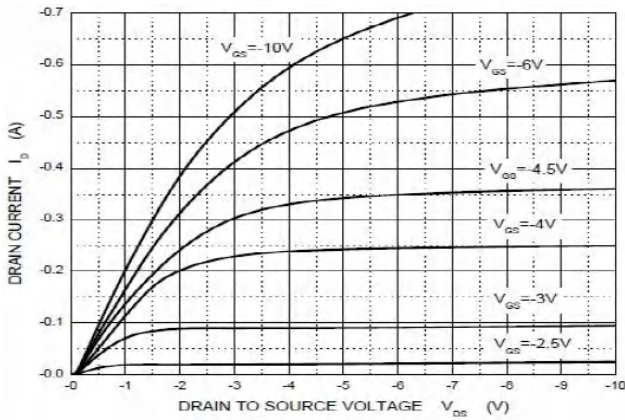


Figure1. Output Characteristics

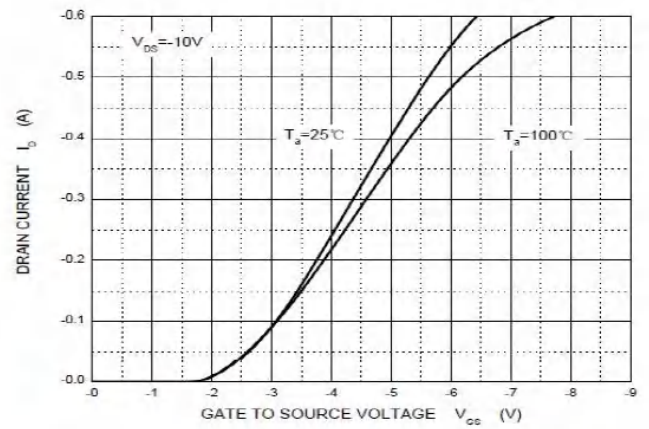


Figure2. Transfer Characteristics

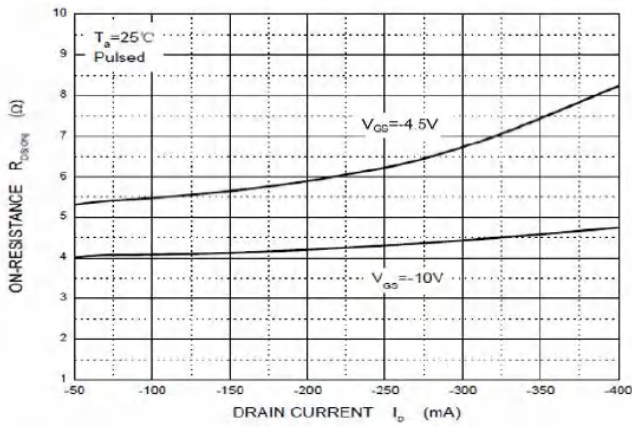


Figure3. Drain-Source on Resistance

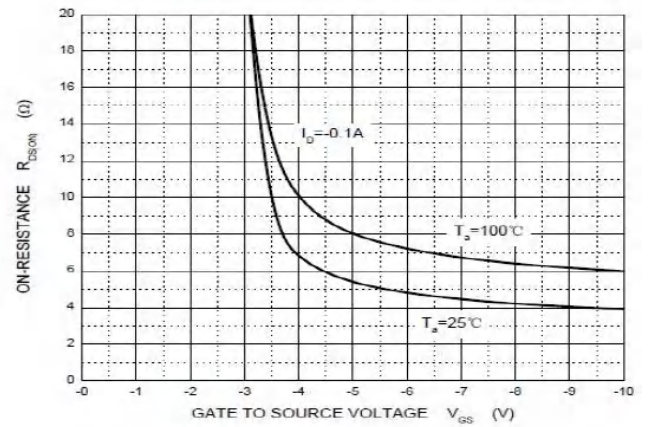


Figure4. Drain-Source on Resistance

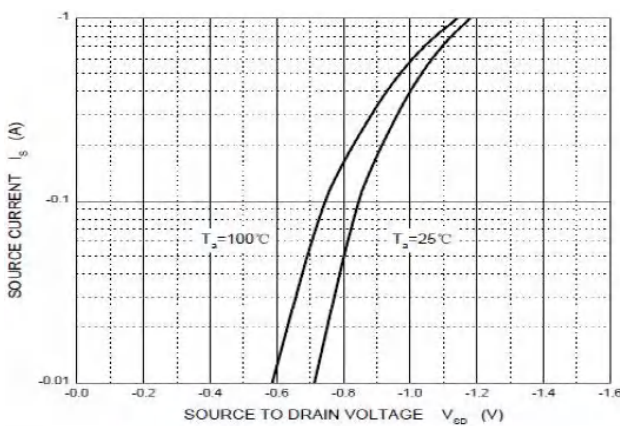


Figure5. Diode Forward Voltage vs. current

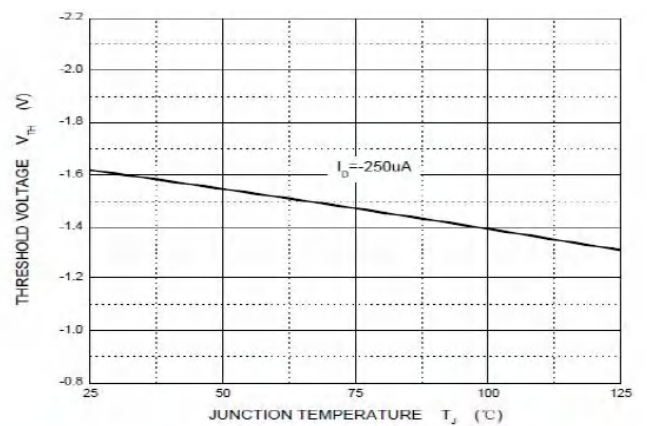
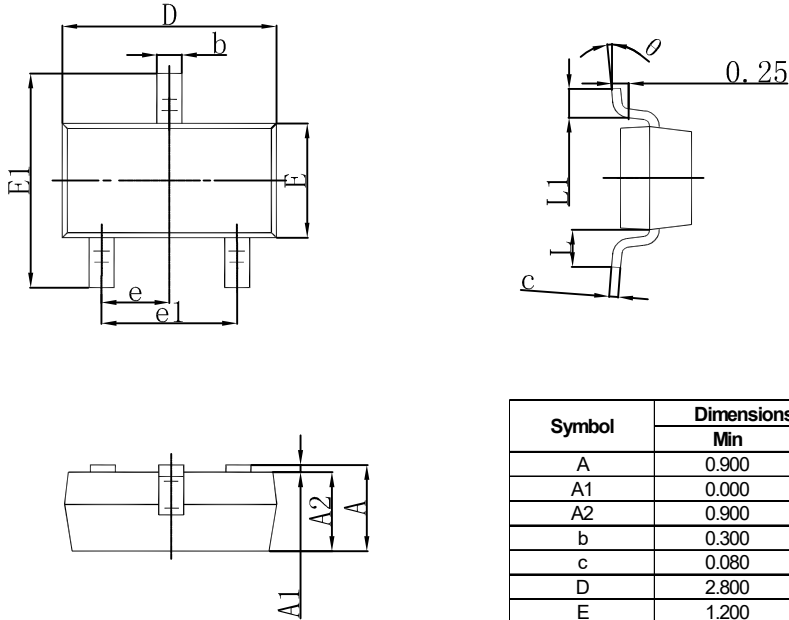


Figure6. Gate Threshold vs. Junction Temperature

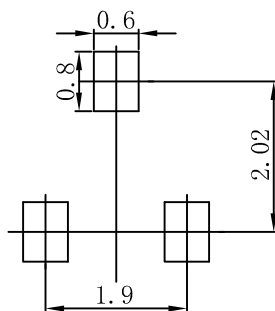


SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.



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