

PW2301L

20V Dual P-Channel MOSFET

$-3A -20V$; $R_{DS(ON)typ}=47m\Omega@-4.5V$, $R_{DS(ON)typ}=67m\Omega@-2.5V$
 $R_{DS(ON)typ}=99m\Omega@-1.8V$

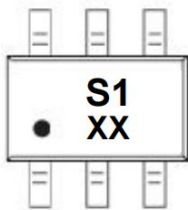
FEATURE

- Trench Technology Power MOSFET
- Low RDS(ON)
- Low Gate Charge
- Low Gate Resistance

Application

- DC/DC Converter
- Load Switch

MARKING:

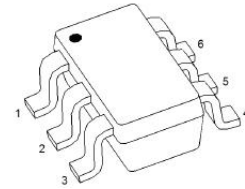


S1 = Device Code

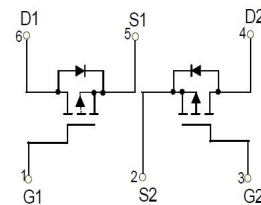
XX = Date Code

PIN1

SOD-23-6L



Schematic diagram



ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	-20	V
Gate - Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ^{1,5}	I_D	-3	A
Power Dissipation ²	I_{DM}	-12	A
Power Dissipation ^{4,5}	P_D	0.96	W
Thermal Resistance from Junction to Ambient ⁵	$R_{\theta JA}$	130	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}C$

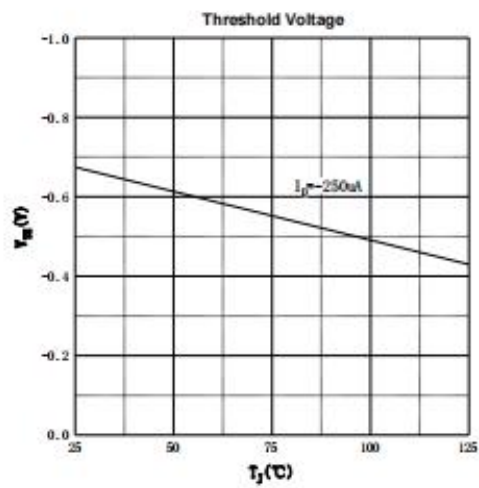
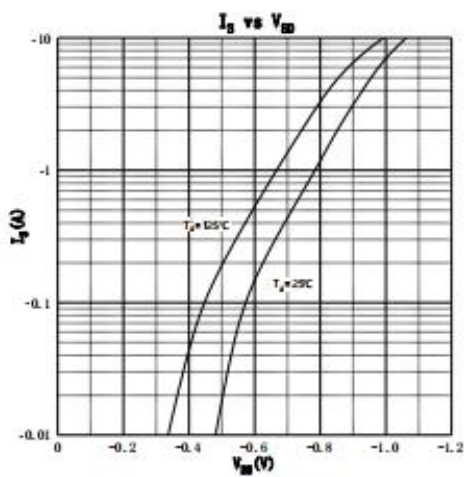
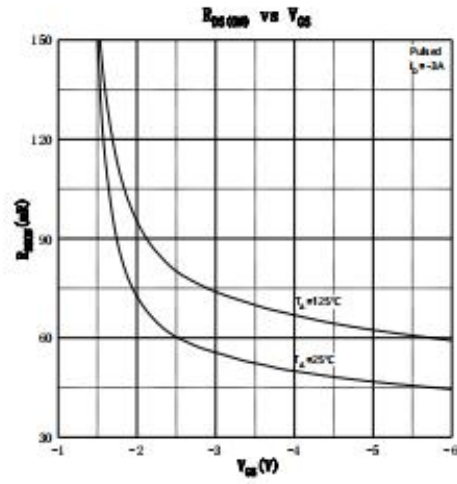
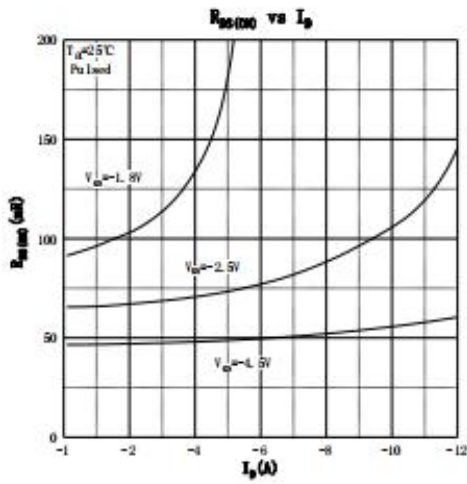
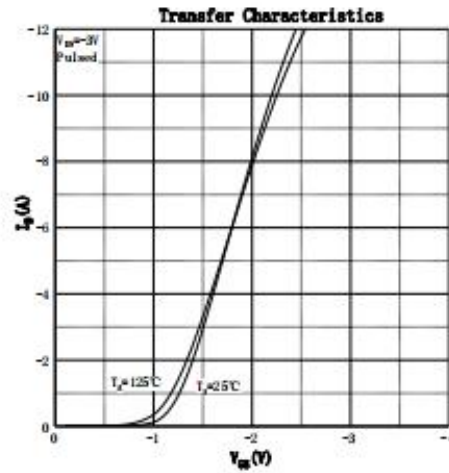
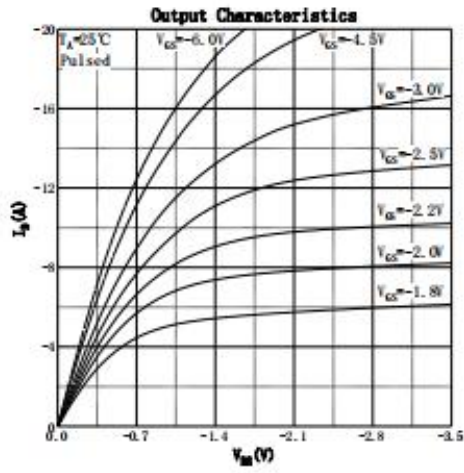
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
OFF CHARACTERISTICS						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±8V, V _{DS} = 0V			±100	nA
ON CHARACTERISTICS³						
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.7	-1.0	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -2.5A		47	70	mΩ
		V _{GS} = -2.5V, I _D = -2.0A		67	100	
		V _{GS} = -1.8V, I _D = -1.6A		99	150	
Forward tranconductance	g _{FS}	V _{DS} = -4.5V, I _D = -2A	3			S
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		378		pF
Output Capacitance	C _{oss}			84		
Reverse Transfer Capacitance	C _{rss}			76		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		5		Ω
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q _g	V _{DS} = -10V, V _{GS} = -4.5V, I _D = -3A		5		nC
Gate-source Charge	Q _{gs}			0.5		
Gate-drain Charge	Q _{gd}			1.6		
Turn-on delay time	t _{d(on)}	V _{DD} = -10V, V _{GS} = -4.5V, R _L = 4Ω, R _G = 3Ω		9		nS
Turn-on rise time	t _r			9		
Turn-off delay time	t _{d(off)}			50		
Turn-off fall time	t _f			20		
SOURCE-DRAIN DIODE CHARACTERISTICS						
Diode Forward Voltage ³	V _{SD}	V _{GS} = 0V, I _S = -1A			-1.2	V

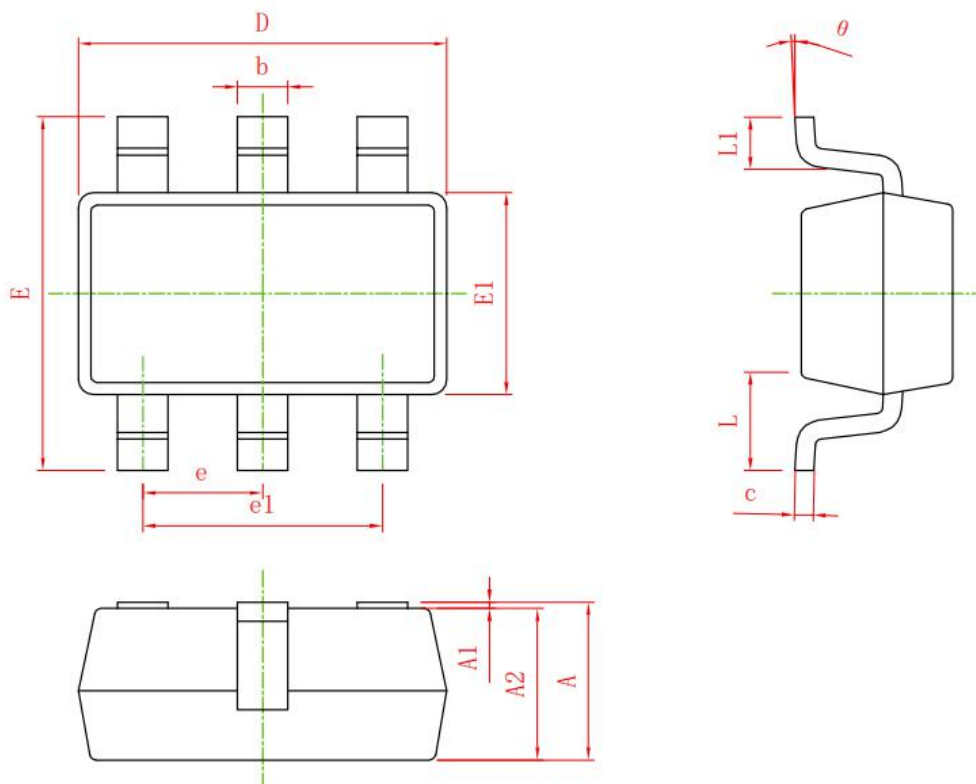
Notes :

- 1.The maximum current rating is limited by package.
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 4.The power dissipation PD is limited by T_J(MAX) = 150°C.
- 5.Device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C.

Typical Characteristics



SOT-23-6L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inche	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950 (BSC)		0.037 (BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
L1	0.600REF.		0.024REF.	
θ	0°	8°	0°	8°