

PW3001

30V N-Channel MOSFET

1.4A 30V; $R_{DS(ON)typ}=74m\Omega@10V$, $R_{DS(ON)typ}=103m\Omega@4.5V$

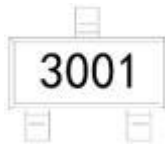
FEATURE

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge

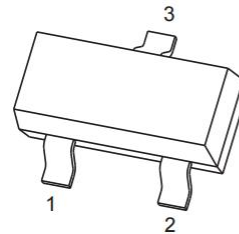
Application

- Load Switching
- Power Management

MARKING:

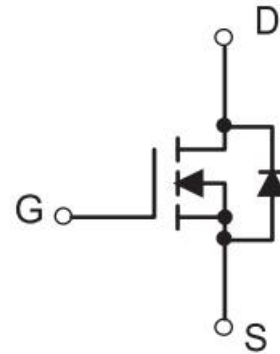


SOT-23



1. GATE
2. SOURCE
3. DRAIN

Schematic diagram



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

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	30	V
Gate - Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ^{1,5}	I_D	1.4	A
Pulsed Drain Current ²	I_{DM}	6.0	A
Power Dissipation ^{4,5}	P_D	1.25	W
Thermal Resistance from Junction to Ambient ⁵	$R_{\theta JA}$	100	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$

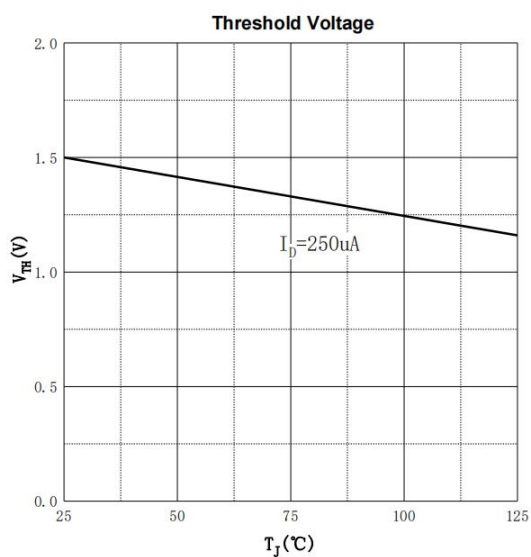
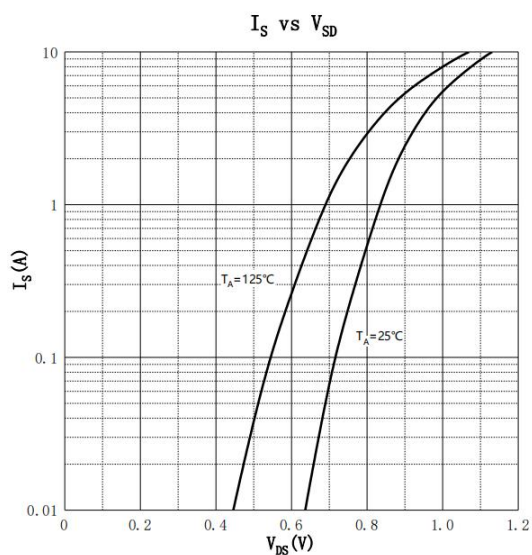
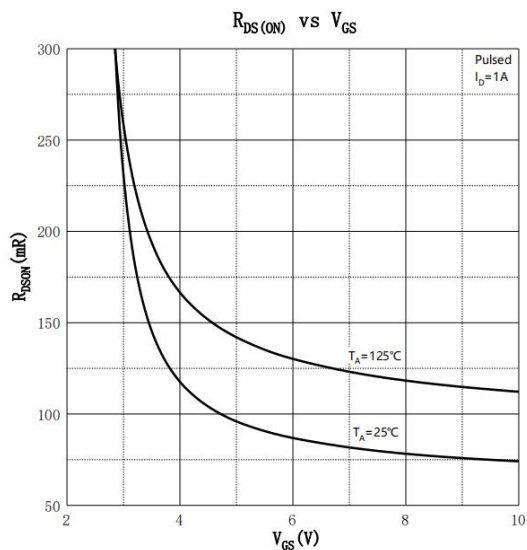
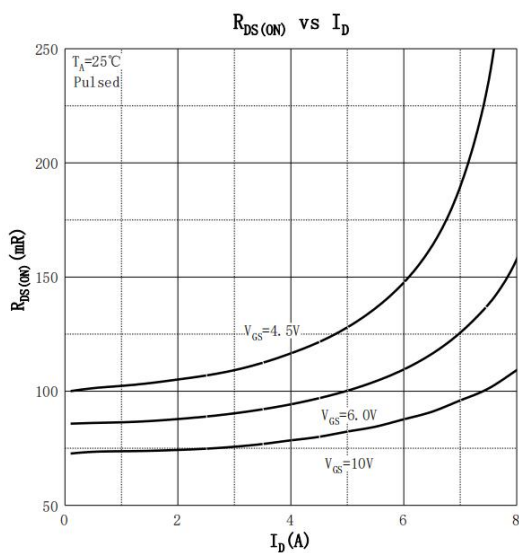
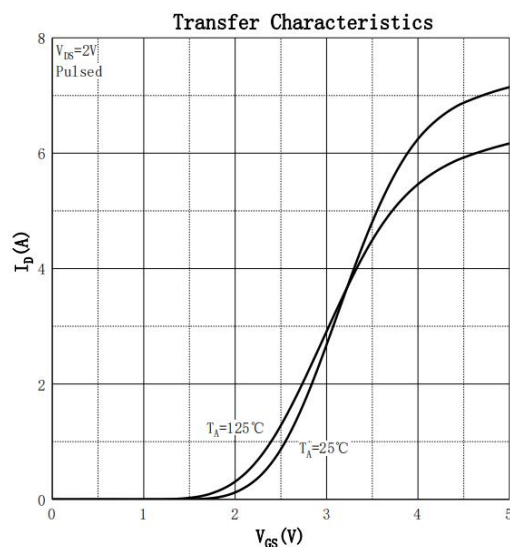
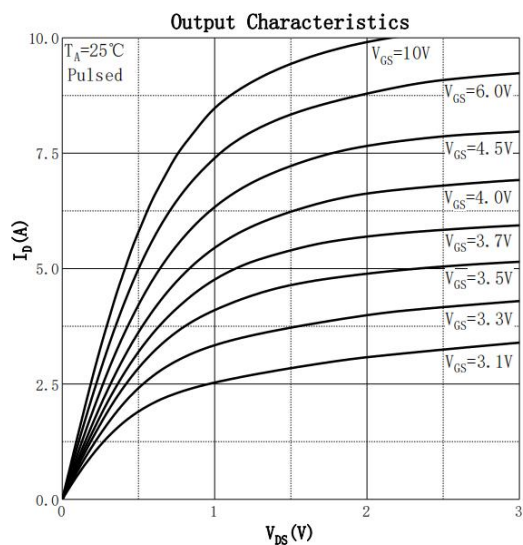
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics³						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0	1.5	3.0	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 1.0A		74	110	mΩ
		V _{GS} = 4.5V, I _D = 1.0A		103	135	
Forward Transconductance	g _{FS}	V _{DS} = 5V, I _D = 1.0A	3			S
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz	50	100	150	pF
Output Capacitance	C _{oss}		8.5	17	25.5	
Reverse Transfer Capacitance	C _{rss}		6	12	18	
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz	6	12	18	Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 15V, V _{GS} = 10V, I _D = 1.0A		5		nC
Gate-source Charge	Q _{gs}			1		
Gate-drain Charge	Q _{gd}			1.5		
Turn-on Delay Time	t _{d(on)}	V _{DD} = 15V, V _{GS} = 10V, R _L = 15Ω, R _G = 3Ω		3.5		ns
Turn-on Rise Time	t _r			1.5		
Turn-off Delay Time	t _{d(off)}			12		
Turn-off Fall Time	t _f			2		
Source-Drain Diode characteristics						
Diode Forward Voltage ³	V _{SD}	V _{GS} = 0V, I _S = 1.0A			1.2	V

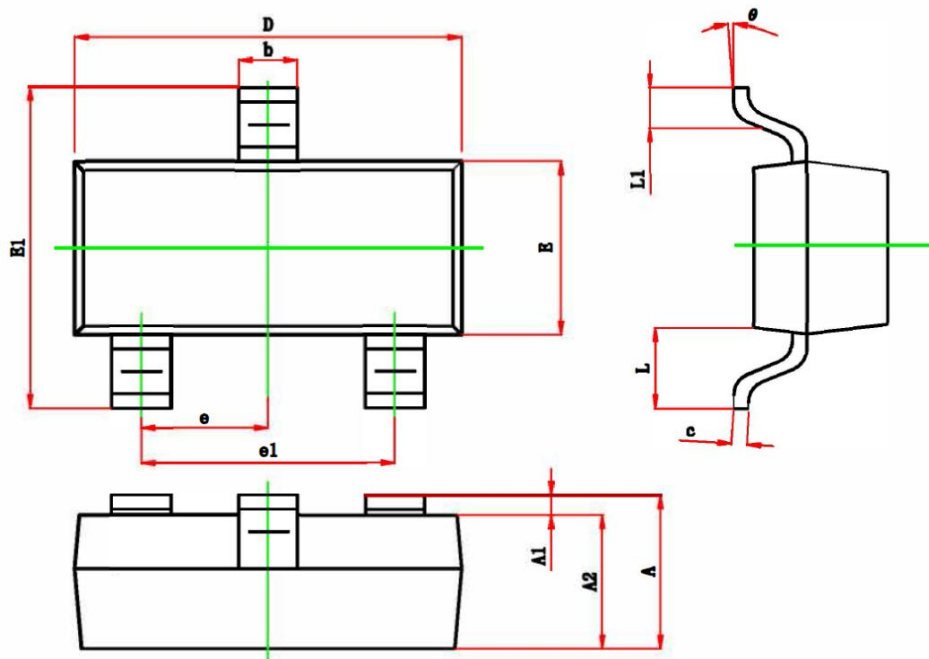
Notes:

- 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 Electrical and Thermal Characteristics



SOT-23 Package Information



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 REF.		0.037 REF.	
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°