



#### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
60V	70mΩ@10V	3A
	82mΩ@4.5V	

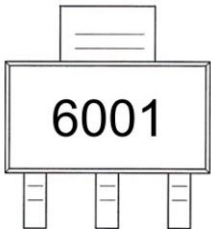
#### Feature

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

#### Application

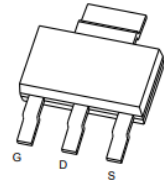
- Load Switch
- PWM

#### MARKING:

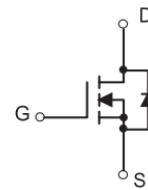


6001 = Device Code

#### SOT-223



#### Schematic diagram



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

Parameter	Symbol	Value	Unit
Drain - Source Voltage	$V_{DS}$	60	V
Gate - Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	3	A
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	10	A
Power Dissipation <sup>3</sup>	$P_D$	2	W
Thermal Resistance from Junction to Ambient <sup>4</sup>	$R_{\theta JA}$	100	°C/W
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-55~ +150	°C

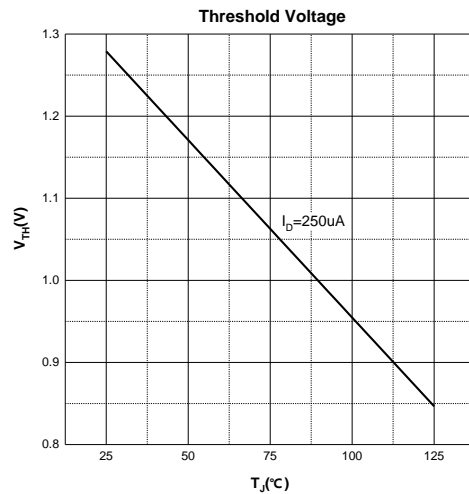
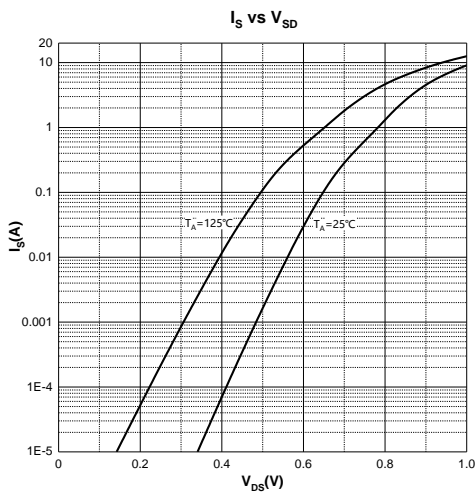
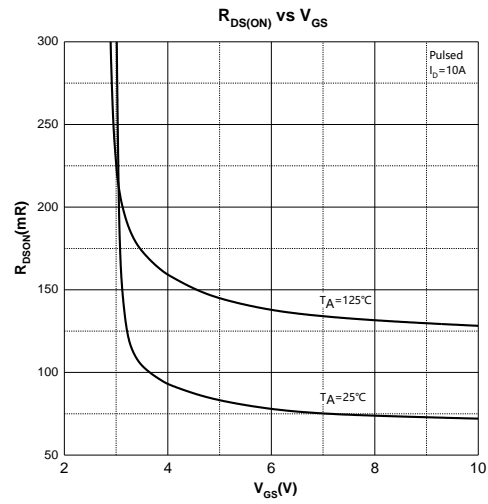
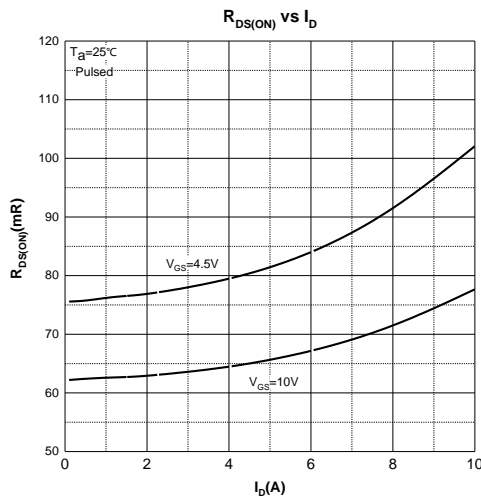
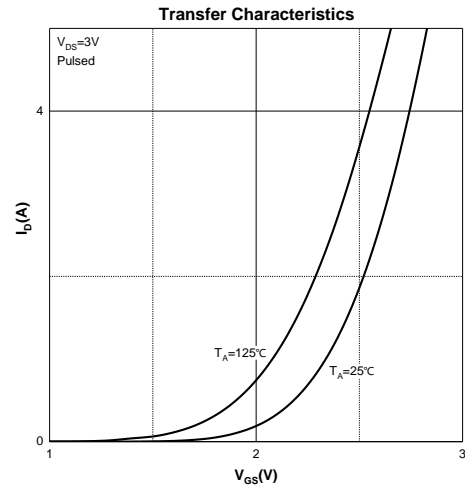
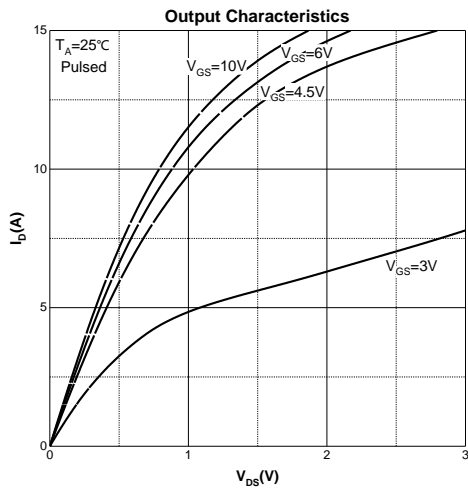
**MOSFET ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain - Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	60			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 60V, V <sub>GS</sub> = 0V			1	μA
Gate - Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±100	nA
<b>On Characteristics<sup>2</sup></b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.5	1.2	2	V
Drain-source On-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 3A		70	90	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3A		82	125	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> = 2A		2.5		S
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V, f = 1MHz		414.3		pF
Output Capacitance	C <sub>oss</sub>			29.05		
Reverse Transfer Capacitance	C <sub>rss</sub>			23.06		
Gate Resistance	R <sub>g</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz		2.35		Ω
<b>Switching Characteristics</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3A		7		nC
Gate-source Charge	Q <sub>gs</sub>			1.2		
Gate-drain Charge	Q <sub>gd</sub>			1.5		
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 30V, V <sub>GS</sub> = 10V, R <sub>L</sub> = 10Ω R <sub>G</sub> = 3Ω		4.7		ns
Turn-on Rise Time	t <sub>r</sub>			1.8		
Turn-off Delay Time	t <sub>d(off)</sub>			20		
Turn-off Fall Time	t <sub>f</sub>			17.5		
<b>Source - Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>2</sup>	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 3A			1.2	V

Notes :

- 1.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 2.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 3.The power dissipation P<sub>D</sub> is limited by T<sub>J(MAX)</sub> = 150°C.
- 4.Device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub> =25°C.

**Typical Characteristics**



**SOT-223 Package Information**

尺寸 标注	最小 (mm)	最大 (mm)	尺寸 标注	最小 (mm)	最大 (mm)
A	6.40	6.60	C	1.45	1.65
e	2.286 (BSC)		C1	0.03	0.15
b	0.66	0.76	C2	0.20	0.35
b1	2.95	3.05	L	0.76	1.16
B	3.40	3.60	L1	1.70	1.80
B1	6.85	7.15	$\theta$	0°	8°

