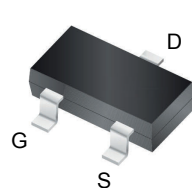
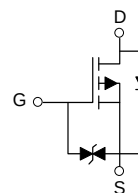


Main Product Characteristics

$V_{(BR)DSS}$	-20V
$R_{DS(ON)}$	520mΩ (Max.)
I_D	-0.66A



SOT-523



Schematic Diagram



Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery

Description

The GSFAT0201 utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supplies and a wide variety of other applications.

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Typical Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ¹	I_D	-0.66	A
Pulsed Drain Current ($t_p=10\mu\text{s}$)	I_{DM}	-1.2	A
Power Dissipation ¹	P_D	150	mW
Thermal Resistance from Junction to Ambient ¹	$R_{\theta JA}$	833	$^{\circ}\text{C/W}$
Operation Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^{\circ}\text{C}$
Lead Temperature for Soldering Purposes (1/8" from Case for 10s)	T_L	260	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
On / 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} =-20V, V _{GS} =0V	-	-	-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V	-	-	±20	μA
Gate Threshold Voltage ²	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.35	-	-1.1	V
Drain-Source On-Resistance ²	R _{DS(on)}	V _{GS} =-4.5V, I _D =-1A	-	450	520	mΩ
		V _{GS} =-2.5V, I _D =-0.8A	-	570	700	mΩ
		V _{GS} =-1.8V, I _D =-0.5A	-	950	-	mΩ
Forward Transconductance ²	g _{fs}	V _{DS} =-10V, I _D =-0.54A	-	1.2	-	S
Dynamic and Switching Characteristics						
Input Capacitance ⁴	C _{iss}	V _{DS} =-16V, V _{GS} =0V, f=1MHz	-	113	170	pF
Output Capacitance ⁴	C _{oss}		-	15	25	
Reverse Transfer Capacitance ⁴	C _{rss}		-	9	15	
Turn-On Delay Time ^{3,4}	t _{d(on)}	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-200mA, R _{GEN} =10Ω	-	9	-	nS
Turn-On Rise Time ^{3,4}	t _r		-	5.8	-	
Turn-Off Delay Time ^{3,4}	t _{d(off)}		-	32.7	-	
Turn-Off Fall Time ^{3,4}	t _f		-	20.3	-	
Drain-Source Ratings and Characteristics						
Diode Forward Voltage	V _{SD}	I _S =-0.5A, V _{GS} =0V	-	-	-1.2	V

Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse test: pulse width=300 μs , duty cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producing.

Ratings and Characteristics Curves

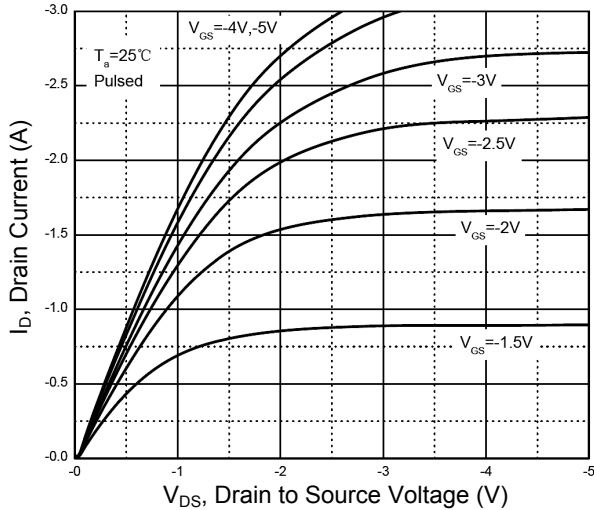


Figure 1. Output Characteristics

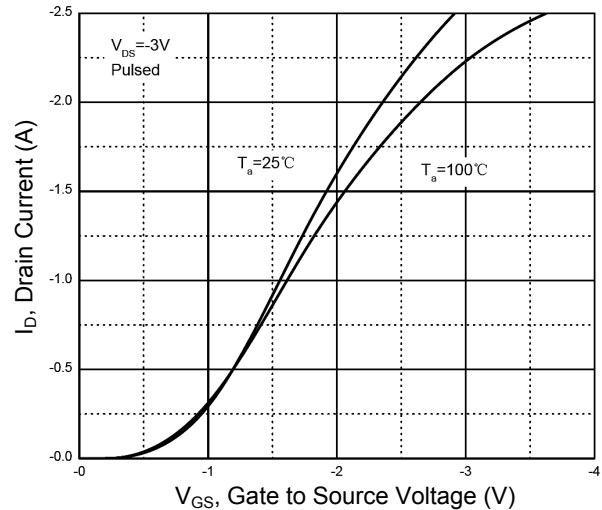


Figure 2. Transfer Characteristics

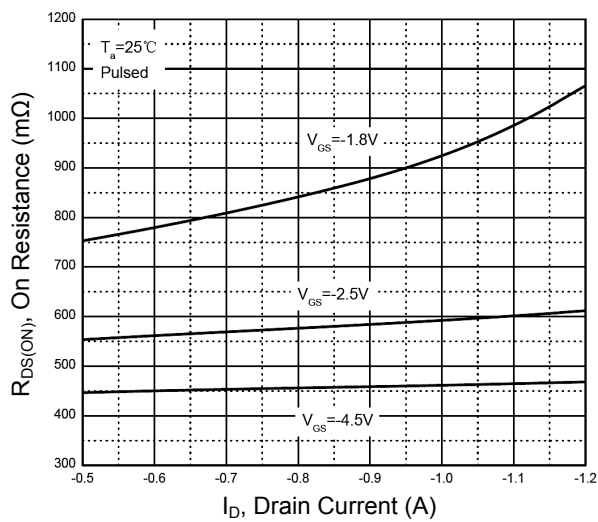


Figure 3. $R_{DS(ON)}$ vs. I_D

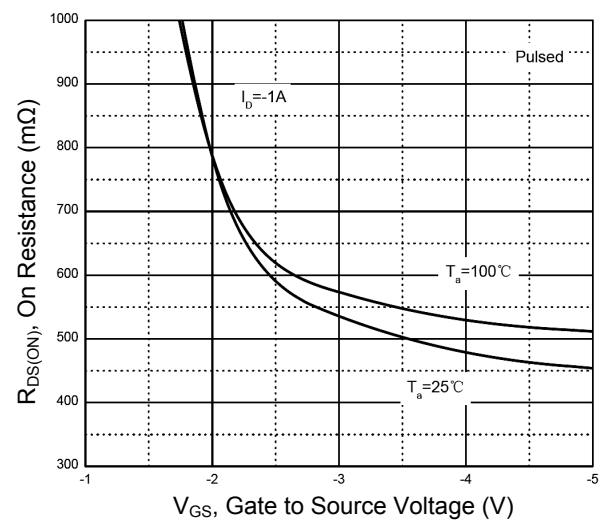


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

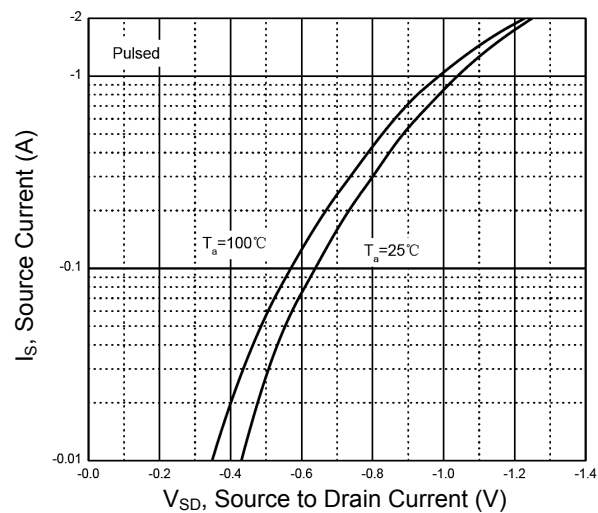


Figure 5. I_S vs. V_{SD}

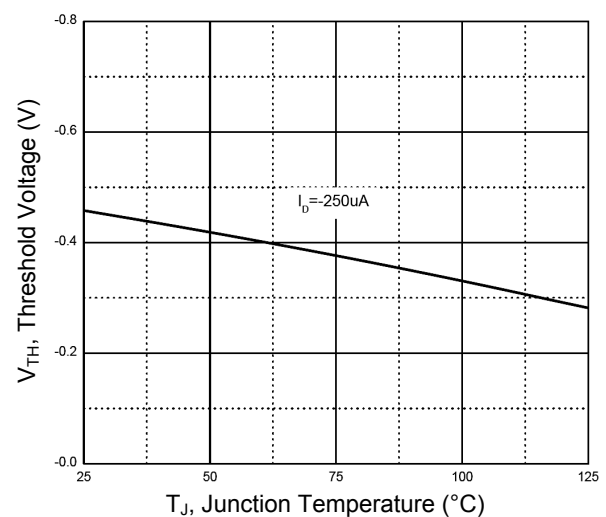
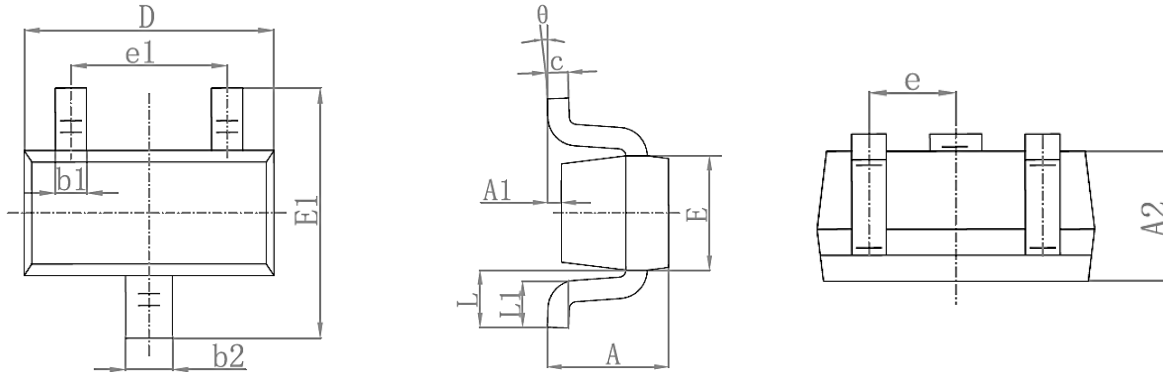


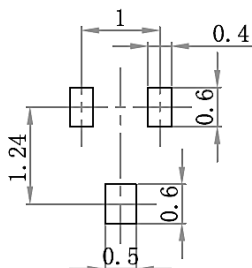
Figure 6. Threshold Voltage

Package Outline Dimensions (SOT-523)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Recommended 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.

Order Information

Device	Package	Marking	Carrier	Quantity
GSFAT0201	SOT-523	39K	Tape & Reel	3,000 Pcs / Reel

For more information, please contact us at: inquiry@goodarksemi.com