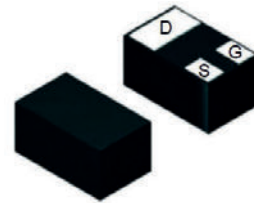
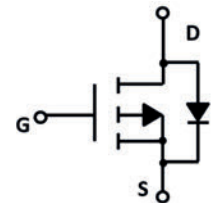


### Main Product Characteristics

$BV_{DSS}$	-20V
$R_{DS(ON)}$	130m $\Omega$ (Max.)
$I_D$	-2A



SOT-883



Schematic Diagram

### Features and Benefits

- Advanced MOSFET process technology
- ESD Protection
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



### Description

The GSFW0201 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	Max.	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 10$	V
Continuous Drain Current ( $T_A=25^\circ\text{C}$ )	$I_D$	-2.0	A
Continuous Drain Current ( $T_A=75^\circ\text{C}$ )		-1.5	A
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	-7.9	A
Total Power Dissipation @ $T_A=25^\circ\text{C}^2$	$P_D$	0.76	W
Thermal Resistance Junction-to-Ambient <sup>2</sup>	$R_{\theta JA}$	165	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J/T_{STG}$	-55 to +150	$^\circ\text{C}$

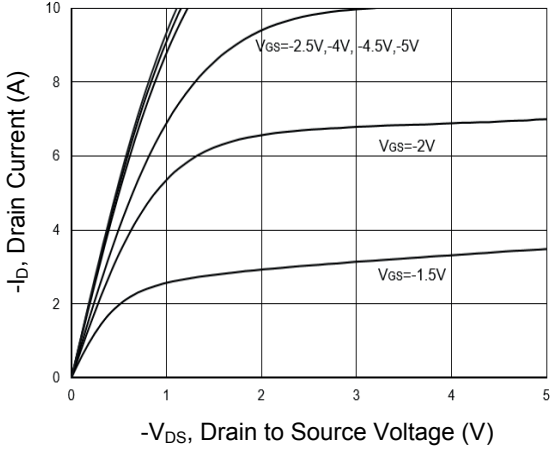
Note:

1. Pulse test: pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .
2. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch. With 2oz Copper,  $t \leq 10\text{s}$

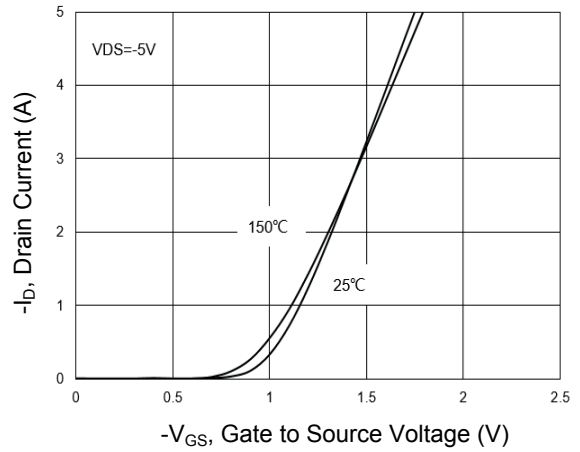
**Electrical Characteristics** ( $T_J=25^{\circ}\text{C}$  unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>On / Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-20V, V_{GS}=0V, T_C=25^{\circ}\text{C}$	-	-	-1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.45	-	-0.85	V
Static Drain-Source on-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-1A$	-	100	130	m $\Omega$
		$V_{GS}=-2.5V, I_D=-1A$	-	155	200	
<b>Dynamic and Switching Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=-10V, V_{GS}=0V, F=1\text{MHz}$	-	220	-	pF
Output Capacitance	$C_{oss}$		-	26	-	
Reverse Transfer Capacitance	$C_{rss}$		-	20	-	
Total Gate Charge	$Q_g$	$V_{GS}=-4.5V, V_{DS}=-10V, I_D=-2A$	-	3.5	-	nC
Gate Source Charge	$Q_{gs}$		-	0.2	-	
Gate Drain Charge	$Q_{gd}$		-	0.4	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=-4.5V, V_{DD}=-10V, I_D=-2A, R_{GEN}=2.5\Omega$	-	21.6	-	nS
Turn-on Rise Time	$t_r$		-	19	-	
Turn-off Delay Time	$t_{d(off)}$		-	129	-	
Turn-off Fall Time	$t_f$		-	50	-	
<b>Source-Drain Ratings and Characteristics</b>						
Diode Forward Voltage	$V_{SD}$	$I_S=-1A, V_{GS}=0V$	-	-0.9	-1.2	V
Maximum Body-Diode Continuous Current	$I_S$	-	-	-	-2	A

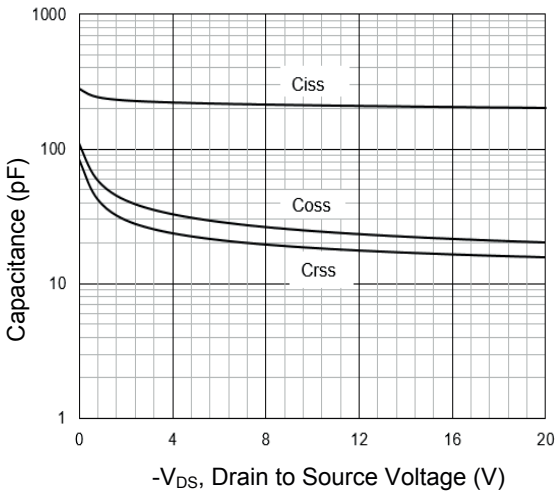
**Typical Performance Characteristics**



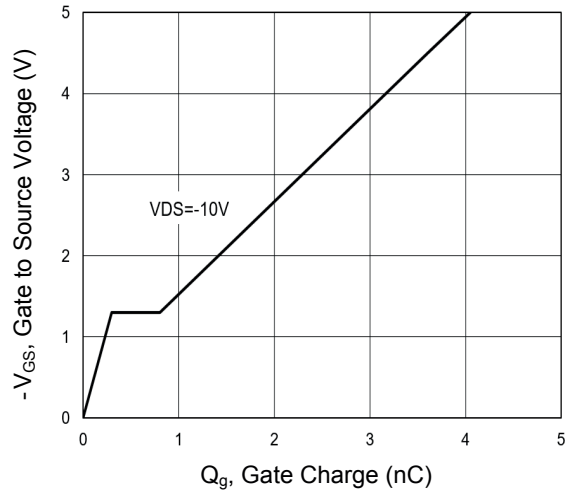
**Figure 1. Output Characteristics**



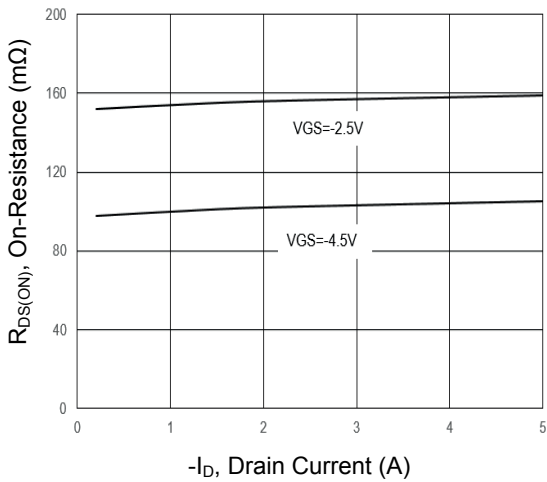
**Figure 2. Transfer Characteristics**



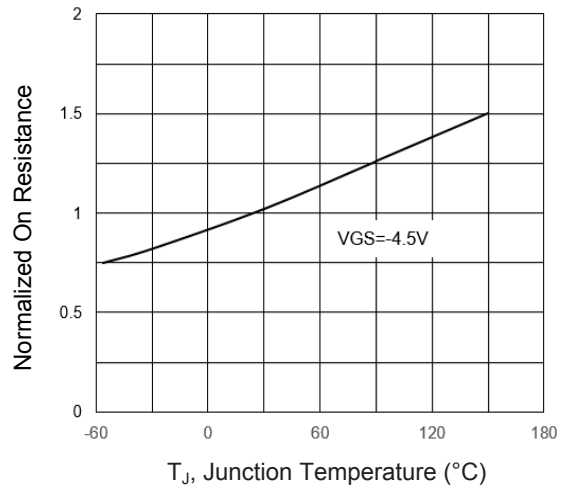
**Figure 3. Capacitance Characteristics**



**Figure 4. Gate Charge**

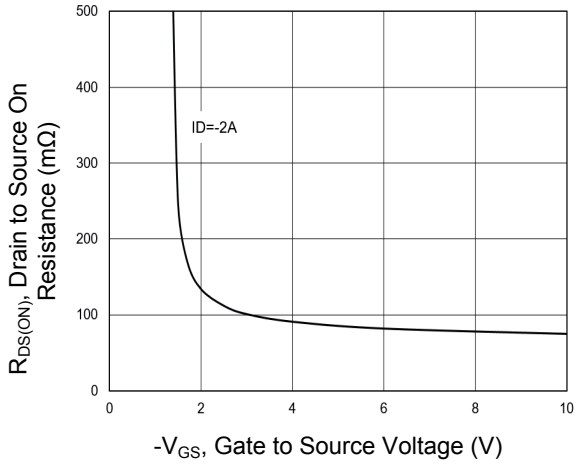


**Figure 5. Drain to Source on Resistance**

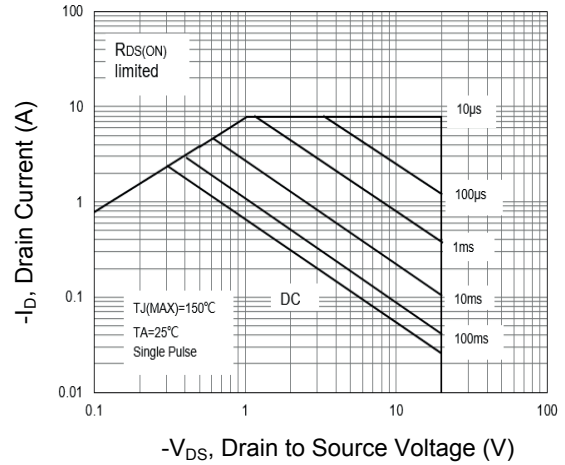


**Figure 6. Normalized  $R_{DS(ON)}$  vs.  $T_J$**

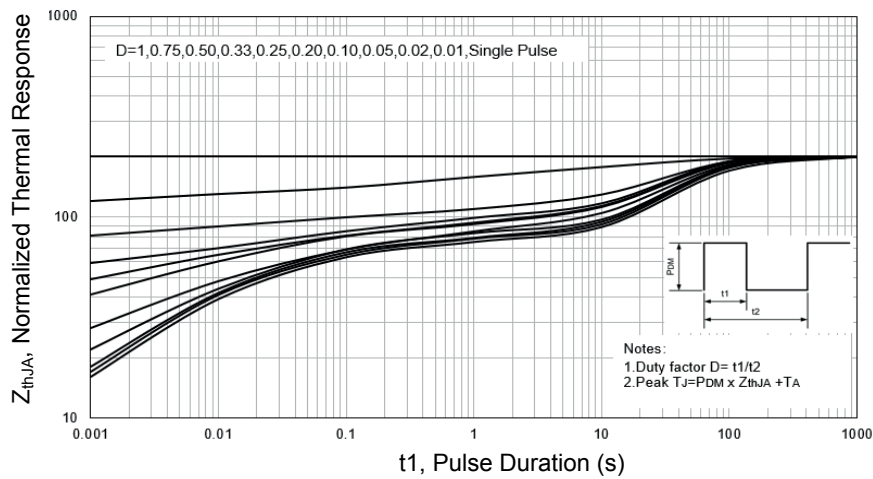
**Typical Performance Characteristics**



**Figure 7. Typical Drain to Source ON Resistance vs. Gate Voltage and Drain Current**

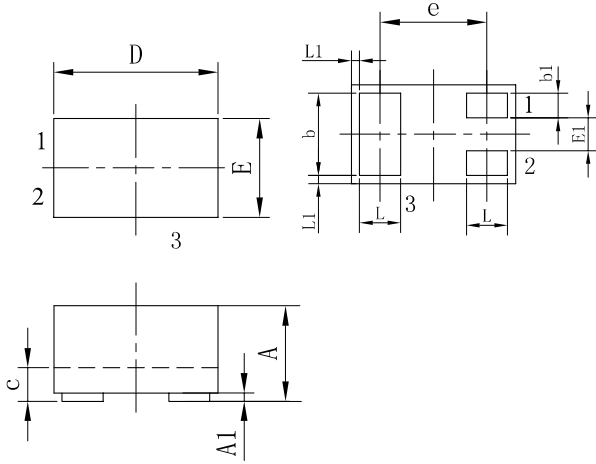


**Figure 8. Safe Operation Area**



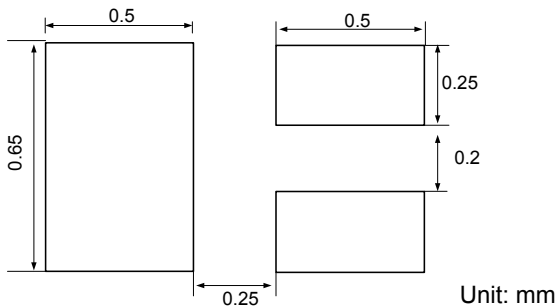
**Figure 9. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient**

### Package Outline Dimensions (SOT-883)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.45	0.55	0.018	0.022
A1	0.00	0.05	0.000	0.002
b	0.45	0.55	0.018	0.022
b1	0.10	0.20	0.004	0.008
c	0.12	0.18	0.005	0.007
D	0.95	1.05	0.037	0.041
e	0.675 BSC		0.027 BSC	
E	0.55	0.65	0.022	0.026
E1	0.15	0.25	0.006	0.010
L	0.25	0.35	0.001	0.014
L1	0.05 REF		0.002 REF	

### Recommended Pad Layout



### Order Information

Device	Package	Marking	Carrier	Quantity
GSFW0201	SOT-883	M9	Tape & Reel	10,000 pcs / 7" Reel

For more information, please contact us at: [inquiry@goodarksemi.com](mailto:inquiry@goodarksemi.com)