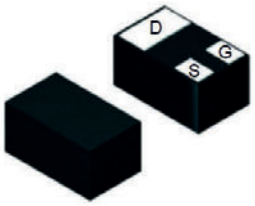
GOOD-ARK SEMICONDUCTOR

GSFW0200

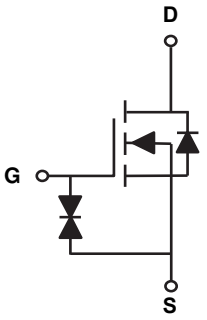
20V N-Channel MOSFET

Main Product Characteristics

$V_{(BR)DSS}$	20V
$R_{DS(ON)}$	380mΩ (max.)
I_D	0.75A



SOT-883



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 GSFW0200 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°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current-Continuous[1]	I_D	0.75	A
Pulsed Drain Current	I_{DM}	1.8	A
Power Dissipation[1]	P_D	0.15	W
Thermal Resistance from Junction to Ambient[1]	$R_{\theta JA}$	833	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{stg}	-55 to +150	℃

Electrical Characteristics (@ 25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
On / Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	20	-	-	V
Gate-Threshold Voltage[2]	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.35	-	1.1	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	-	-	1.0	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±10V, V_{DS}=0V	-	-	±20	uA
Drain-Source On-Resistance[2]	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=0.65A	-	-	380	mΩ
		V_{GS}=2.5V, I_D=0.55A	-	-	450	mΩ
		V_{GS}=1.8V, I_D=0.45A	-	-	800	mΩ
Forward Transconductance	gfs	V_{DS} =10V, I_D =0.8A	-	1.6	-	S
Dynamic and Switching Characteristics[4]						
Input Capacitance	C_{iss}	V_{DS}=16V, V_{GS}=0V, F=1MHz	-	79	120	pF
Output Capacitance	C_{oss}		-	13	30	
Reverse Transfer Capacitance	C_{rss}		-	9	10	
Turn-on Delay Time[3]	$t_{d(on)}$	V_{GS}=4.5V, V_{DS}=10V, I_D=0.5A, R_{GEN}=10Ω	-	6.7	-	nS
Turn-on Rise Time[3]	t_r		-	4.8	-	
Turn-off Delay Time[3]	$t_{d(off)}$		-	17.3	-	
Turn-off Fall Time[3]	t_f		-	7.4	-	
Source-Drain Ratings and Characteristics[4]						
Diode Forward Voltage[3]	V_{SD}	I_S=0.15A, V_{GS}=0V	-	-	1.2	V

Notes:

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

Typical Characteristics

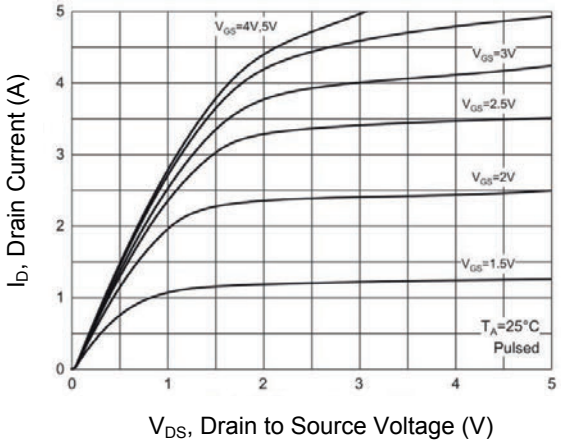


Figure 1. Output Characteristics

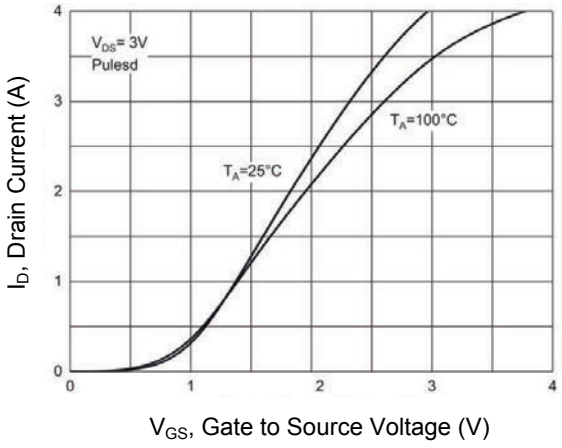


Figure 2. Transfer Characteristics

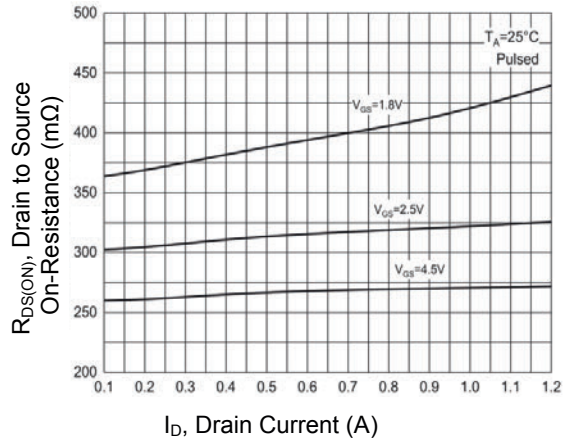


Figure 3. On-Resistance vs. Drain Current

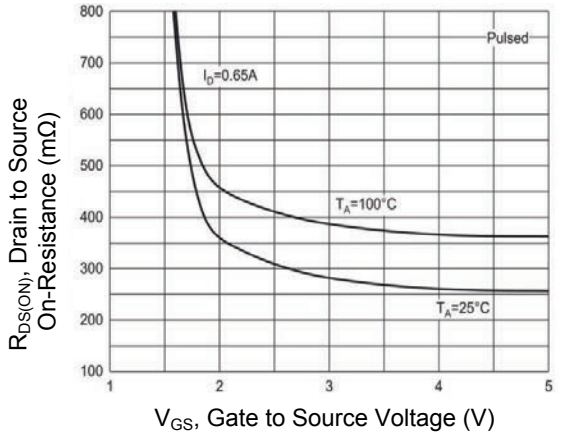


Figure 4. On-Resistance vs. Gate-Source Voltage

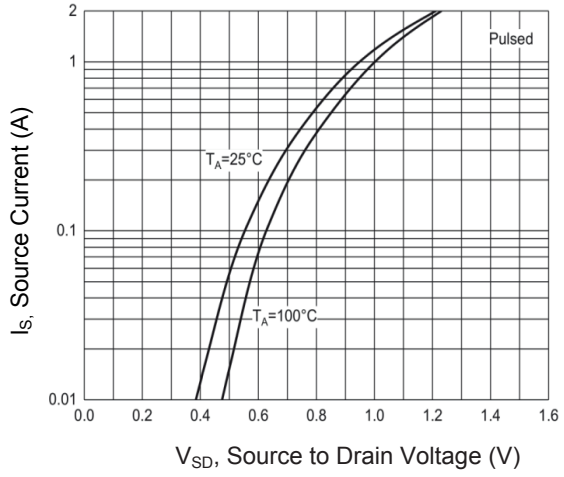


Figure 5. Source Current vs. Source to Drain Voltage

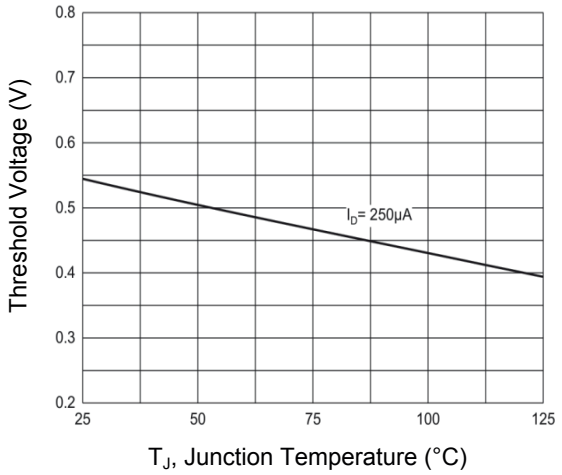
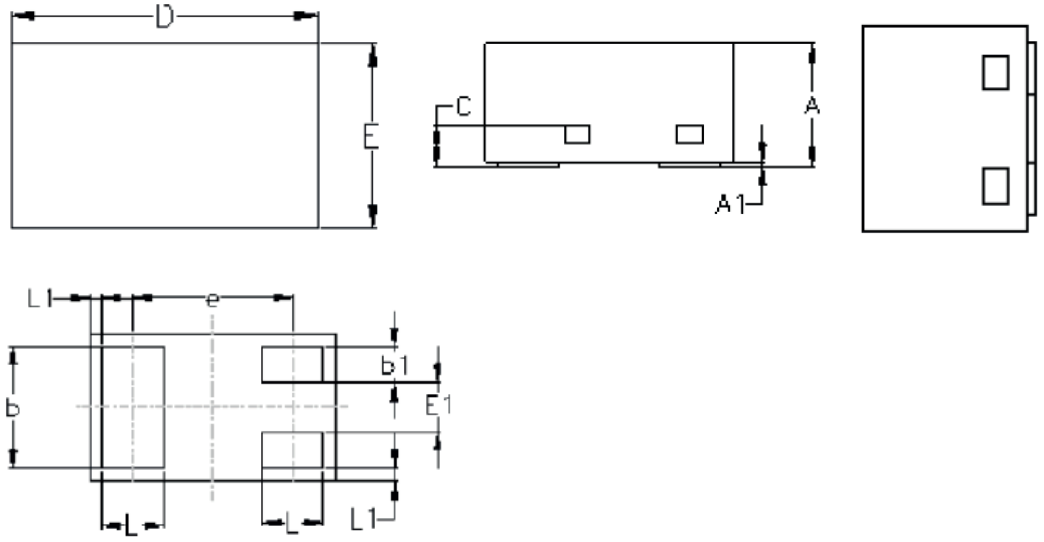


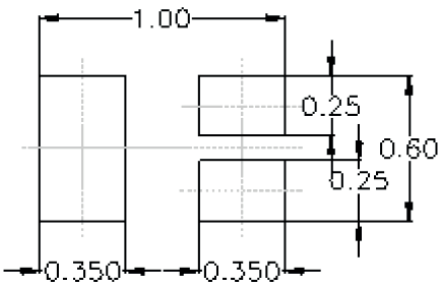
Figure 6. Threshold Voltage

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	0.55	0.65	0.022	0.026
E1	0.15	0.25	0.006	0.010
e	0.65 BSC		0.026 BSC	
L	0.20	0.30	0.008	0.012
L1	0.05 REF		0.002 REF	

Recommended Pad Layout



Unit: mm

Order Information

Device	Package	Marking	Carrier	Quantity
GSFW0200	SOT-883	34	Tape & Reel	10,000 pcs / 7" Reel