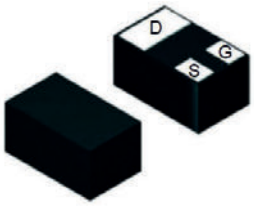
GOOD-ARK SEMICONDUCTOR

GSFW02066

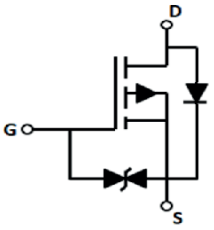
20V P-Channel MOSFET

Main Product Characteristics

BV_{DSS}	-20V
$R_{DS(ON)}$	640mΩ (max.)
I_D	-0.66A



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 GSFW02066 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}	±8	V
Drain Current-Continuous[1]	I_D	-0.66	A
Pulsed Drain Current	I_{DM}	-2.1	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	-0.45	-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}=±8V, V_{DS}=0V	-	-	±10	uA
Drain-Source On-Resistance[2]	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-0.55A	-	530	640	mΩ
		V_{GS}=-2.5V, I_D=-0.45A	-	730	950	mΩ
		V_{GS}=-1.8V, I_D=-0.35A	-	1300	1950	mΩ
Forward Transconductance	gfs	V_{DS}=-10V, I_D=-0.54A	-	1.2	-	S
Dynamic and Switching Characteristics						
Input Capacitance[4]	C_{iss}	V_{DS}=-10V, V_{GS}=0V, F=1MHz	-	58	-	pF
Output Capacitance[4]	C_{oss}		-	5.7	-	
Reverse Transfer Capacitance[4]	C_{rss}		-	4.4	-	
Turn-on Delay Time[3,4]	$t_{d(on)}$	V_{GS}=-10V, V_{DD}=-4.5V, I_D=-1.33A, R_{GEN}=3Ω	-	0.4	-	nS
Turn-on Rise Time[3,4]	t_r		-	0.06	-	
Turn-off Delay Time[3,4]	$t_{d(off)}$		-	0.02	-	
Turn-off Fall Time[3,4]	t_f		-	0.8	-	
Source-Drain Ratings and Characteristics						
Diode Forward Voltage	V_{SD}	I_S=-0.5A, V_{GS}=0V	-	-	-1.2	V

Note:

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.

Typical Performance Characteristics

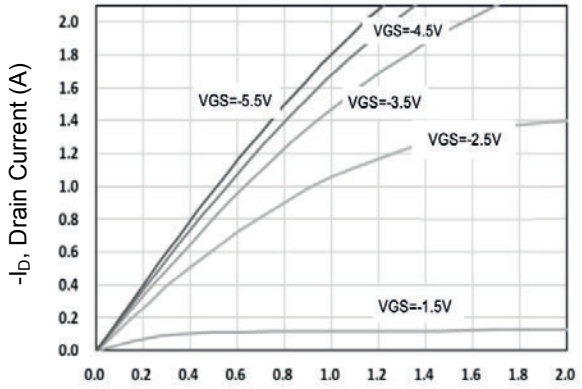


Figure 1. Output Characteristics

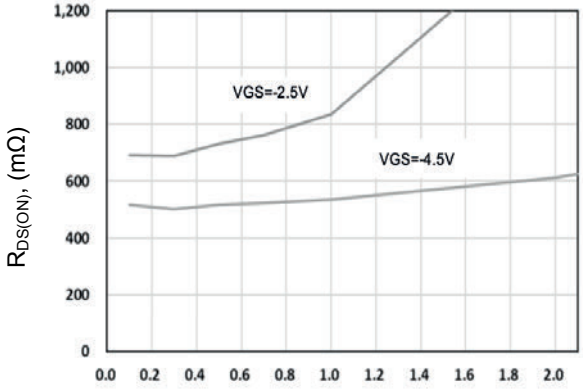


Figure 2. On-Resistance vs. Drain Current

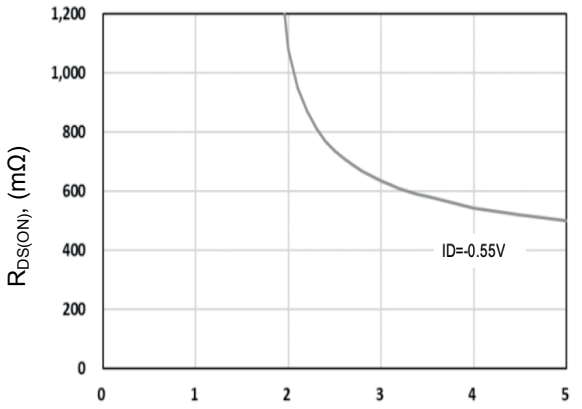


Figure 3. On-Resistance vs. Gate-Source Voltage

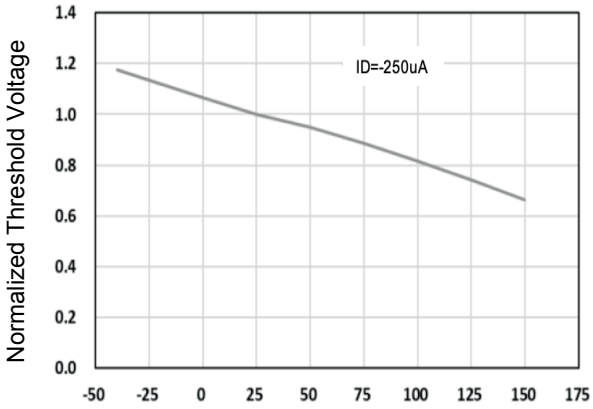


Figure 4. Gate Threshold Voltage

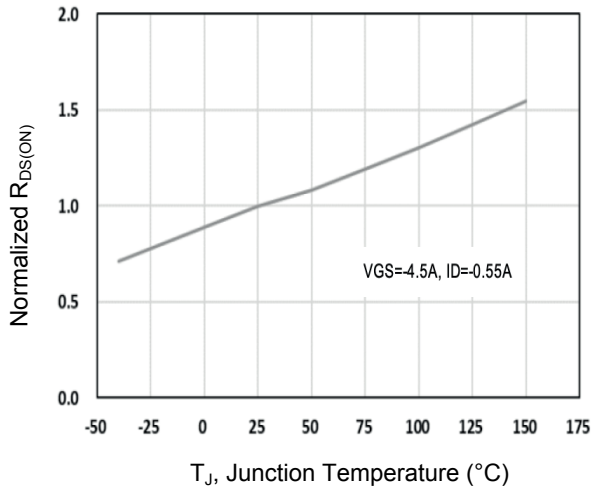


Figure 5. Drain to Source on Resistance

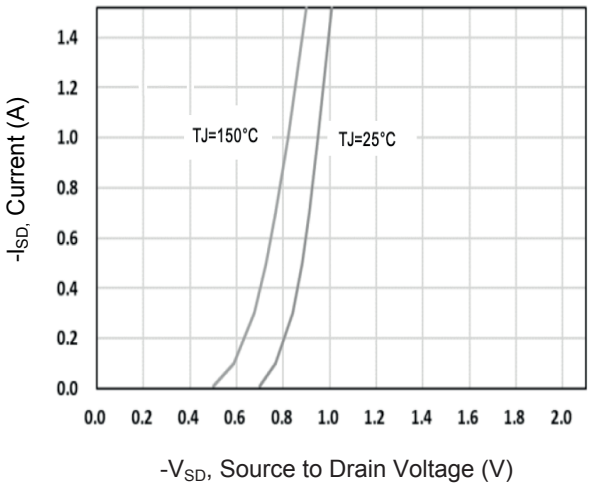


Figure 6. Source to Drain Diode Forward Voltage

Typical Performance Characteristics

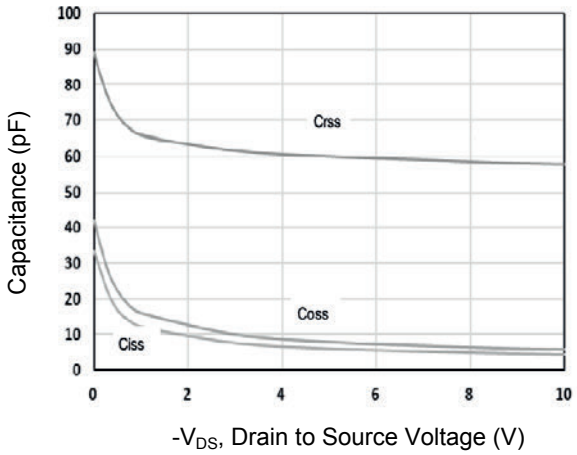


Figure 7. Capacitance

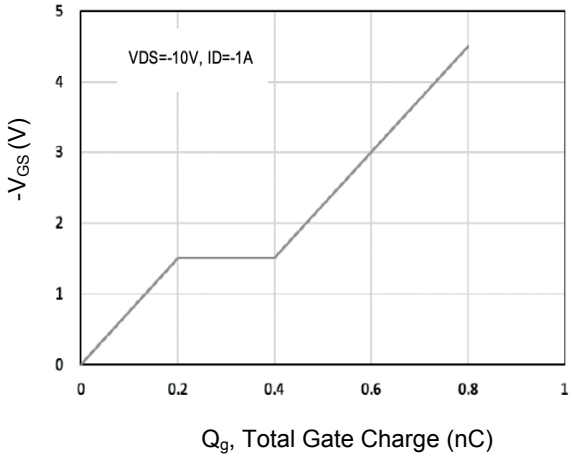
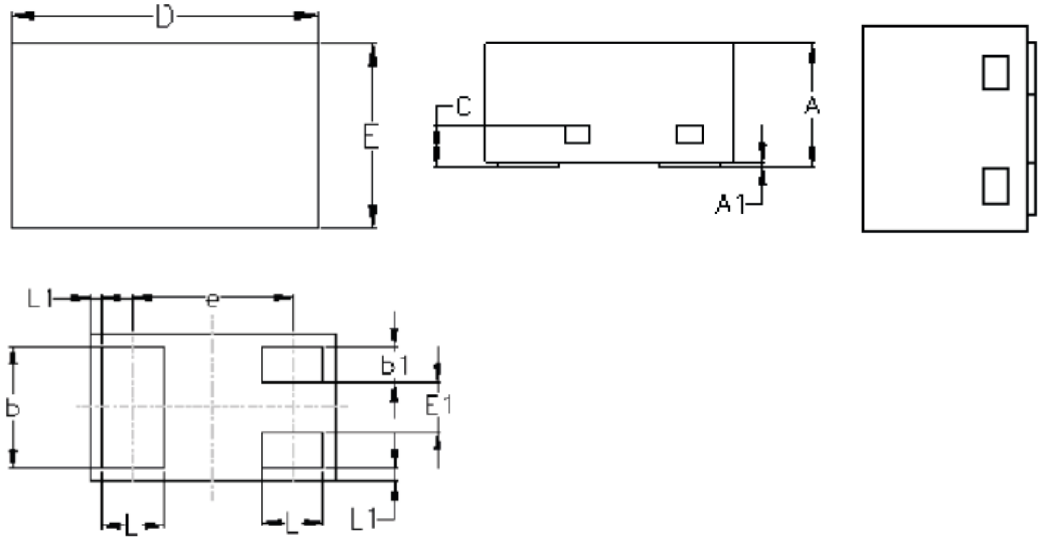


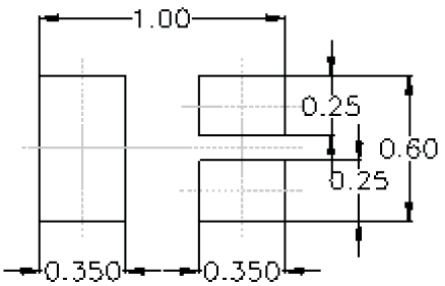
Figure 8. Gate Charge Characteristics

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
GSFW02066	SOT-883	39	Tape & Reel	10,000 pcs / 7" Reel