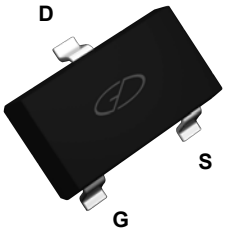
GOOD-ARK
SEMICONDUCTOR

GSFW0300

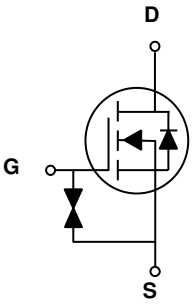
30V N-Channel MOSFET

Main Product Characteristics

V_{DS}	30V
$R_{DS(ON)}$	500mΩ
I_D	600mA



SOT-323



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

RoHS Compliant

Description

The GSFW0300 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 supply and a wide variety of other applications.

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current-Continuous(T_A=25°C)	I_D	600	mA
Drain Current-Continuous(T_A=70°C)		478	
Drain Current-Pulsed[1]	I_{DM}	2.4	A
Power Dissipation(T_A=25°C)	P_D	0.2	W
Thermal Resistance, Junction-to-Ambient[2]	$R_{\theta JA}$	625	°C/W
Storage Temperature Range	T_{STG}	-55 To +150	°C
Operating Junction Temperature Range	T_J	-55 To +150	°C

Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics[2]						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V	-	-	1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±10V, V_{DS}=0V	-	-	±3	μA
Gate Threshold Voltage[3]	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=250μA	0.5	1	1.5	V
Drain-Source On-Resistance[3]	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=0.6A	-	320	500	mΩ
		V_{GS}=2.5V, I_D=0.3A	-	410	600	
Forward Transconductance	g_{fs}	V_{DS}=5V, I_D=0.5A	0.1	-	-	S
Dynamic and Switching Characteristics[4]						
Input Capacitance	C_{lss}	V_{DS}=10V, V_{GS}=0V, F=1MHz	-	44	-	PF
Output Capacitance	C_{oss}		-	15	-	
Reverse Transfer Capacitance	C_{rss}		-	8	-	
Total Gate Charge	Q_g	V_{DS}=15V, I_D=0.8A, V_{GS}=4.5V	-	1.2	-	nC
Gate-Source Charge	Q_{gs}		-	0.28	-	
Gate-Drain Charge	Q_{gd}		-	0.3	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=15V, R_G=51Ω, V_{GS}=4.5V, I_D=0.7A	-	5	-	nS
Turn-On Rise Time	t_r		-	8.2	-	
Turn-Off Delay Time	$t_{d(off)}$		-	23	-	
Turn-Off Fall Time	t_f		-	41	-	
Source-Drain Diode characteristics						
Diode Forward Voltage[3]	V_{DS}	V_{GS}=0V, I_S=0.6A	-	0.87	1.2	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at T_A=25°C.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle≤0.5%.
4. These parameters have no way to verify.

Typical Electrical and Thermal Characteristic Curves

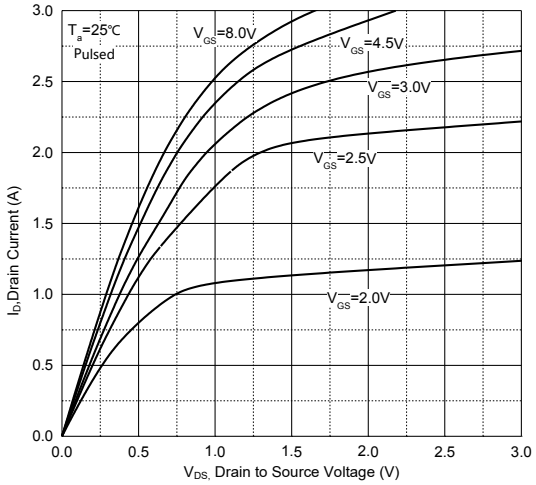


Figure 1. Output Characteristics

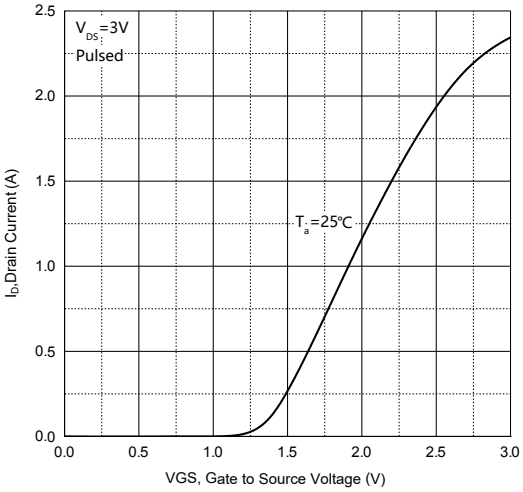


Figure 2. Transfer Characteristics

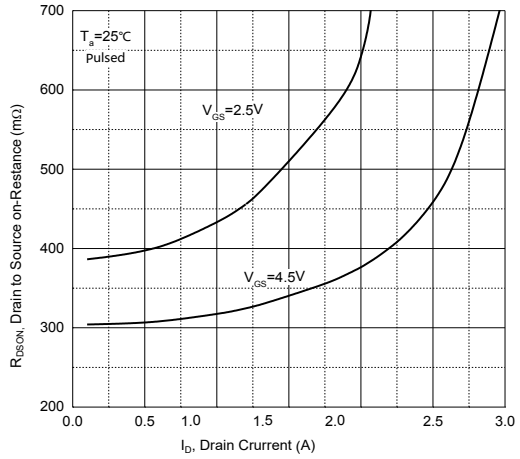


Figure 3. Drain-Source on Resistance vs I_D

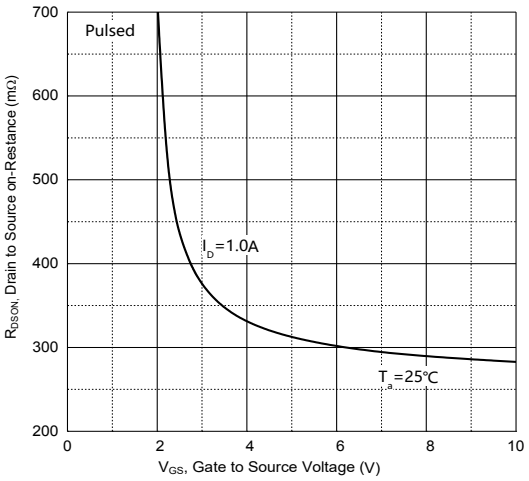


Figure 4. Drain-Source on Resistance vs V_{GS}

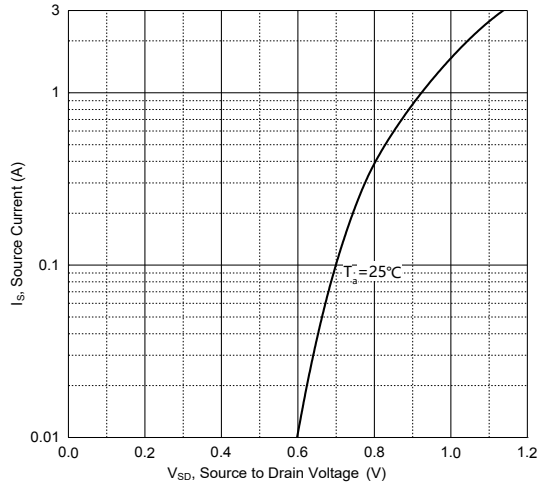


Figure 5. Body Diode Characteristics

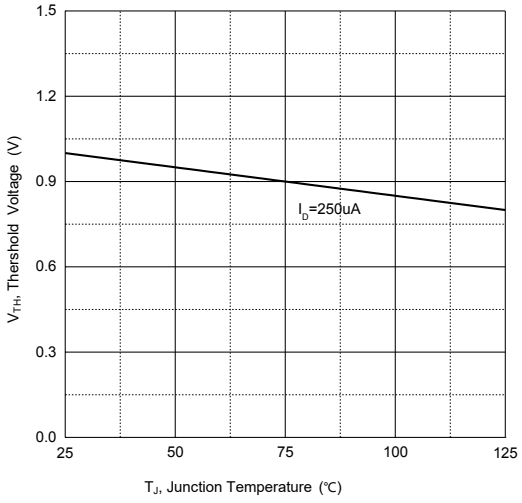
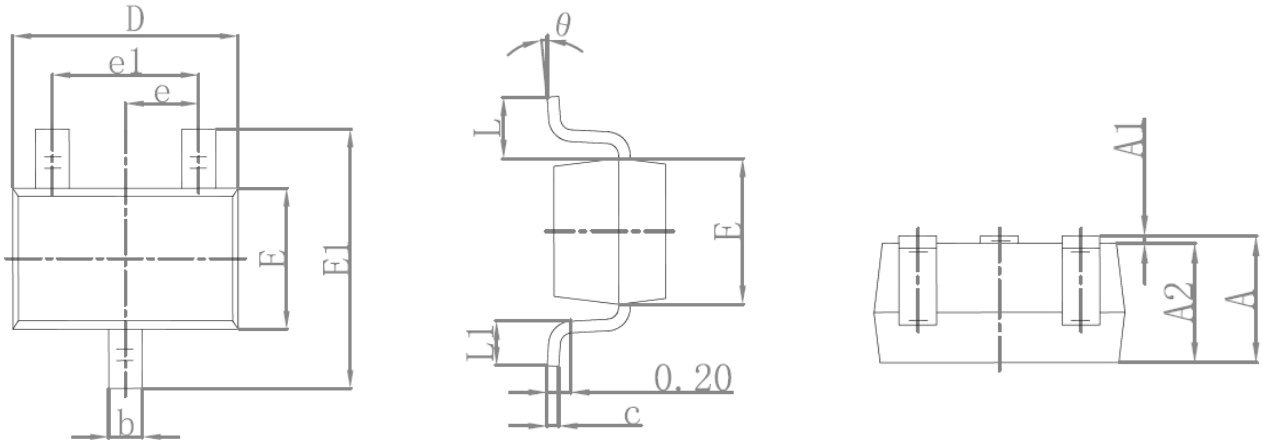


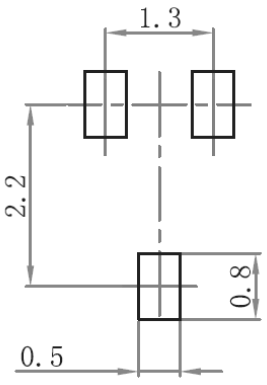
Figure 6. V_{TH} vs Junction Temperature

Package Outline Dimensions (SOT-323)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
K	0°	8°	0°	8°

Recommended Pad Layout



(Unit: mm)

Order Information

Device	Package	Marking Code	Carrier	Quantity	HSF Status
GSFW0300	SOT-323	S	Tape & Reel	3000/Reel	RoHS Compliant