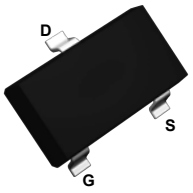
GOOD-ARK SEMICONDUCTOR

SSF3365

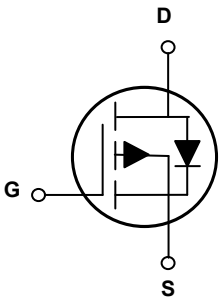
30V P-Channel MOSFET

Main Product Characteristics

$V_{(BR)DSS}$	-30V
$R_{DS(ON)}$	85mΩ (Max.)
I_D	-3A



SOT-23



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 SSF3365 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	Max.	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-to-Source Voltage	V_{GS}	±20	V
Continuous Drain Current, @ Steady-State (T_A=25°C)[1]	I_D	-3.0	A
Continuous Drain Current, @ Steady-State (T_A=70°C)		-1.8	A
Pulsed Drain Current[2]	I_{DM}	-12	A
Power Dissipation (T_A=25°C)	P_D	1.2	W
Linear Derating Factor (T_A=25°C)		9.6	mW/°C
Junction-to-Ambient (PCB Mounted, Steady-State)[3]	$R_{\theta JA}$	100	°C/W
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +150	°C

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=-250uA	-30	-	-	V
BV_{DSS} Tempreture Coefficient	$\triangle BV_{DSS}/\triangle T_J$	Reference to 25°C, I_D=-1mA	-	-0.03	-	V/°C
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V, T_J=25°C	-	-	-1	uA
		V_{DS}=-24V, V_{GS}=0V, T_J=125°C	-	-	-10	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-3A	-	59	85	mΩ
		V_{GS}=-4.5V, I_D=-2.5A	-	89	107	
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=-250uA	-1.0	-1.6	-2.9	V
$V_{GS(th)}$ Temperature Coefficient	$\triangle V_{GS(th)}$		-	4	-	mV/°C
Forward Transconductance	gfs	V_{DS}=-10V, I_D=-3A	-	3.7	-	S
Dynamic and Switching Characteristics						
Total Gate Charge[2,3]	Q_g	V_{DS}=-30V, V_{GS}=-4.5V, I_D=-2A	-	5	8	nC
Gate-Source Charge[2,3]	Q_{gs}		-	1.4	3	
Gate-Drain Charge[2,3]	Q_{gd}		-	1.7	4	
Turn-On Delay Time[2,3]	$t_{d(on)}$	V_{DD}=-30V, V_{GS}=-10V, R_G=6Ω, I_D=-1A	-	3.4	6	nS
Rise Time[2,3]	t_r		-	10.8	21	
Turn-Off Delay Time[2,3]	$t_{d(off)}$		-	26.9	51	
Fall Time[2,3]	t_f		-	6.9	13	
Input Capacitance	C_{iss}	V_{DS}=-30V, V_{GS}=0V, F=1MHz	-	420	810	pF
Output Capacitance	C_{oss}		-	50	80	
Reverse Transfer Capacitance	C_{rss}		-	35	60	
Source-Drain Ratings and Characteristics						
Continuous Source Current	I_S	V_G=V_D=0V, Force Current	-	-	-3	A
Pulsed Source Current	I_{SM}		-	-	-6	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=1A, T_J=25°C	-	-	-1.2	V

Notes:

1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed, pulse width ≦ 300uS, duty cycle ≦ 2%.
3. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristics

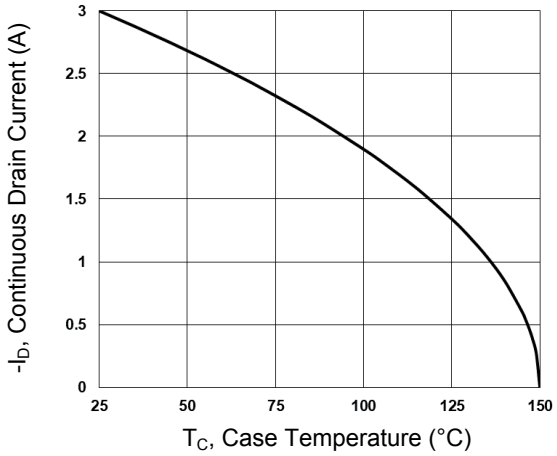


Figure 1. Continuous Drain Current vs. T_C

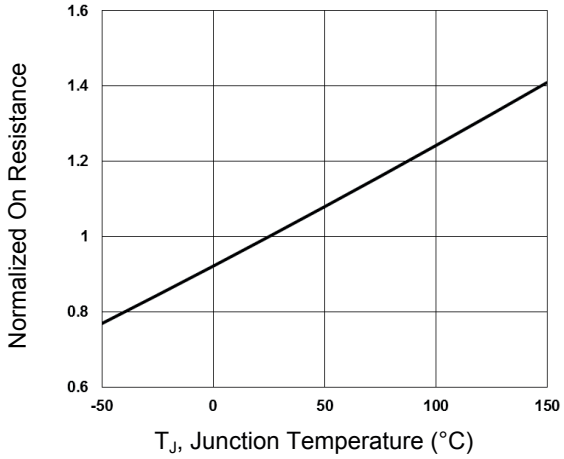


Figure 2. Normalized $R_{DS(ON)}$ vs. T_J

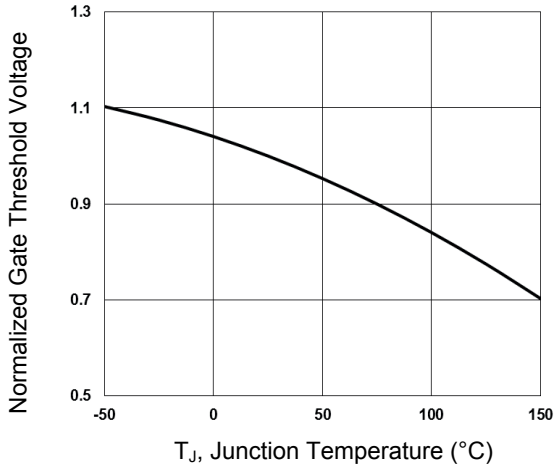


Figure 3. Normalized V_{th} vs. T_J

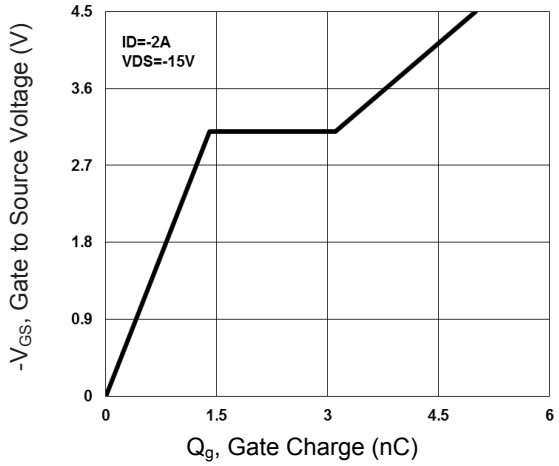


Figure 4. Gate Charge Waveform

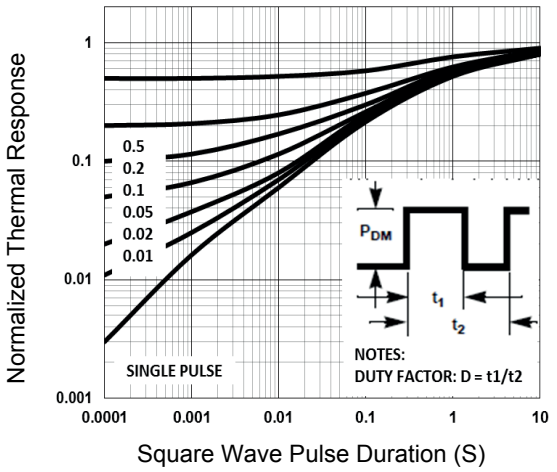


Figure 5. Normalized Transient Impedance

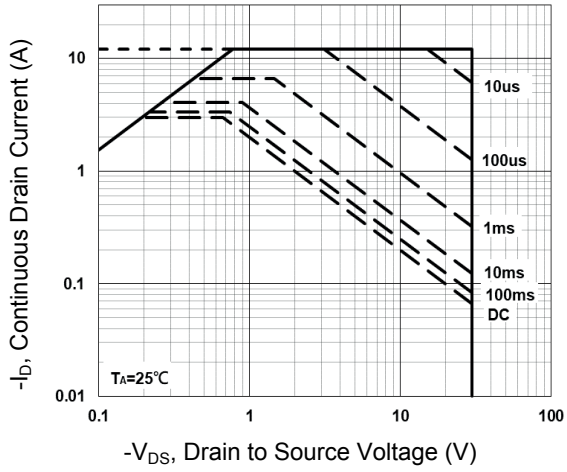
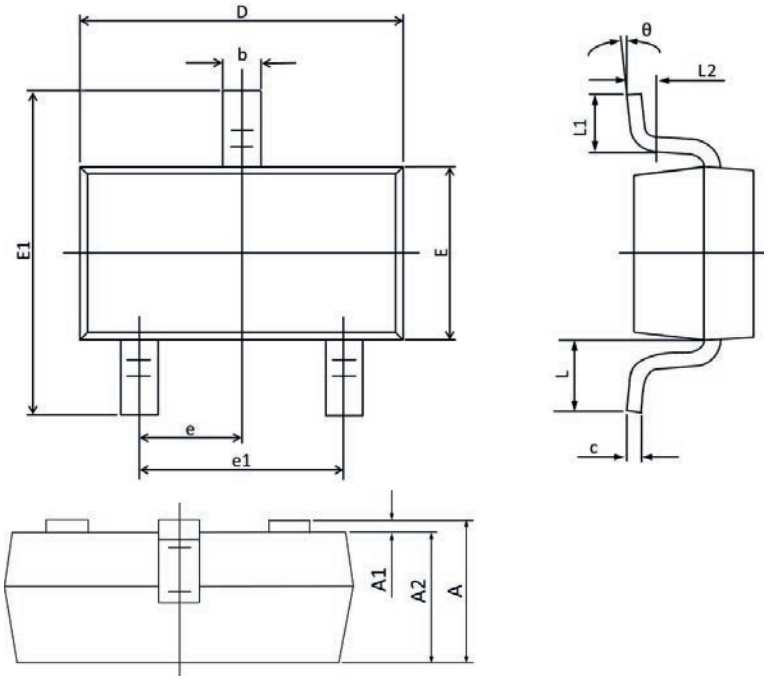


Figure 6. Maximum Safe Operation Area

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.95 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.55 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
L2	0.25 TYP.		0.01 TYP.	
θ	0°	8°	0°	8°

Order Information

Device	Package	Marking	Carrier	Quantity
SSF3365	SOT-23	3365	Tape & Reel	3,000 pcs / Reel