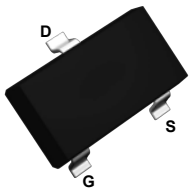
GOOD-ARK SEMICONDUCTOR

SSF6007

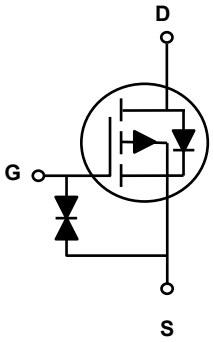
50V P-Channel MOSFET

Main Product Characteristics

$V_{(BR)DSS}$	-50V
$R_{DS(ON)}$	4.7Ω (Max.)
I_D	-0.3A



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
- ESD rating: HBM 2KV

Description

The SSF6007 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_C=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-50	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-0.3	A
Pulsed Drain Current @ t_p < 10μs[1]	I_{DM}	-0.6	A
Power Dissipation	P_D	270	mW
Thermal Resistance from Junction to Ambient[2]	$R_{\theta JA}$	450	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Maximum Lead Temperature for Soldering Purposes, Duration for 5 Seconds	T_L	260	°C

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250μA	-50	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-50V, V_{GS}=0V	-	-	-1	μA
		V_{DS}=-25V, V_{GS}=0V	-	-	-0.5	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±10	μA
Gate Threshold Voltage[3]	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1.1	-	-2.1	V
Drain-Source On-Resistance[3]	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-0.15A	-	3.6	4.7	Ω
		V_{GS}=-5V, I_D=-0.1A	-	4.4	5.7	
Forward Transconductance[1]	gfs	V_{DS}=-25V, I_D=-100mA	50	-	-	mS
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	V_{DS}=5V, V_{GS}=0V, f=1MHz	-	30	-	pF
Output Capacitance	C_{oss}		-	10	-	
Reverse Transfer Capacitance	C_{rss}		-	5	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-15V, R_L=50Ω, I_D=-2.5A	-	2.5	-	nS
Turn-On Rise Time	t_r		-	1	-	
Turn-Off Delay Time	$t_{d(off)}$		-	16	-	
Turn-Off Fall Time	t_f		-	8	-	
Drain-Source Ratings and Characteristics						
Continuous Current	I_S	MOSFET symbol showing the integral reverse p-n junction diode	-	-	-0.3	A
Pulsed Current	I_{SM}		-	-	-0.6	A
Diode Forward Voltage[3]	V_{SD}	I_S=-0.1A, V_{GS}=0V	-	-	-1.2	V

Notes:

1. Repetitive rating: Pulse width limited by junction temperature.
2. Surface mounted on FR4 board, t ≤ 10s.
3. Pulse test: Pulse width ≤ 300μs, duty cycle ≤ 2%.

Typical Electrical and Thermal Characteristic Curves

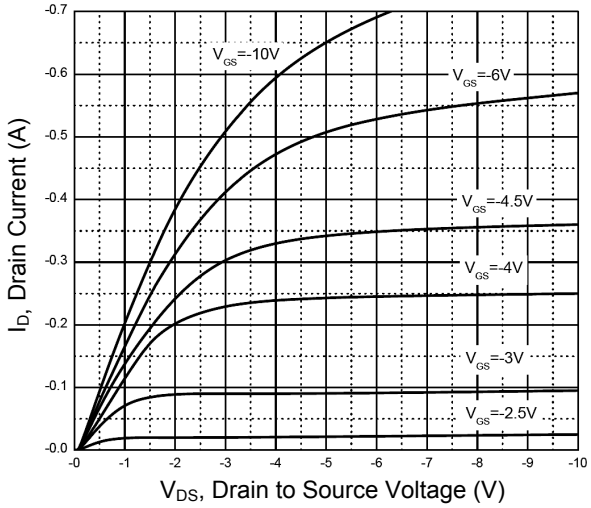


Figure 1. Output Characteristics

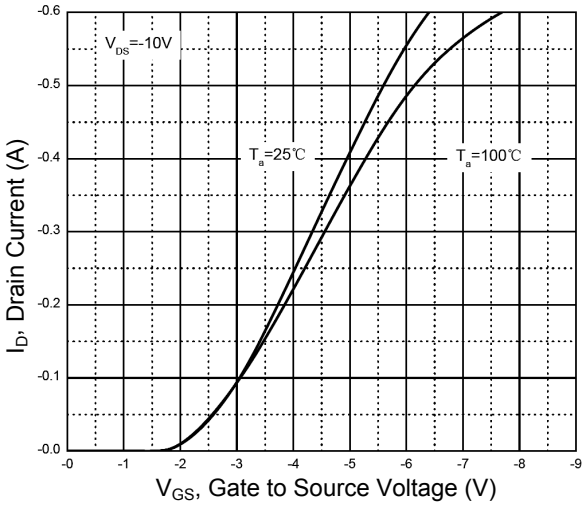


Figure 2. Transfer Characteristics

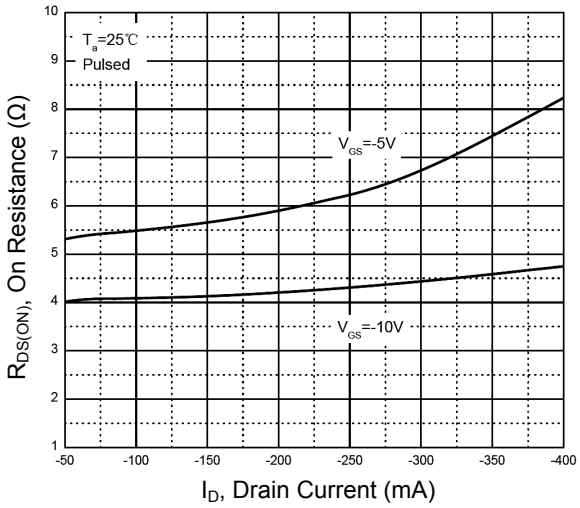


Figure 3. $R_{DS(ON)}$ vs. I_D

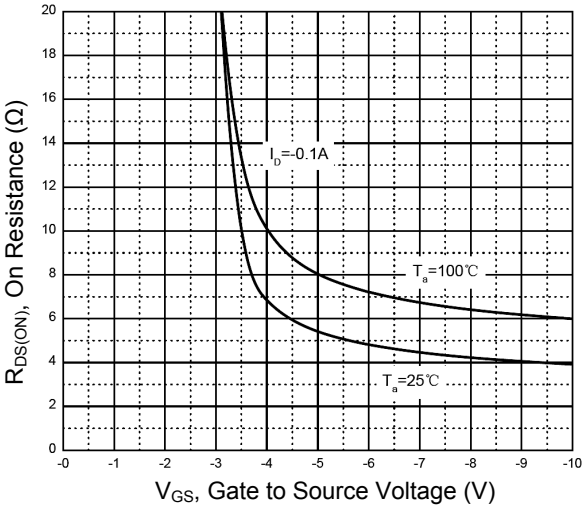


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

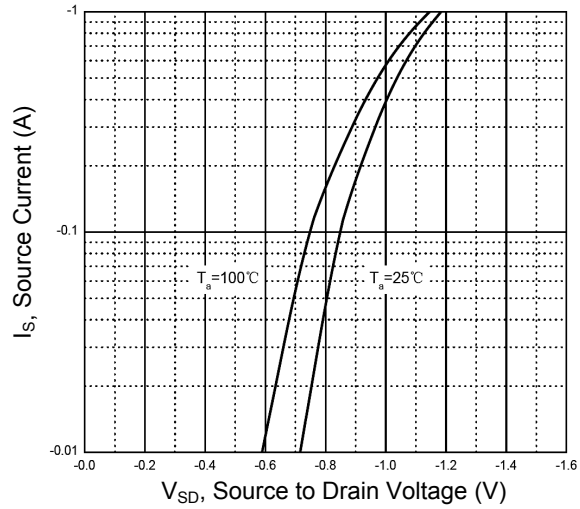


Figure 5. I_S vs. V_{SD}

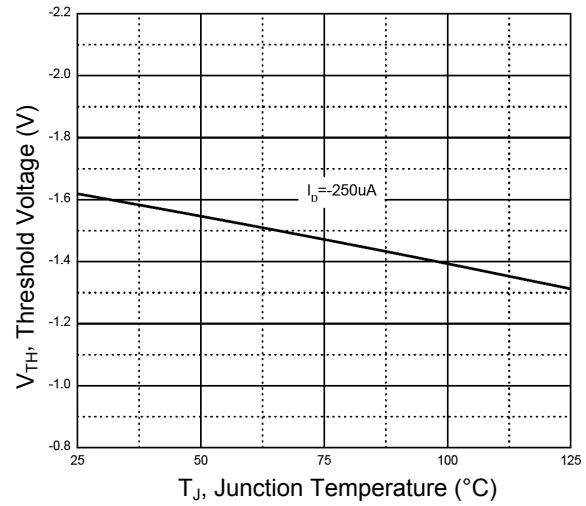
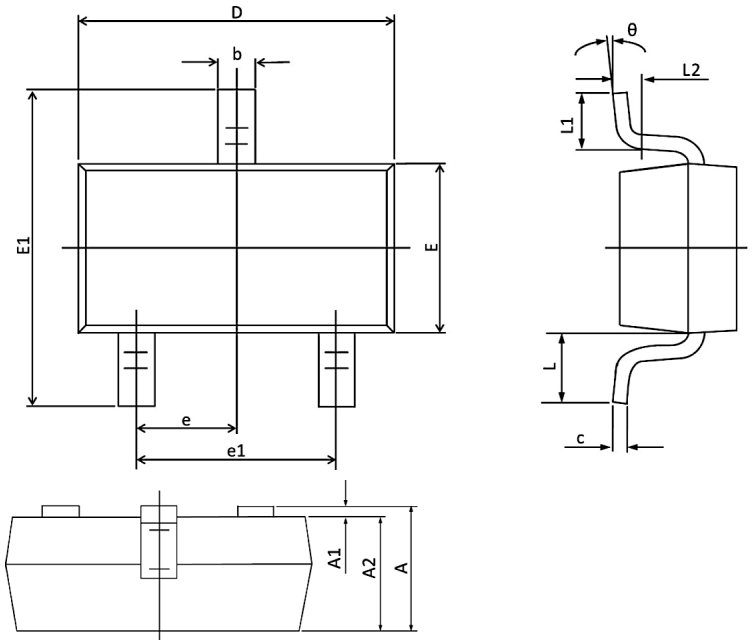


Figure 6. Threshold Voltage

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	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
L2	0.250 TYP.		0.010 TYP.	
θ	0°	8°	0°	8°

Order Information

Device	Package	Marking	Carrier	Quantity
SSF6007	SOT-23	6007	Tape & Reel	3,000 Pcs / Reel