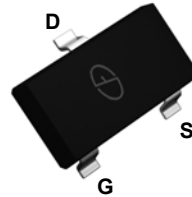
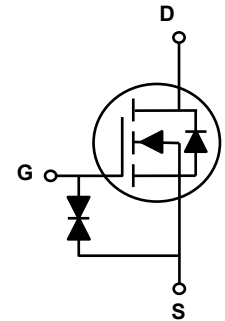


Main Product Characteristics

V_{DS}	20V
$R_{DS(ON)}$ (Max.)	22m Ω @ 4.5V
	30m Ω @ 2.5V
	55m Ω @ 1.8V
I_D	6.5A



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 SSF2318E 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 ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 8	V
Drain Current-Continuous @ Current-Pulsed ¹	I_D	6.5	A
	I_{DM}	30	A
Maximum Power Dissipation	P_D	1.4	W
Thermal Resistance, Junction-to-Ambient ²	$R_{\theta JA}$	90	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_J	-55 To +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 To +150	$^\circ\text{C}$

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 4.5V, V_{DS}=0V$	-	-	± 1	μA
		$V_{GS}=\pm 8V, V_{DS}=0V$	-	-	± 10	μA
Drain-Source On-State Resistance ³	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=6.5A$	-	18	22	m Ω
		$V_{GS}=2.5V, I_D=5.5A$	-	24	30	m Ω
		$V_{GS}=1.8V, I_D=5A$	-	40	55	m Ω
Forward Transconductance ³	g_{fs}	$V_{DS}=5V, I_D=6.5A$	-	7	-	S
Gate Threshold Voltage ³	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	0.4	0.6	1	V
Dynamic and Switching Characteristics						
Total Gate Charge ⁴	Q_g	$V_{DS}=10V, I_D=6.5A$ $V_{GS}=4.5V$	-	10	-	nC
Gate-Source Charge ⁴	Q_{gs}		-	2.3	-	
Gate-to-Drain Charge ⁴	Q_{gd}		-	3	-	
Turn-On Delay Time ⁴	$t_{d(on)}$	$V_{DD}=10V, R_G=3\Omega$ $V_{GS}=5V, I_D=1A$	-	6.5	-	nS
Rise Time ⁴	t_r		-	13	-	
Turn-Off Delay Time ⁴	$t_{d(off)}$		-	50	-	
Fall Time ⁴	t_f		-	30	-	
Input Capacitance ⁴	C_{iss}	$V_{DS}=10V, V_{GS}=0V,$ $F=1MHz$	-	1160	-	pF
Output Capacitance ⁴	C_{oss}		-	200	-	
Reverse Transfer Capacitance ⁴	C_{rss}		-	140	-	
Drain-Source Diode Characteristics and Maximum Ratings						
Diode Forward Voltage ³	V_{SD}	$V_{GS}=0V, I_S=1A$	-	0.76	1	V

Note:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. Surface mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics

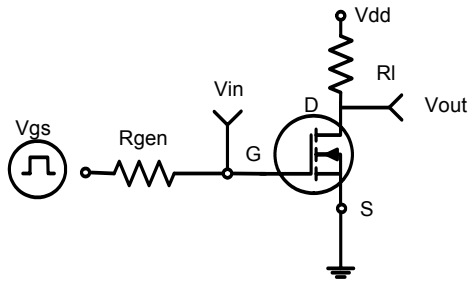


Figure 1. Switching Test Circuit

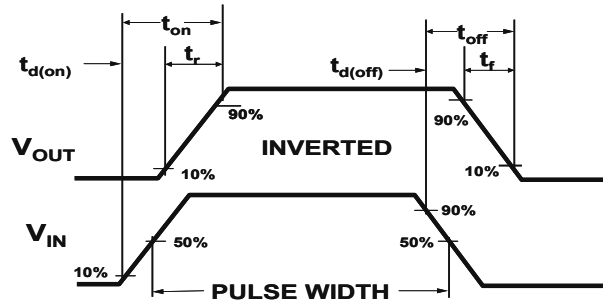


Figure 2. Switching Waveforms

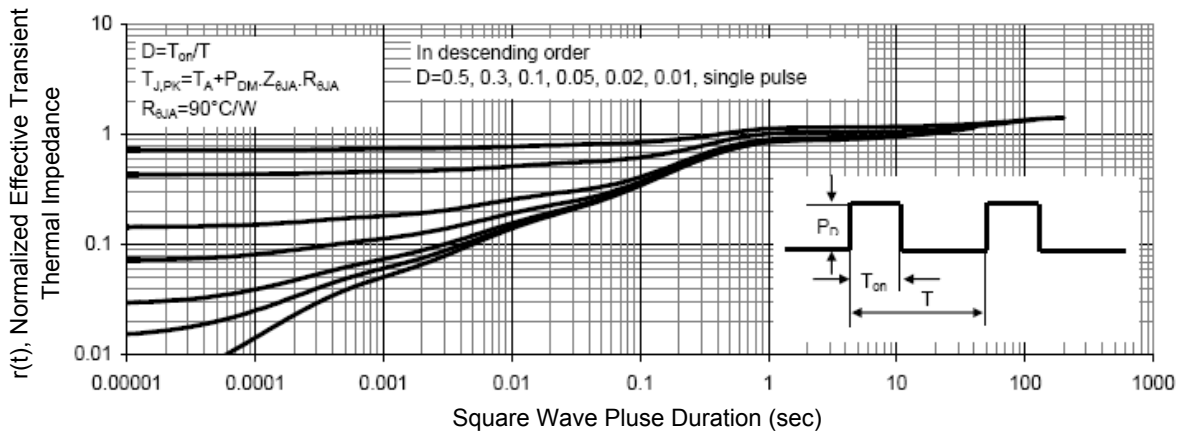
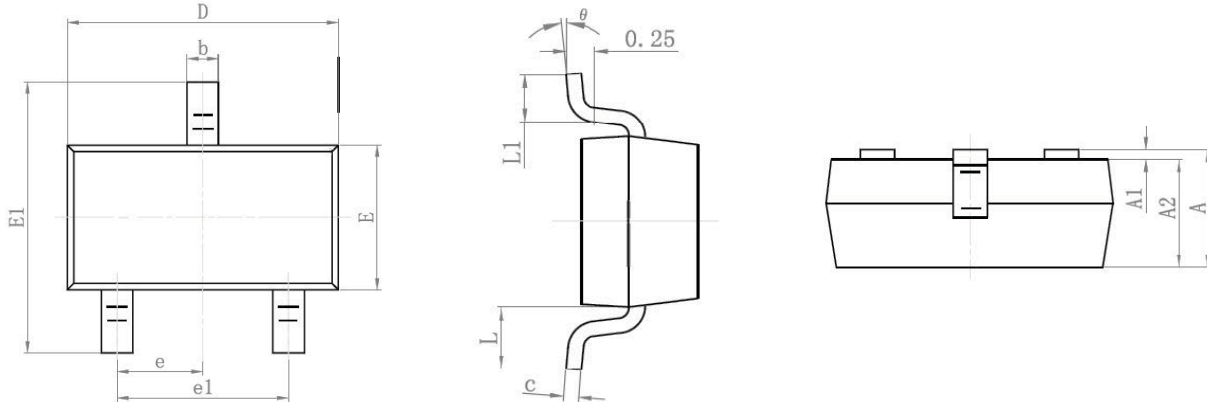


Figure 3. Normalized Maximum Transient Thermal Impedance

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
θ	0°	8°	0°	8°

Notes:

1. Tolerance ±0.10mm (4 mil) unless otherwise specified.
2. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
3. Dimension L is measured in gauge plane.

Recommended Pad Layout

