



SSF2449

20V P-Channel MOSFET

DESCRIPTION

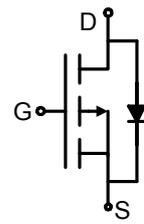
The SSF2449 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a load switch or in PWM applications.

GENERAL FEATURES

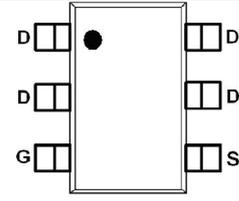
- $V_{DS} = -20V, I_D = -5A$
 $R_{DS(ON)} < 100m\Omega @ V_{GS} = -2.5V$
 $R_{DS(ON)} < 60m\Omega @ V_{GS} = -4.5V$
- High Power and current handling capability
- Lead free product
- Surface Mount Package

APPLICATIONS

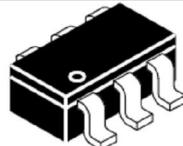
- PWM applications
- Load switch
- Power management



Schematic Diagram



Pin Assignment



TSOP-6 Top View

PACKAGE MARKING AND ORDERING INFORMATION

Device Marking	Device	Device Package	Reel Size	Tape Width	Quantity
2449	SSF2449	TSOP-6	—	—	—

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current-Continuous@ Current-Pulsed (Note 1)	I_D	-5	A
	I_{DM}	-20	A
Maximum Power Dissipation	P_D	1.2	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ C$

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	110	$^\circ C/W$
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ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-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} =±12V, V _{DS} =0V			±100	nA

ON CHARACTERISTICS (Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.6		-1	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-5A		49	60	mΩ
		V _{GS} =-2.5V, I _D =-3A		83	100	
Forward Transconductance	g _{FS}	V _{DS} =-10V, I _D =-5A		9		S

DYNAMIC CHARACTERISTICS (Note4)						
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, F=1.0MHz		610		PF
Output Capacitance	C _{oss}			130		PF
Reverse Transfer Capacitance	C _{rss}			100		PF

SWITCHING CHARACTERISTICS (Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-10V, I _D =-5A V _{GS} =-4.5V, R _{GEN} =1Ω		27		nS
Turn-on Rise Time	t _r			60		nS
Turn-Off Delay Time	t _{d(off)}			30		nS
Turn-Off Fall Time	t _f			10		nS
Total Gate Charge	Q _g	V _{DS} =-10V, I _D =-5A, V _{GS} =-4.5V		9.6		nC
Gate-Source Charge	Q _{gs}			1.5		nC
Gate-Drain Charge	Q _{gd}			2.4		nC

DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V, I _S =-1.7A			-1.2	V

NOTES:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

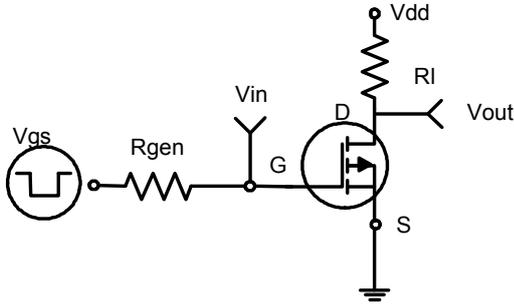


Figure 1: Switching Test Circuit

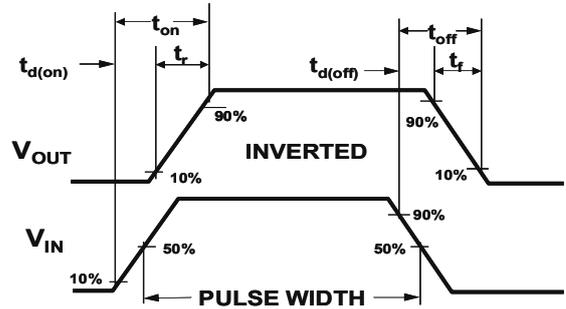


Figure 2: Switching Waveforms

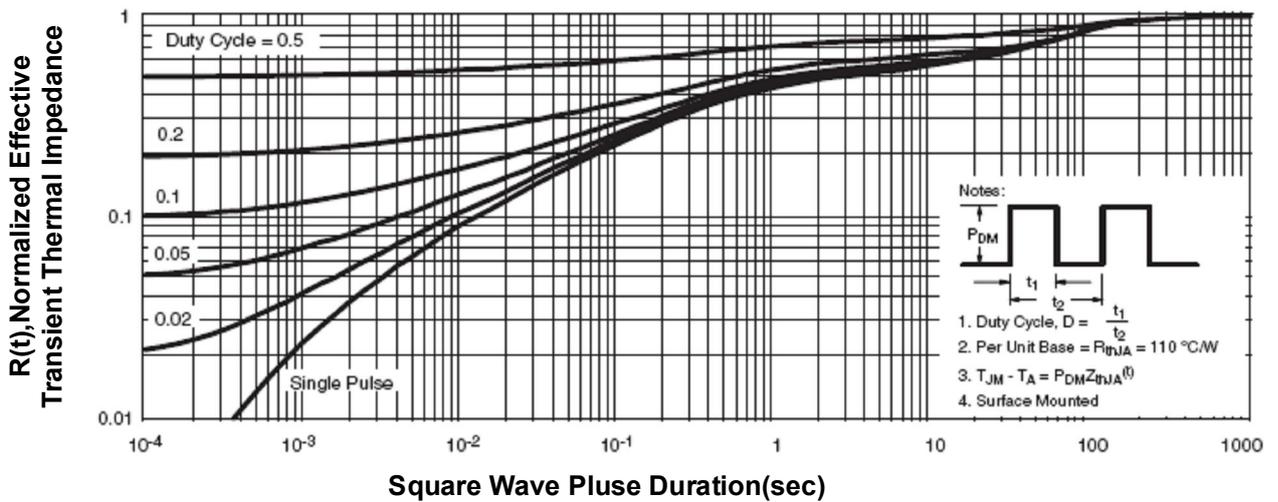
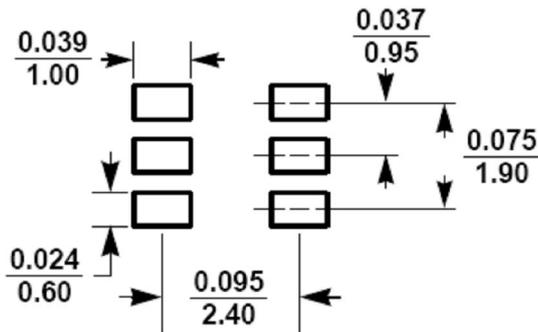
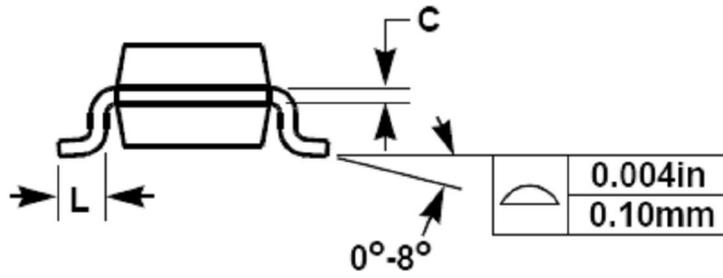
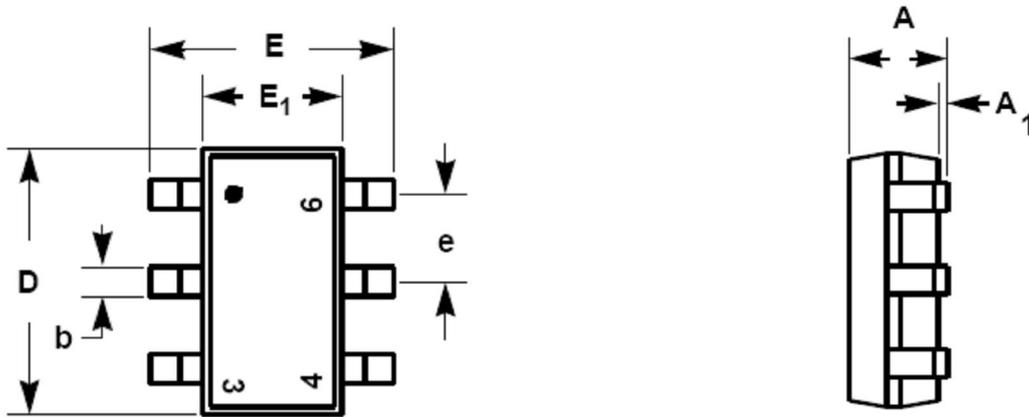


Figure 3: Normalized Maximum Transient Thermal Impedance

TSOP-6 PACKAGE INFORMATION



SYMBOL	Millimeters	
	MIN	MAX
A	0.90	1.10
A1	0.10	
b	0.30	0.50
c	0.08	0.20
D	2.70	3.10
E	2.60	3.00
E1	1.40	1.80
e	0.95 BSC	
L	0.35	0.55

NOTES:

1. Dimensions are inclusive of plating
2. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 6 mils.
3. Dimension L is measured in gauge plane.
4. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.