

**DESCRIPTION**

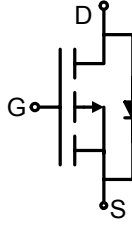
The SSF2429 uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with gate voltages as low as 2.5V.

**FEATURES**

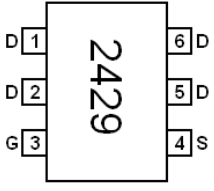
- $V_{DS} = -20V, I_D = -5A$   
 $R_{DS(ON)} < 35m\Omega @ V_{GS} = -4.5V$   
 $R_{DS(ON)} < 48m\Omega @ V_{GS} = -2.5V$
- High Power and Current Handling Capability
- Lead Free
- Surface Mount Package

**APPLICATIONS**

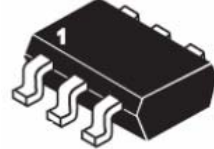
- Battery Protection
- Load Switch
- Power Management



**Schematic Diagram**



**Marking and Pin Assignment**



**SOT-23-6L Top View**

**PACKAGE MARKING AND ORDERING INFORMATION**

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
2429	SSF2429	SOT-23-6L	Ø180mm	8mm	3000 units

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

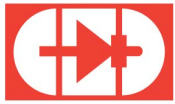
Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Drain Current-Continuous@ Current-Pulsed (Note 1)	$I_D$	-5	A
	$I_{DM}$	-20	A
Maximum Power Dissipation	$P_D$	1.4	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 To 150	$^\circ C$

**THERMAL CHARACTERISTICS**

Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	90	$^\circ C / W$
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**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ C$  unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>						
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	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 12V, V_{DS}=0V$			$\pm 100$	nA
<b>ON CHARACTERISTICS (Note 3)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5	-0.7	-1	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-5A$		29	35	m $\Omega$
		$V_{GS}=-2.5V, I_D=-3A$		37	48	m $\Omega$
Forward Transconductance	$g_{FS}$	$V_{DS}=-10V, I_D=-3A$	4			S
<b>DYNAMIC CHARACTERISTICS (Note4)</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=-10V, V_{GS}=0V,$ $F=1.0MHz$		1450		PF
Output Capacitance	$C_{oss}$			200		PF
Reverse Transfer Capacitance	$C_{rss}$			160		PF
<b>SWITCHING CHARACTERISTICS (Note 4)</b>						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-10V, I_D=-1A$ $V_{GS}=-4.5V, R_{GEN}=6\Omega$		5		nS
Turn-on Rise Time	$t_r$			13		nS
Turn-Off Delay Time	$t_{d(off)}$			80		nS
Turn-Off Fall Time	$t_f$			35		nS
Total Gate Charge	$Q_g$	$V_{DS}=-10V, I_D=-4.5A,$ $V_{GS}=-5V$		17		nC
Gate-Source Charge	$Q_{gs}$			4		nC
Gate-Drain Charge	$Q_{gd}$			4.5		nC
<b>DRAIN-SOURCE DIODE CHARACTERISTICS</b>						
Diode Forward Voltage (Note 3)	$V_{SD}$	$V_{GS}=0V, I_S=-1.3A$			-1.3	V

**NOTES:**

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on 1in<sup>2</sup> 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.

ELECTRICAL AND THERMAL CHARACTERISTICS

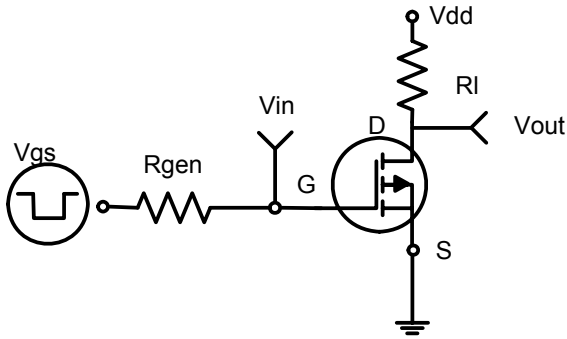


Figure 1. Switching Test Circuit

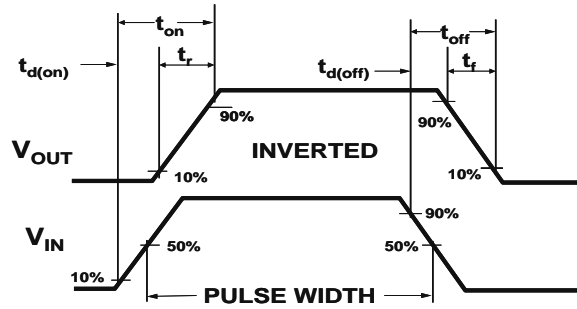


Figure 2. Switching Waveforms

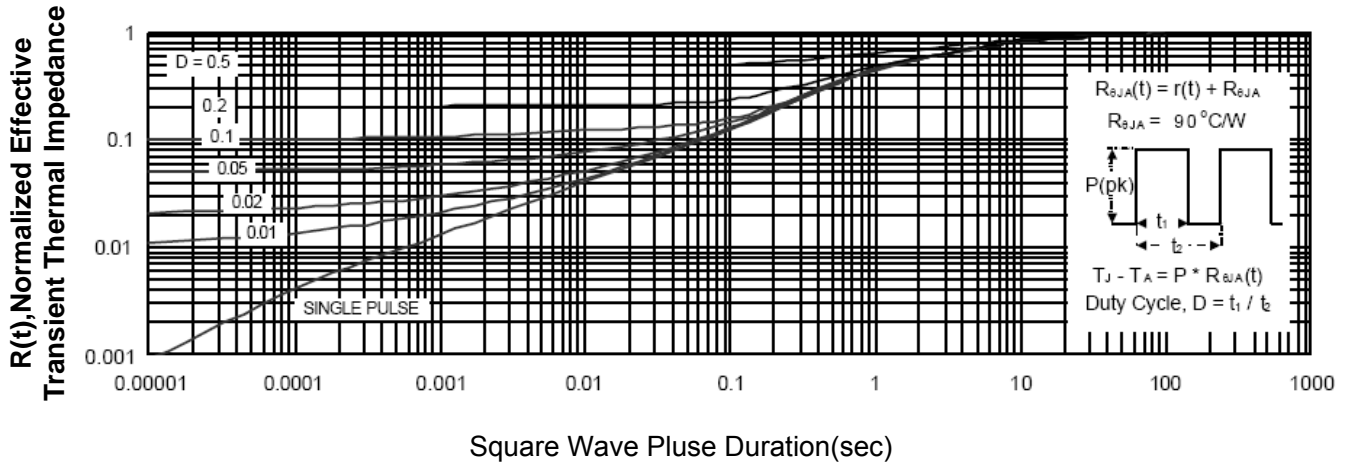
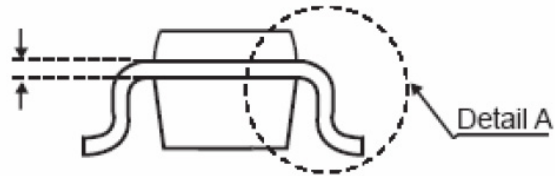
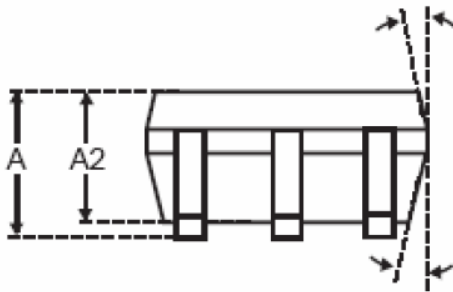
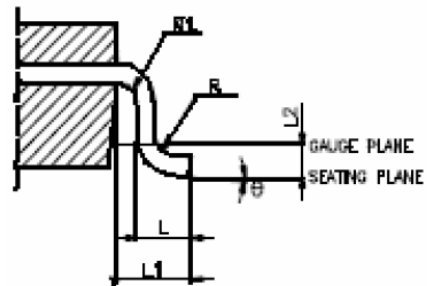
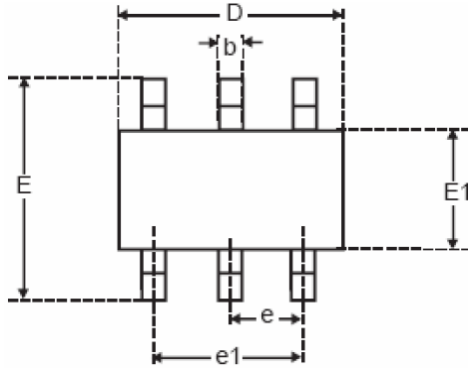


Figure 3. Normalized Maximum Transient Thermal Impedance

PACKAGE INFORMATION  
SOT-23-6L

Dimensions in Millimeters (UNIT:mm)



SYMBOLS	MILLIMETERS		
	MIN.	NOM.	MAX.
A			1.45
A1			0.15
A2	0.90	1.15	1.30
b	0.30		0.50
c	0.08		0.22
D	2.90 BSC.		
E	2.80 BSC.		
E1	1.60 BSC.		
e	0.95 BSC.		
e1	1.90 BSC.		
L	0.30	0.45	0.60
L1	0.60 REF		
L2	0.25 BSC.		
R	0.10		
R1	0.10		0.25
$\theta$	0°	4°	8°
$\theta 1$	5°	10°	15°

NOTES:

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