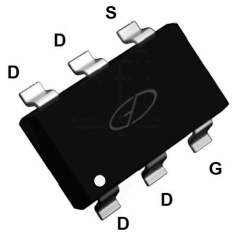
GOOD-ARK
SEMICONDUCTOR

SSF2429

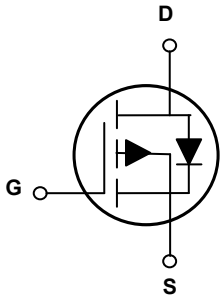
20V P-Channel MOSFET

Main Product Characteristics

BV_{DSS}	-20V
$R_{DS(ON)}$	35mΩ
I_D	-5A



SOT-23-6L



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

RoHS Compliant

Description

The SSF2429 utilizes the latest techniques to achieve ultra high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in battery protection, load switch, power management 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}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current-Continuous[1]	I_D	-5	A
Drain Current-Pulsed[1]	I_{DM}	-20	A
Maximum Power Dissipation	P_D	1.4	W
Thermal Resistance Junction-to-Ambient[2]	$R_{\theta JA}$	90	°C/W
Operating Junction Temperature Range	T_J	-55 To +150	°C
Storage Temperature Range	T_{STG}	-55 To +150	°C

GOOD-ARK SEMICONDUCTOR

SSF2429

20V P-Channel MOSFET

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250uA	-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[3]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250uA	-0.5	-0.7	-1	V
Drain Static-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-5A	-	29	35	mΩ
		V_{GS}=-2.5V, I_D=-3A	-	37	48	mΩ
Gate Resistance	R_g	V_{DS}=0V, f=1mHz	-	14	-	Ω
Forward Transconductance	g_{FS}	V_{DS}=-10V, I_D=-3A	4	-	-	S
Dynamic and Switching Characteristics[4]						
Input Capacitance	C_{lss}	V_{DS}=-10V, V_{GS}=0V, F=1MHz	-	688	-	pF
Output Capacitance	C_{oss}		-	124	-	
Reverse Transfer Capacitance	C_{rss}		-	115	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-10V, R_{GEN}=6Ω V_{GS}=-4.5V, I_D=-1A	-	5.8	-	nS
Rise Time	t_r		-	2.2	-	
Turn-Off Delay Time	$t_{d(off)}$		-	95	-	
Fall Time	t_f		-	45	-	
Total Gate Charge	Q_g	V_{DS}=-10V, I_D=-4.5A V_{GS}=-5V	-	17.4	-	nC
Gate-Source Charge	Q_{gs}		-	1.9	-	
Gate-Drain Charge	Q_{gd}		-	2.5	-	
Drain-Source Diode Characteristics and Maximum Ratings						
Diode Forward Voltage[3]	V_{SD}	V_{GS}=0V, I_S=-1.3A	-	-0.65	-1.3	V
Reverse Recovery Time	T_{rr}	V_R=-10V, I_D=-4.5A di/dt=100A/us	-	9.35	-	nS
Reverse Recovery Charge	Q_{rr}		-	1.87	-	nC

Notes:

1. Repetitive rating: pulse width limited by maximum junction temperature.
2. Surface mounted on 1in^2 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 Characteristic Curves

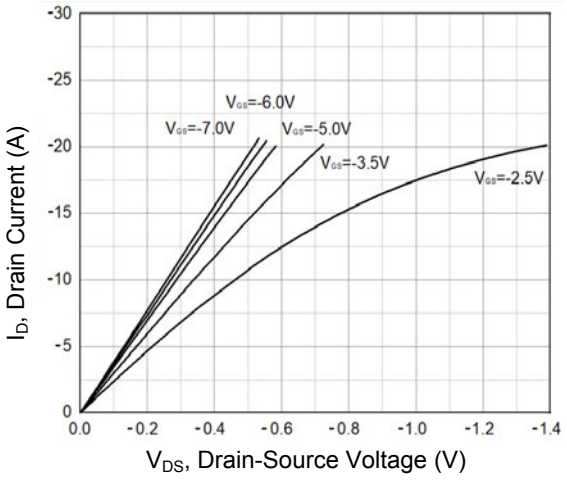


Figure 1. Output Characteristics

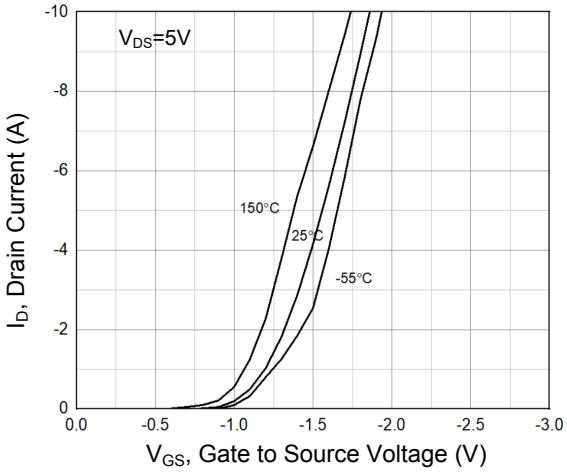


Figure 2. Transfer Characteristics

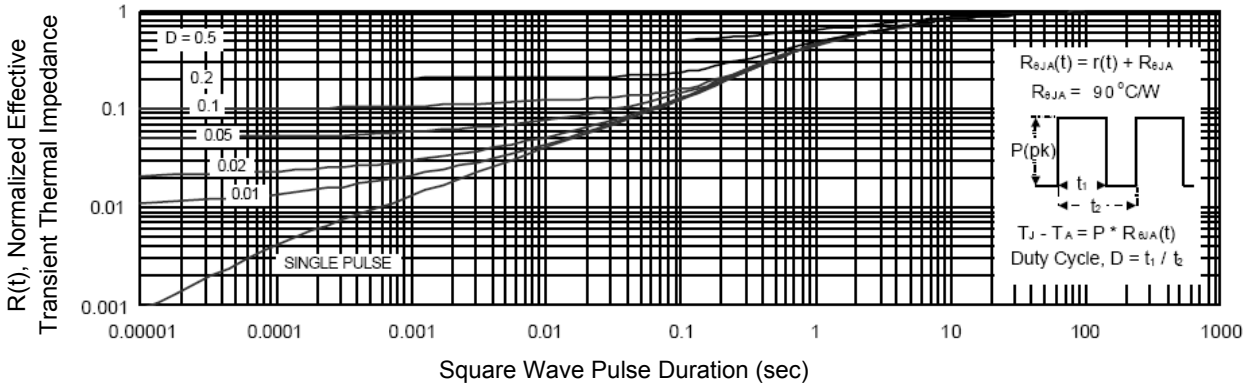


Figure 3. Normalized Maximum Transient Thermal Impedance

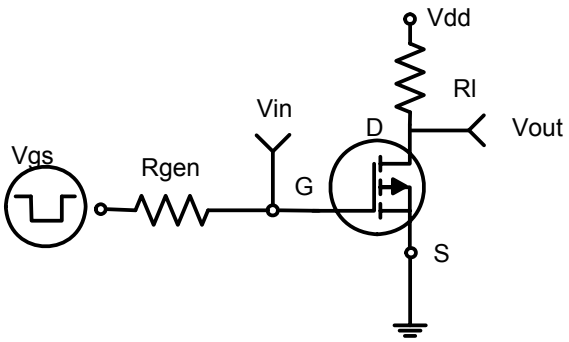


Figure 4. Switching Test Circuit

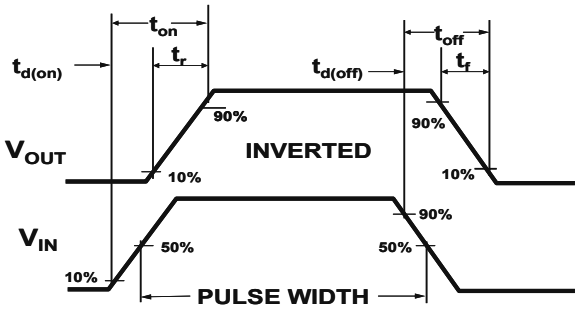
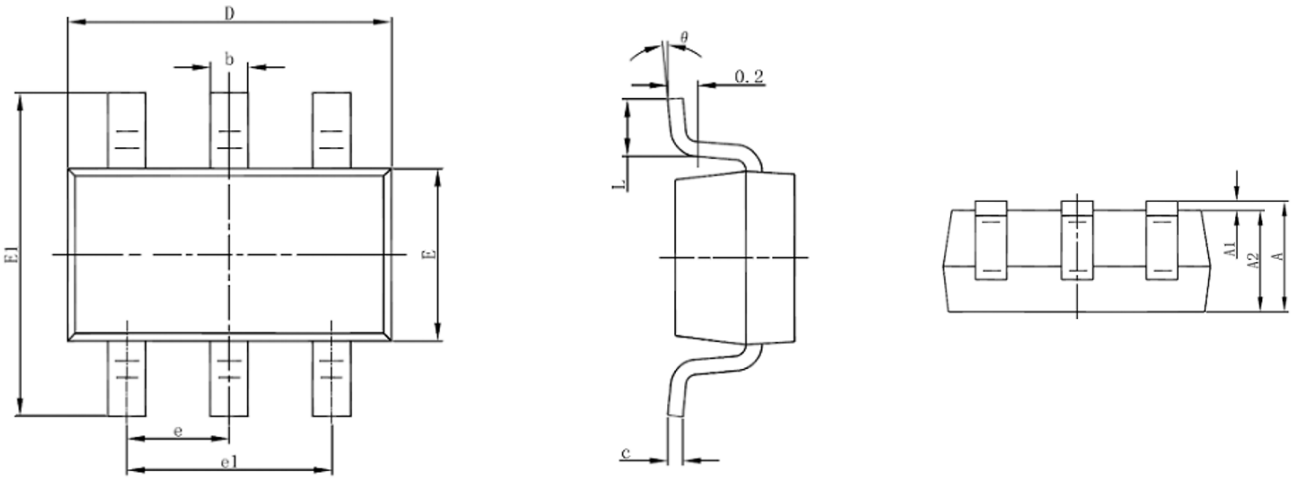


Figure 5. Switching Waveforms

Package Outline Dimensions (SOT-23-6L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.450	0.041	0.057
A1	0.000	0.150	0.000	0.006
A2	0.900	1.300	0.035	0.051
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Order Information

Device	Package	Marking	Carrier	Quantity
SSF2429	SOT-23-6L	2429	Tape & Reel	3,000 pcs / 7" Reel