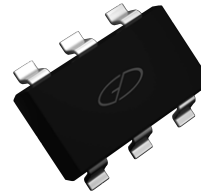
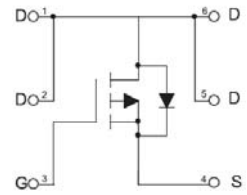


Main Product Characteristics

V_{DSS}	-30V
$R_{DS(on)}$	90mΩ Max@-4.5V
I_D	-4.3A



SOT-23-6L



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for DC-DC converter, power management in portable battery, computer, printer, cellular and general purpose applications
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

SSF3407 utilizes the latest trench processing techniques to achieve high cell density, low on-resistance and high repetitive avalanche rating. These features make this device extremely efficient and reliable for use in battery protection, power switching and a wide variety of other applications.

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	-4.3	A
Drain Current-Pulsed ¹	I_{DM}	-20	A
Maximum Power Dissipation	P_D	1.5	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To +150	$^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient ²	$R_{\theta JA}$	357	$^\circ\text{C/W}$

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 =-250μA	-30	-33	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V	-	-	-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics³						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.5	-3.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-4.0A	-	40	52	mΩ
		V _{GS} =-4.5V, I _D =-3A	-	48	90	
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-1A	-	10	-	S
Dynamic Characteristics⁴						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, F=1.0MHz	-	700	-	PF
Output Capacitance	C _{oss}		-	120	-	PF
Reverse Transfer Capacitance	C _{rss}		-	75	-	PF
Switching Characteristics⁴						
Turn-On Delay Time	t _{d(on)}	V _{DD} =-15V, R _L =3.6Ω V _{GS} =-10V, R _{GEN} =3Ω	-	9	-	nS
Turn-On Rise Time	t _r		-	5	-	nS
Turn-Off Delay Time	t _{d(off)}		-	28	-	nS
Turn-Off Fall Time	t _f		-	13.5	-	nS
Total Gate Charge	Q _g	V _{DS} =-15V, I _D =-4.0A, V _{GS} =-10V	-	14	-	nC
Gate-Source Charge	Q _{gs}		-	3.1	-	nC
Gate-Drain Charge	Q _{gd}		-	3	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage ³	V _{SD}	V _{GS} =0V, I _S =-4.3A	-	-	-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

Typical Electrical and Thermal Characteristics

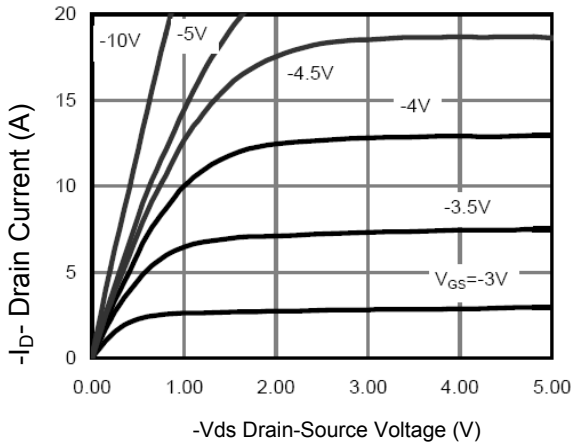


Figure 1. Output Characteristics

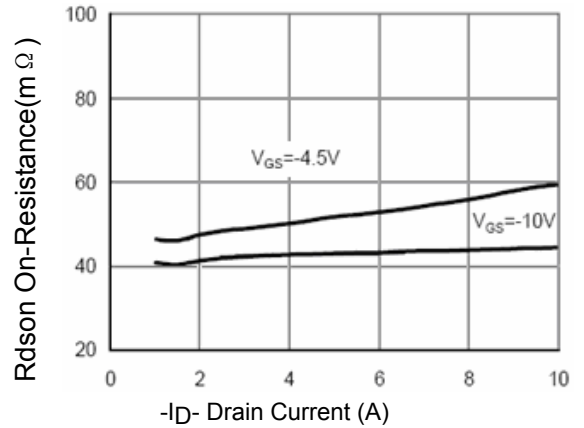


Figure 2. Drain-Source On-Resistance

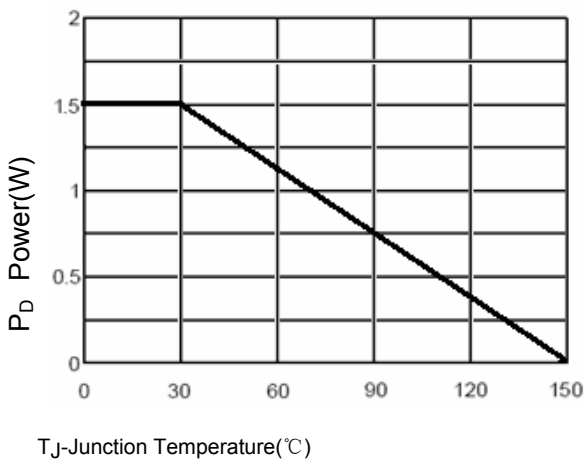


Figure 3. Power Dissipation

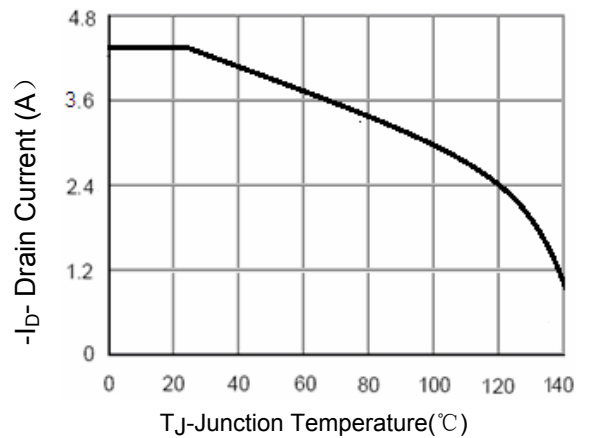


Figure 4. Drain Current

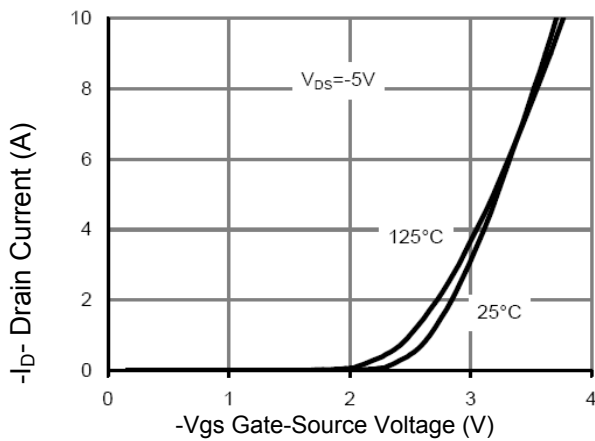


Figure 5. Transfer Characteristics

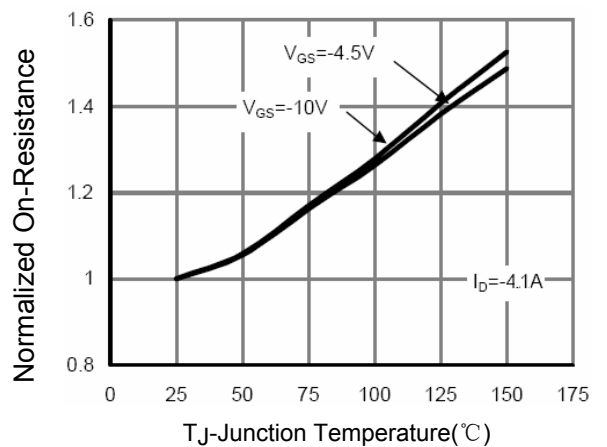


Figure 6. Drain-Source On-Resistance

Typical Electrical and Thermal Characteristics

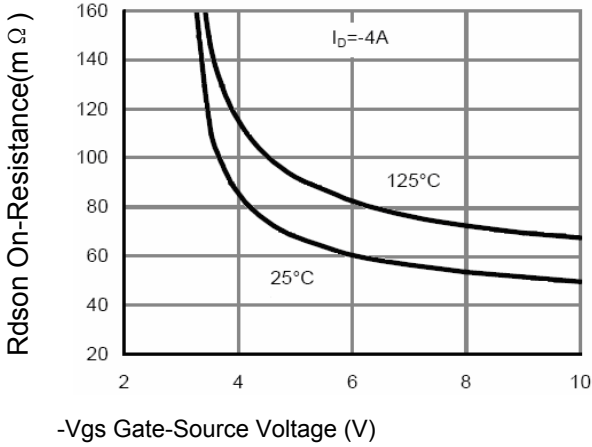


Figure 7. Rdson vs Vgs

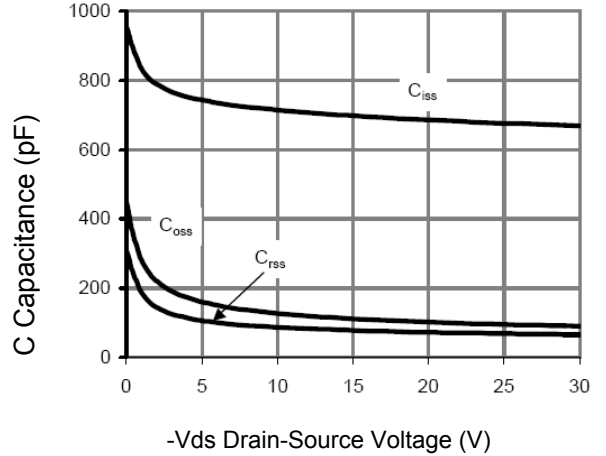


Figure 8. Capacitance vs Vds

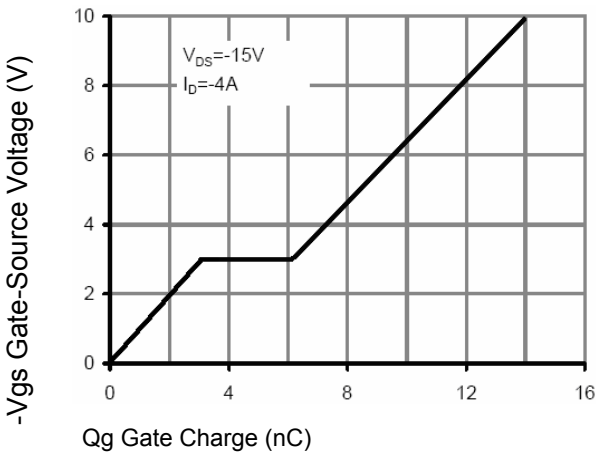


Figure 9. Gate Charge

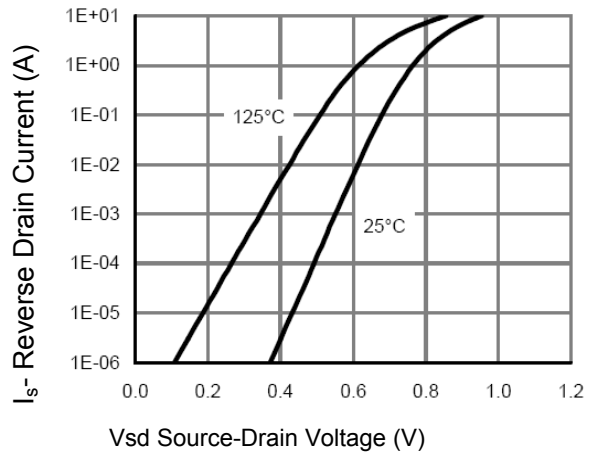


Figure 10. Source- Drain Diode Forward

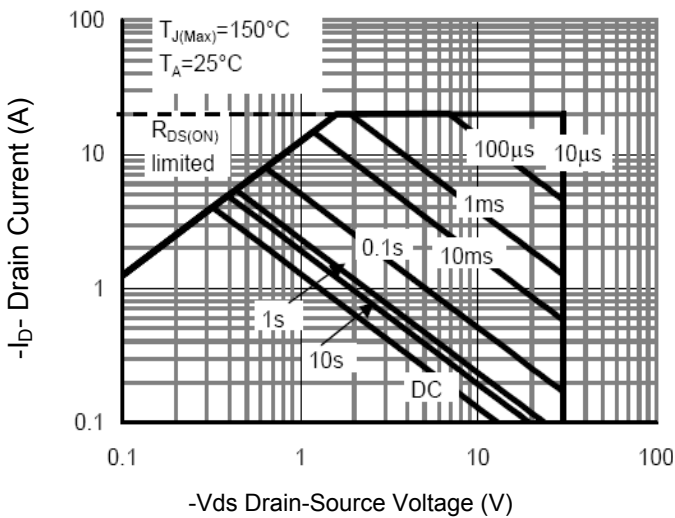


Figure 11. Safe Operation Area

Typical Electrical and Thermal Characteristics

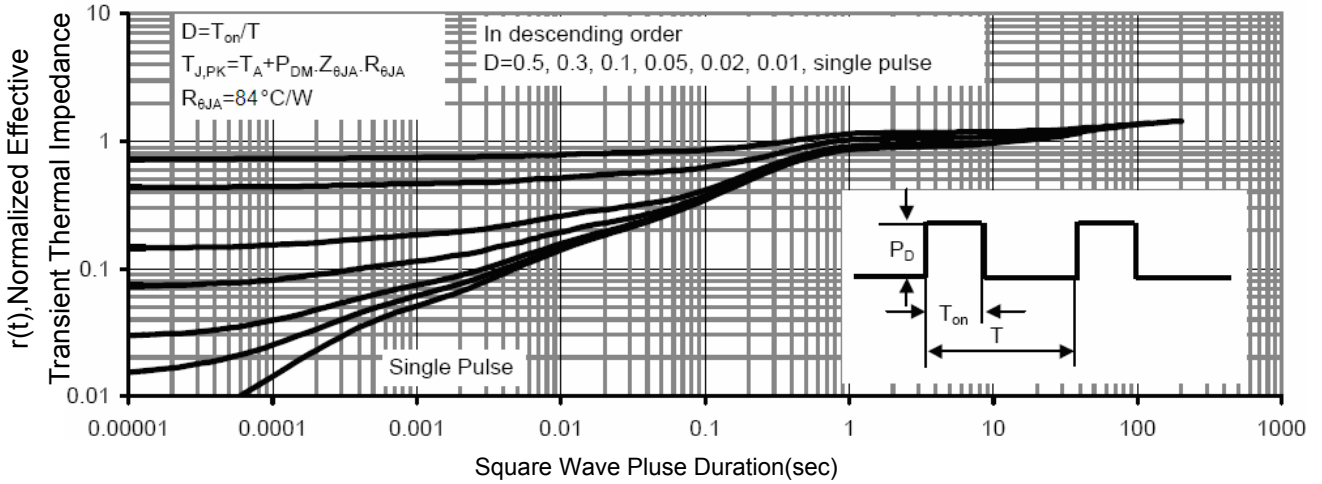


Figure 12. Normalized Maximum Transient Thermal Impedance

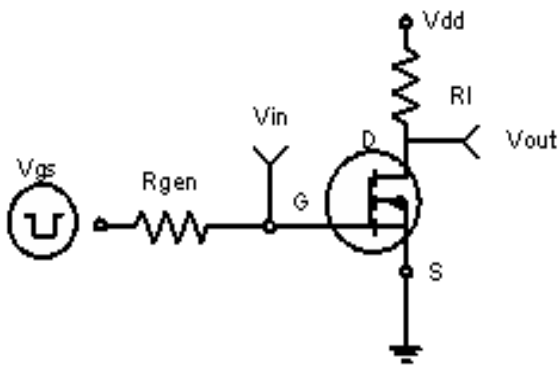


Figure 13. Switching Test Circuit

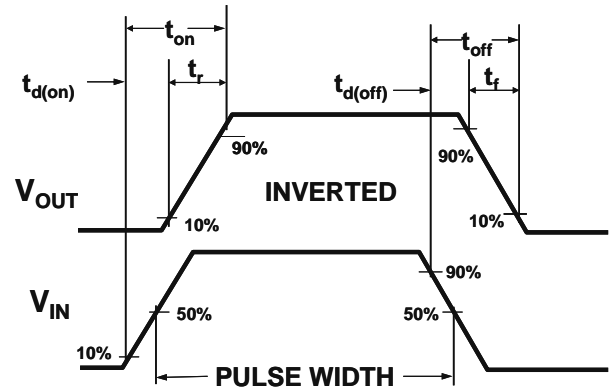
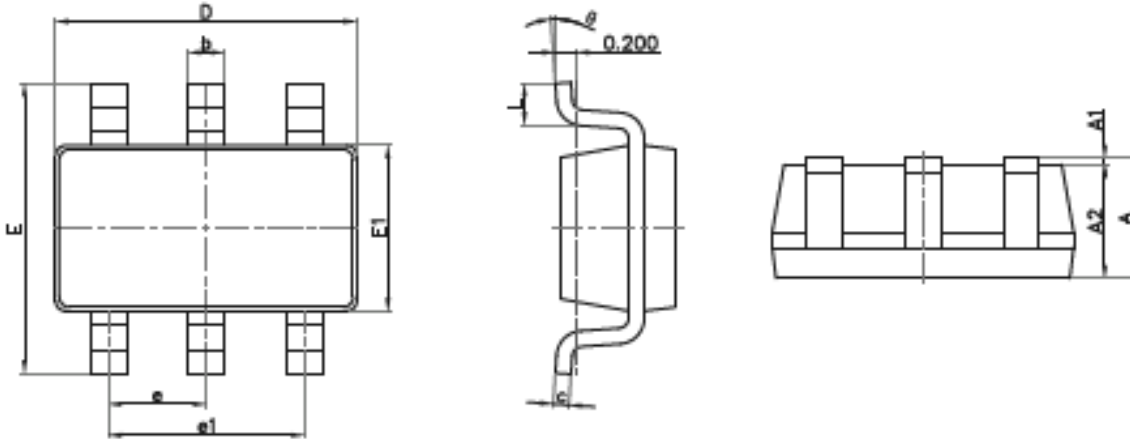


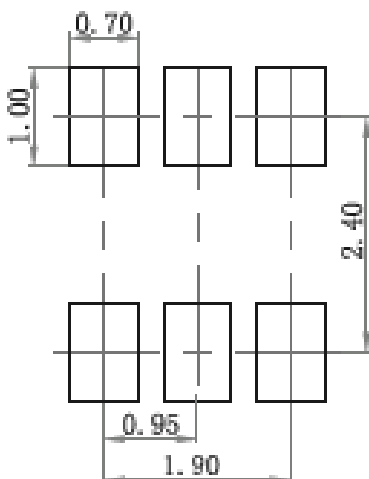
Figure 14. Switching Waveforms

Package Outline Dimensions (SOT-23-6L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
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
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.