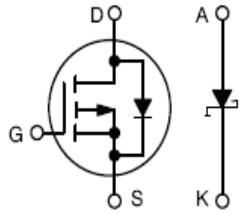
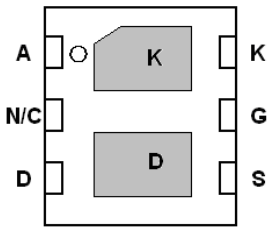
DESCRIPTION

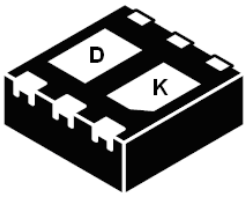
The SSF3117 uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge . A Schottky diode is provided to facilitate the implementation of a bidirectional blocking switch, or for DC-DC conversion applications.



Schematic diagram



Marking and pin Assignment



DFN2X2-6L

GENERAL FEATURES

- **MOSFET**
  V_{DS} = -20V,I_D = -3.3A
  $R_{DS(ON)}$ < 180mΩ @ V_{GS}=-1.8V
  $R_{DS(ON)}$ < 120mΩ @ V_{GS}=-2.5V
  $R_{DS(ON)}$ < 90mΩ @ V_{GS}=-4.5V

- **SCHOTTKY**
  V_R = 30V, I_F = 2A, V_F<0.53V @ 1.0A

- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Application

- DC-DC conversion applications
- Load switch
- Power management

PACKAGE MARKING AND ORDERING INFORMATION

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
3117	SSF3117	DFN2X2-6L	—	—	—

ABSOLUTE MAXIMUM RATINGS(TA=25℃unless otherwise noted)

Parameter	Symbol	MOSFET	Schottky	Unit
Drain-Source Voltage	V_{DS}	-20		V
Gate-Source Voltage	V_{GS}	±8		V
Continuous Drain Current (Note 1)	I_D	-3.3		A
Pulsed Drain Current	I_{DM}	-20		A
Schottky reverse voltage	V_R		30	V
Continuous Forward Current	I_F		2	A
Maximum Power Dissipation	P_D	1.5		W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	-55 To 150	℃

THERMAL CHARACTERISTICS

MOSFET			
Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	54	℃/W

ELECTRICAL CHARACTERISTICS (TA=25℃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}=-16V,V_{GS}=0V			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±8V,V_{DS}=0V			±100	nA
ON CHARACTERISTICS (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-0.4	-0.7	-1.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-2.0A		67	90	mΩ
		V_{GS}=-2.5V, I_D=-2.0A		91	120	
		V_{GS}=-1.8V, I_D=-1.6A		130	180	
Forward Transconductance	g_{FS}	V_{DS}=-5V,I_D=-2.0A		3.1		S
DYNAMIC CHARACTERISTICS (Note4)						
Input Capacitance	C_{lss}	V_{DS}=-10V,V_{GS}=0V, F=1.0MHz		530		PF
Output Capacitance	C_{oss}			90		PF
Reverse Transfer Capacitance	C_{rss}			55		PF
SWITCHING CHARACTERISTICS (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-10V,I_D=-2.0A V_{GS}=-4.5V,R_{GEN}=2.0Ω		5.5		nS
Turn-on Rise Time	t_r			15		nS
Turn-Off Delay Time	$t_{d(off)}$			19.8		nS
Turn-Off Fall Time	t_f			21.6		nS
Total Gate Charge	Q_g	V_{DS}=-10V,I_D=-2.0A, V_{GS}=-4.5V		5.5	6.2	nC
Gate-Source Charge	Q_{gs}			1.0		nC
Gate-Drain Charge	Q_{gd}			1.4		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V,I_S=-1A		-0.84	-1.0	V
Reverse Recovery Time	T_{rr}	V_{GS} = 0 V d_{ISD}/dt = 100 A/us I_S = -1.0 A		16.2		nS
Reverse Recovery Charge	Q_{rr}			5.7		nC
SCHOTTKY PARAMETERS						
Forward Voltage Drop	V_F	I_F=1.0A		0.48	0.53	V
Maximum reverse leakage current	I_{rm}	V_R=30V		5	10	uA
Junction Capacitance	C_T	V_R=5V， f = 1.0 MHz		38		pF

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

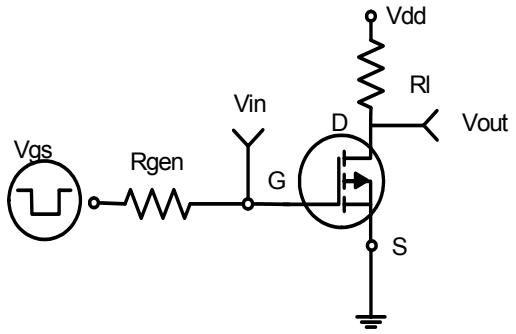


Figure1:Switching Test Circuit

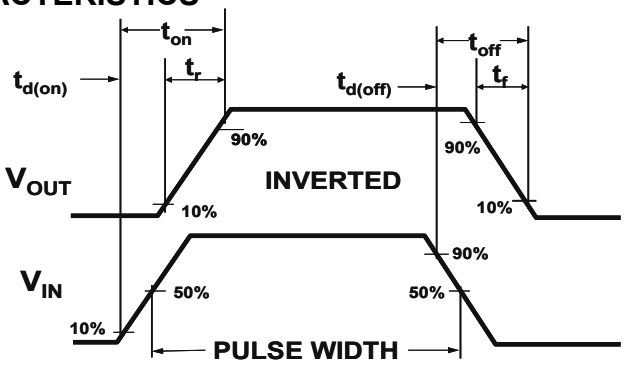


Figure 2:Switching Waveforms

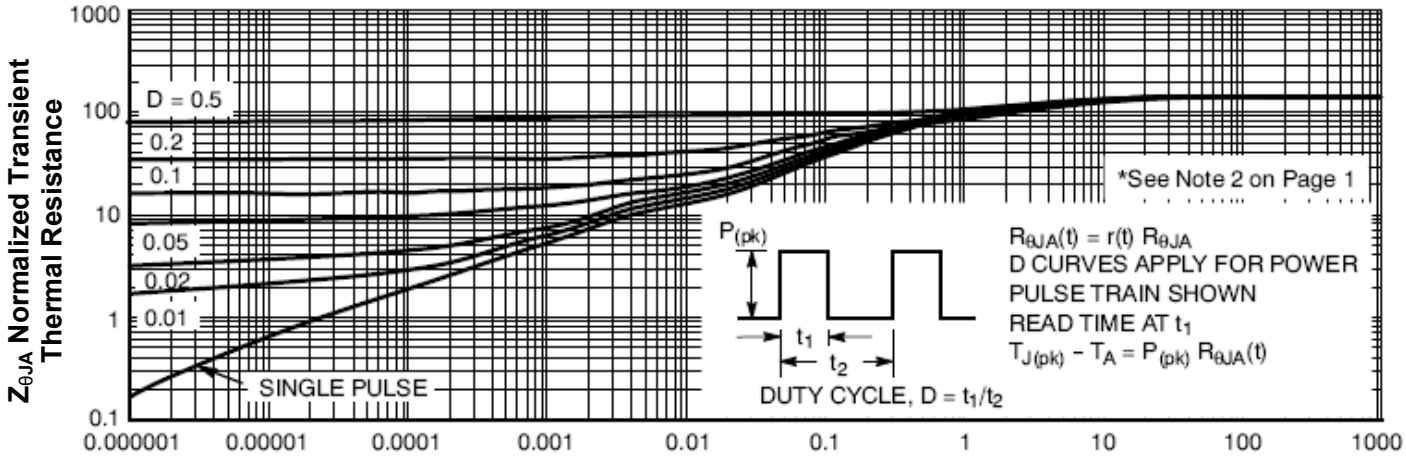
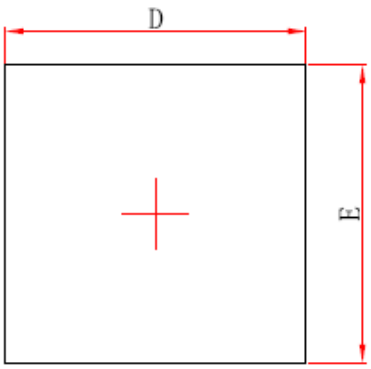
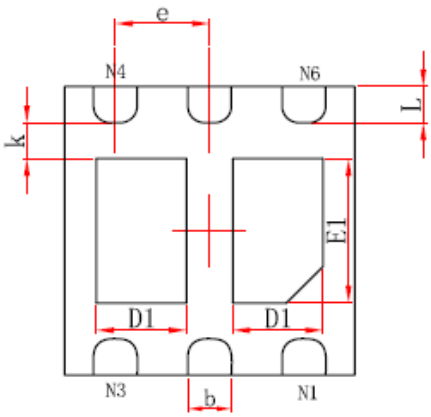


Figure 3: Normalized Maximum Transient Thermal Impedanc

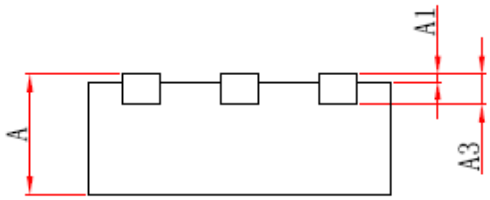
DFN2X2-6L PACKAGE INFORMATION



Top View



Bottom View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.924	2.076	0.076	0.082
E	1.924	2.076	0.076	0.082
D1	0.520	0.720	0.020	0.028
E1	0.900	1.100	0.035	0.043
k	0.200MIN.		0.008MIN.	
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
L	0.174	0.326	0.007	0.013

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.
4. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.

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