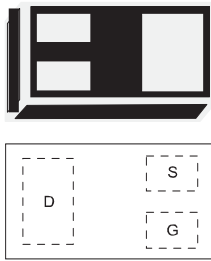## Features

- Surface Mount Package
- N-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive
- ESD Protected

Application
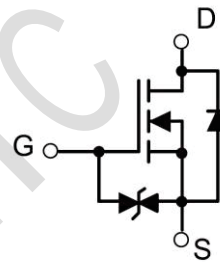
- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

Package and Pin Configuration

DFN1006-3L

Circuit diagram

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	I_D	0.7	A
Pulsed Drain Current (t=300μs) [1]	I_{DM}	1.8	A
Power Dissipation [2]	P_D	100	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

1

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

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	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} =±10V, V_{DS} = 0V			±10	µA
Gate threshold voltage[3]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250µA	0.5	0.75	1.1	V
Drain-source on-resistance[3]	$R_{DS(on)}$	V_{GS} =4.5V, I_D =500mA		250	400	mΩ
		V_{GS} =2 5V I_D =500mA		300	500	
Forward tranconductance	g_{FS}	V_{DS} =10V, I_D =500mA			1.2	S
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS} =16V, V_{GS} =0V,f =1MHz			120	pF
Output Capacitance	C_{oss}				20	
Reverse Transfer Capacitance	C_{rss}				15	
Switching Characteristics[4]						
Turn-on delay time	$t_{d(on)}$	V_{DD}=10V,I_D=500mA, V_{GS}=4.5V,R_G=10Ω		6.7		ns
Turn-on rise time	t_r			4.8		
Turn-off delay time	$t_{d(off)}$			17.3		
Turn-off fall time	t_f			7.4		
Source-Drain Diode characteristics						
Diode Forward voltage[3]	V_{DS}	I_S=0.15A, V_{GS} = 0V			1.2	V

2

DFN1006-3L Package Outline Drawing
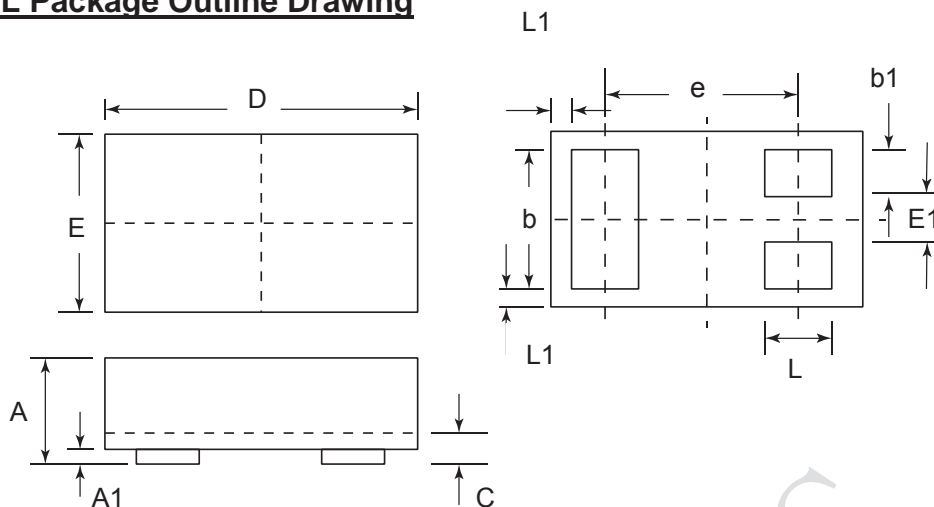
SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
b1	0.10	0.15	0.20	0.004	0.006	0.008
C	0.12	0.15	0.18	0.005	0.006	0.007
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
E1	0.15	0.20	0.25	0.006	0.008	0.010
L	0.20	0.25	0.30	0.008	0.010	0.012
L1	0.05 REF			0.0002 REF		

Suggested Land Pattern
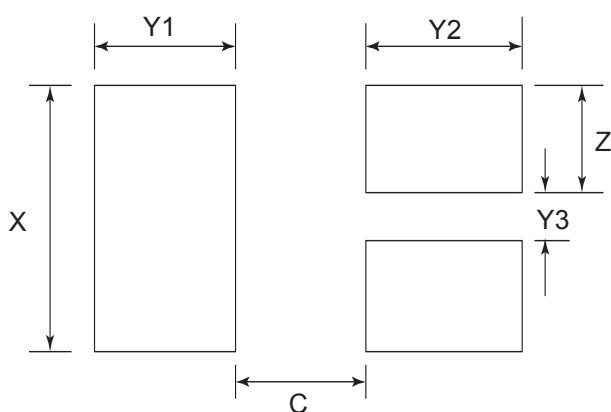
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	0.25	0.010
X	0.65	0.024
Y1	0.50	0.020
Y2	0.50	0.020
Y3	0.25	0.010
Z	0.20	0.008