

## 30V N-Channel MOSFET

### Features

- Surface Mount Package
- N-Channel Switch with Low RDS(on)
- Operated at Low Logic Level Gate Drive
- ESD Protected

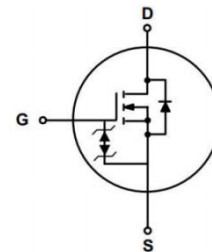
### DFN1006-3L



### Applications

- Relay driver
- High-speed line driver
- Low-side load switch
- Switching circuits

### Circuit Diagram



### Marking



04K =Device Code

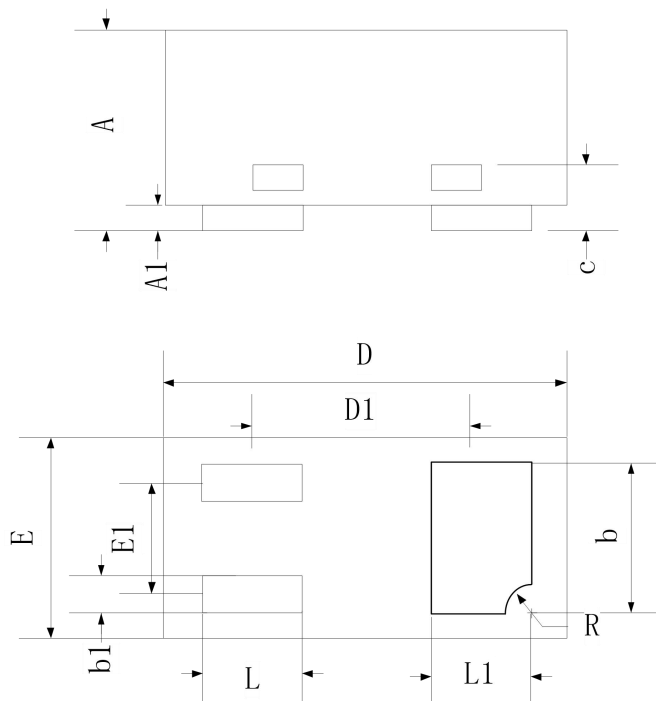
### Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	±12	V
Continuous Drain Current	$I_D$	0.59	A
Pulsed Drain Current	$I_{DM}$	2.3	A
Power Dissipation	$P_D$	0.15	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	°C/W
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-55~ +150	°C

**Electrical characteristics (T<sub>A</sub>=25 °C, unless otherwise noted)**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V			0.1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±12V, V <sub>DS</sub> = 0V			±10	μA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.5	1	1.5	V
Drain-source on-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 0.5A		0.35	0.45	Ω
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 0.4A		0.42	0.52	
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 0.3A		0.65	0.80	
<b>Dynamic characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz		30.3		pF
Output Capacitance	C <sub>oss</sub>			5.8		
Reverse Transfer Capacitance	C <sub>rss</sub>			4.2		
<b>Switching Characteristics</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> = 4.5V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 590mA, R <sub>GEN</sub> = 10Ω		4		ns
Turn-on rise time	t <sub>r</sub>			7		
Turn-off delay time	t <sub>d(off)</sub>			12		
Turn-off fall time	t <sub>f</sub>			3		
<b>Source-Drain Diode characteristics</b>						
Body Diode Voltage	V <sub>SD</sub>	I <sub>S</sub> = 0.5A, V <sub>GS</sub> = 0V	0.5		1.35	V

**DFN1006-3L Package Information**



Symbol	Dimensions in millimeters	
	Min.	Max.
A	0.46	0.51
A1	0	0.05
b	0.45	0.55
b1	0.1	0.2
c	0.08	0.18
D	0.95	1.05
D1	0.65	
E	0.55	0.65
E1	0.325	
L	0.2	0.3
L1	0.2	0.3
R	0.05	0.15



DFN1006-3L Tape

DFN1006-3L Tape Leader and Trailer

