



## 30V Single N-Channel Enhancement-Mode MOSFET

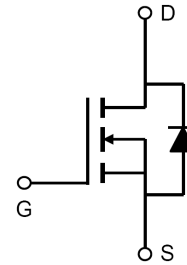
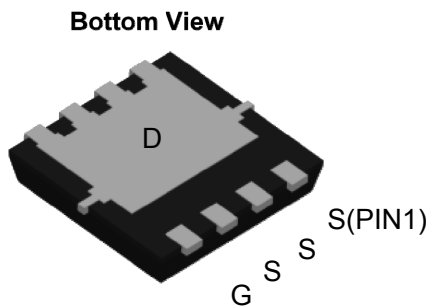
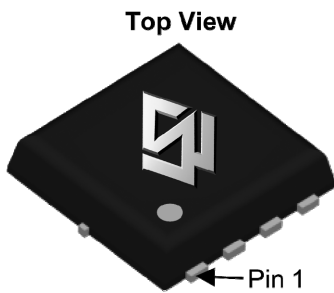
### General Description

- Low resistance.
- Use as a load switch.
- Use in PWM applications

### Product Summary

- $BV_{DSS}$  30V
- $R_{DS(on)}$  @VGS = 10V < 6mΩ
- $R_{DS(on)}$  @VGS = 4.5V < 9mΩ

PDFN3X3-8L



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

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current ( $T_A=25^\circ\text{C}$ )	$I_D$	18	A
Drain Current ( $T_A=75^\circ\text{C}$ )		8	A
Pulsed Drain Current <sup>a</sup>	$I_{DM}$	55	A
Avalanche Energy (L= 0.1 mH)	$E_{AS}$	25	mJ
Power Dissipation <sup>b</sup> ( $T_A=25^\circ\text{C}$ )	$P_D$	2	W
Power Dissipation <sup>b</sup> ( $T_A=75^\circ\text{C}$ )		1.2	W
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 ~ +150	$^\circ\text{C}$

### Thermal Characteristics

Parameter	Symbol	Maximum	Units
Junction-to-Ambient <sup>a</sup> ( $t \leq 10\text{s}$ )	$R_{\theta JA}$	42	$^\circ\text{C/W}$
Junction-to-Ambient <sup>a,d</sup> (Steady-State)		62	$^\circ\text{C/W}$
Junction-to-Lead (Steady-State)	$R_{\theta JL}$	4	$^\circ\text{C/W}$

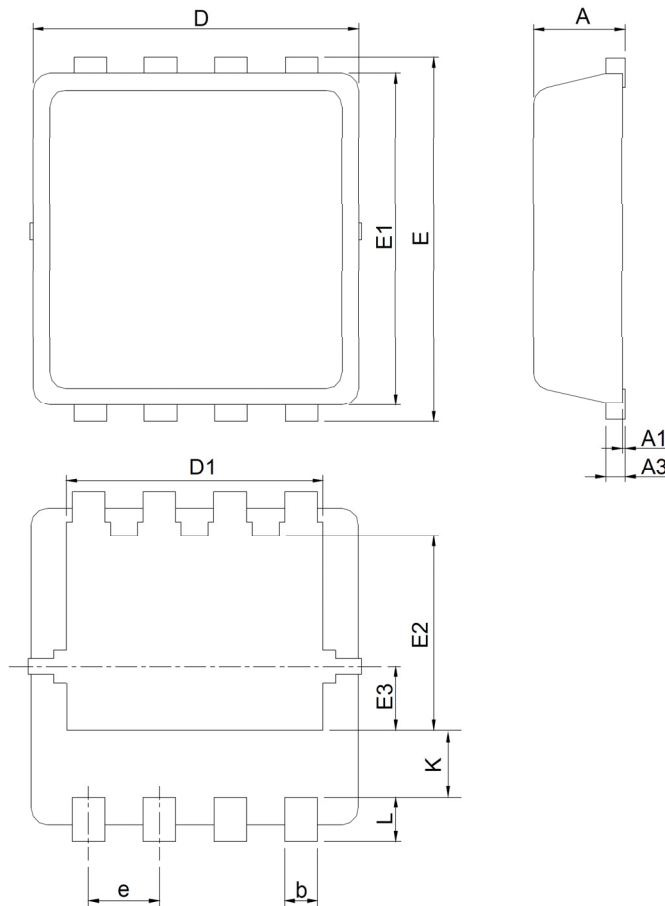


Electrical Characteristics (T <sub>A</sub> = 25°C unless otherwise noted)						
Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>Off Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> = 0V , I <sub>D</sub> = 250uA	30			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = 30V , V <sub>GS</sub> = 0V			1	uA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> = ±20V , V <sub>DS</sub> = 0V			±100	nA
<b>On Characteristics</b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250uA	1.0	1.8	2.5	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> = 10V , I <sub>D</sub> = 18A		4.8	6	mΩ
		V <sub>GS</sub> = 4.5V , I <sub>D</sub> = 10A		7.0	9	mΩ
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> = 5.0V , I <sub>D</sub> = 12A		35		S
<b>Drain-Source Diode Characteristics</b>						
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> = 0V , I <sub>S</sub> = 1.0A			1.1	V
I <sub>S</sub>	Maximum Body-Diode Continuous Current				40	A
<b>Dynamic Characteristics</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> = 15V , V <sub>GS</sub> = 0V f = 1.0MHz		1160		pF
C <sub>oss</sub>	Output Capacitance			200		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			180		pF
<b>Switching Characteristics</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> = 15V , I <sub>D</sub> = 15A V <sub>GS</sub> = 4.5V		11.8		nC
Q <sub>gs</sub>	Gate-Source Charge			4.3		nC
Q <sub>gd</sub>	Gate-Drain Charge			3.5		nC
t <sub>D(ON)</sub>	Turn-On Delay Time	V <sub>DD</sub> = 15V , I <sub>D</sub> = 15A V <sub>GS</sub> = 10 V R <sub>GEN</sub> = 3.3 ohm		5		ns
t <sub>r</sub>	Turn-On Rise Time			8		ns
t <sub>D(OFF)</sub>	Turn-Off Delay Time			32		ns
t <sub>f</sub>	Turn-Off Fall Time			4		ns

- a. Repetitive rating, Pulse width limited by junction temperature T<sub>J(MAX)</sub>=150 °C. Ratings are based on low frequency and duty cycles to keep initial T<sub>J</sub>=25 °C
- b. The power dissipation P<sub>D</sub> is based on T<sub>J(MAX)</sub>=150 °C , using ≤10s junction-to-ambient thermal resistance.
- c. The value of R<sub>θJA</sub> is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub> = 25°C. The value in any given application depends on the user's specific board design.
- d. The R<sub>θJA</sub> is the sum of the thermal impedance from junction to lead R<sub>θJL</sub> and lead to ambient.

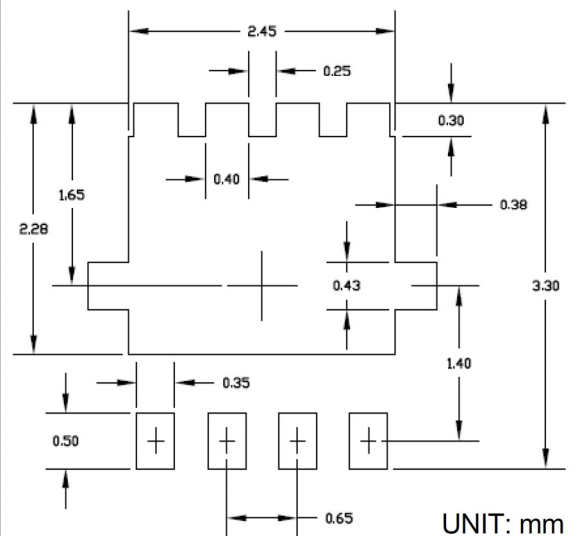


## PDFN3x3-8L Package



SYMBOL	DFN3x3-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.80	1.00	0.031	0.039
A1	0.00	0.05	0.000	0.002
A3	0.10	0.25	0.004	0.010
b	0.24	0.35	0.009	0.014
D	2.90	3.10	0.114	0.122
D1	2.25	2.45	0.089	0.096
E	3.10	3.30	0.122	0.130
E1	2.90	3.10	0.114	0.122
E2	1.65	1.85	0.065	0.073
E3	0.56	0.58	0.022	0.023
e	0.65 BSC		0.026 BSC	
K	0.475	0.775	0.019	0.031
L	0.30	0.50	0.012	0.020

### RECOMMENDED LAND PATTERN



UNIT: mm

单击下面可查看定价，库存，交付和生命周期等信息

[>>SiliconWisdom\(矽睿半导体\)](#)