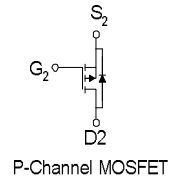
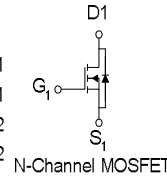
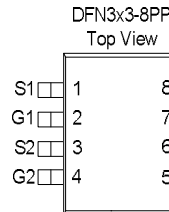


**P & N-Channel 30-V (D-S) MOSFET**

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low  $r_{DS(on)}$  and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ m( $\Omega$ )	$I_D$ (A)
30	50 @ $V_{GS} = 10V$	5.8
	83 @ $V_{GS} = 4.5V$	4.5
-30	72 @ $V_{GS} = -10V$	-4.9
	105 @ $V_{GS} = -4.5V$	-4.0

- Low  $r_{DS(on)}$  provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe DFN3x3-8 saves board space
- Fast switching speed
- High performance trench technology



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)				
Parameter	Symbol	N-Channel	P-Channel	Units
Drain-Source Voltage	$V_{DS}$	30	-30	V
Gate-Source Voltage	$V_{GS}$	20	-20	
Continuous Drain Current <sup>a</sup>	$I_D$	$T_A=25^\circ C$	5.8	A
		$T_A=70^\circ C$	4.8	
Pulsed Drain Current <sup>b</sup>	$I_{DM}$	$\pm 20$	$\pm 20$	
Continuous Source Current (Diode Conduction) <sup>a</sup>	$I_S$	2.9	-2.9	A
Power Dissipation <sup>a</sup>	$P_D$	$T_A=25^\circ C$	3.5	W
		$T_A=70^\circ C$	2.2	
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150	-55 to 150	$^\circ C$

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Maximum	Units
Maximum Junction-to-Ambient <sup>a</sup>	$t \leq 10$ sec	35	$^\circ C/W$
	Steady State	85	$^\circ C/W$

Notes

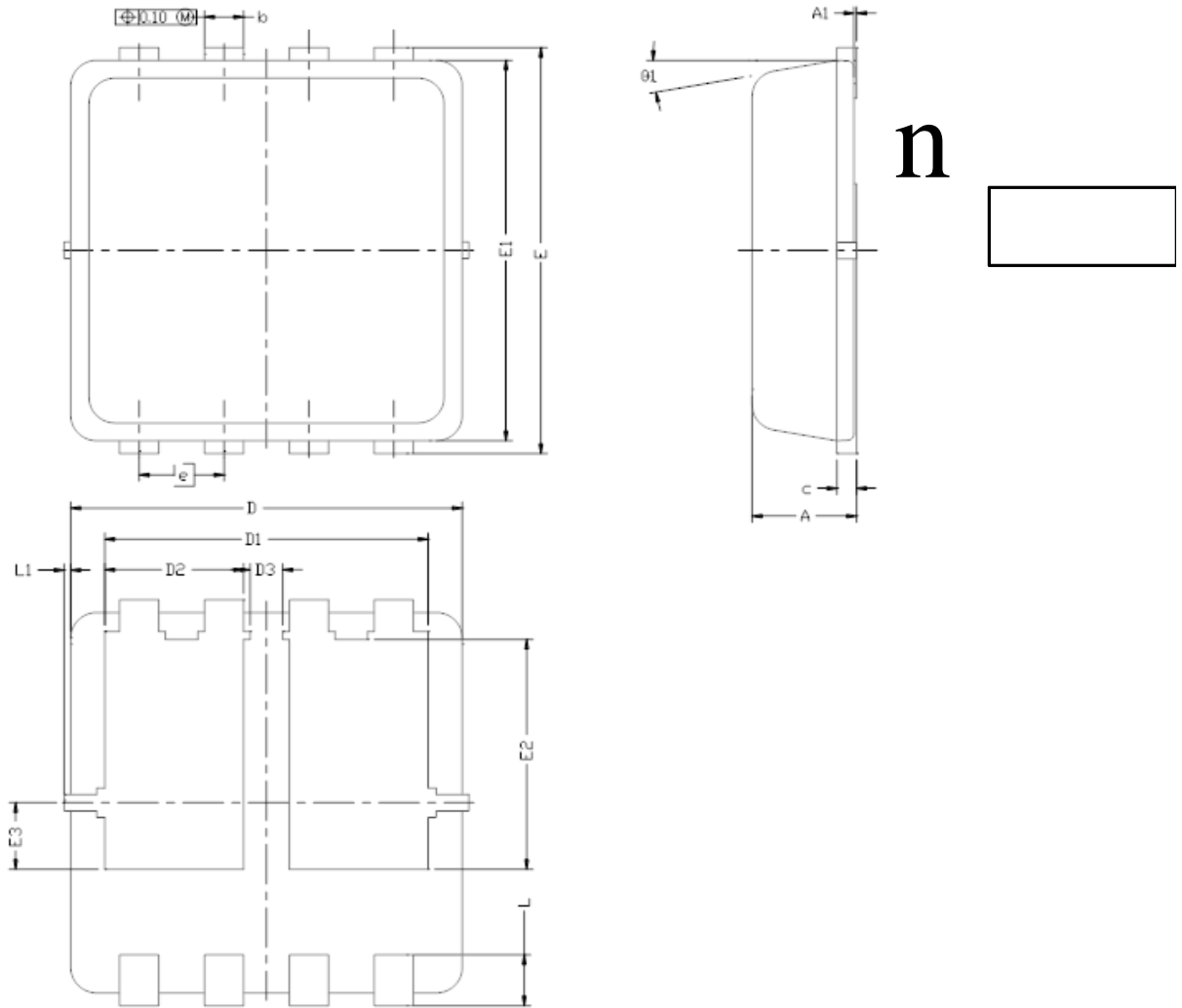
- a. Surface Mounted on 1" x 1" FR4 Board.
- b. Pulse width limited by maximum junction temperature

SPECIFICATIONS (T <sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	Test Conditions	Limits				Unit
			Ch	Min	Typ	Max	
<b>Static</b>							
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>GS</sub> = V <sub>DS</sub> , I <sub>D</sub> = 250 uA	N	1			V
		V <sub>GS</sub> = V <sub>DS</sub> , I <sub>D</sub> = -250 uA	P	-1			
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>GS</sub> = 20 V, V <sub>DS</sub> = 0 V	N			±100	nA
		V <sub>GS</sub> = -20 V, V <sub>DS</sub> = 0 V	P			±100	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -24 V, V <sub>GS</sub> = 0 V	P			-1	uA
		V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V	N			1	
On-State Drain Current <sup>A</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> = 5 V, V <sub>GS</sub> = 10 V	N	20			A
		V <sub>DS</sub> = -5 V, V <sub>GS</sub> = -10 V	P	-20			
Drain-Source On-Resistance <sup>A</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 1 A	N			50	mΩ
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 1 A				83	
		V <sub>GS</sub> = -10 V, I <sub>D</sub> = -1 A	P			72	
		V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -1 A				105	
Forward Transconductance <sup>A</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 1 A	N		40		S
		V <sub>DS</sub> = -15 V, I <sub>D</sub> = -1 A	P		31		
<b>Dynamic</b>							
Total Gate Charge	Q <sub>g</sub>	N-Channel V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =1A P-Channel V <sub>DS</sub> =-15V, V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-1A	N		4		nC
			P		8		
Gate-Source Charge	Q <sub>gs</sub>		N		1		
			P		2		
Gate-Drain Charge	Q <sub>gd</sub>		N		1		
			P		3		
Turn-On Delay Time	t <sub>d(on)</sub>	N-Chaneel V <sub>DD</sub> =15V, V <sub>GS</sub> =5V, I <sub>D</sub> =1A , R <sub>GEN</sub> =25Ω, P-Channel V <sub>DD</sub> =-15V, V <sub>GS</sub> =-5V, I <sub>D</sub> =-1A R <sub>GEN</sub> =15Ω	N		4		nS
			P		5		
Rise Time	t <sub>r</sub>		N		6		
			P		7		
Turn-Off Delay Time	t <sub>d(off)</sub>		N		10		
			P		30		
Fall-Time	t <sub>f</sub>		N		5		
			P		10		

Notes

- a. Pulse test: PW <= 300us duty cycle <= 2%.
- b. Guaranteed by design, not subject to production testing.

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DIM.	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.80	0.90	0.0276	0.0315	0.0354
A1	0.00	---	0.05	0.000	---	0.002
b	0.24	0.30	0.35	0.009	0.012	0.014
c	0.10	0.152	0.25	0.004	0.006	0.010
D	3.00 BSC			0.118 BSC		
D1	2.475 BSC			0.093 BSC		
D2	1.063 BSC			0.042 BSC		
D3	0.225 BSC			0.009 BSC		
E	3.20 BSC			0.126 BSC		
E1	3.00 BSC			0.118 BSC		
E2	1.813 BSC			0.069 BSC		
E3	0.525 BSC			0.023 BSC		
e	0.65 BSC			0.026 BSC		
L	0.30	0.40	0.50	0.0118	0.0157	0.0197
L1	0	---	0.100	0	---	0.004
-	0?	10?	12?	0?	10?	12?