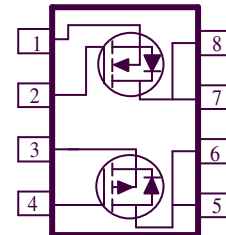
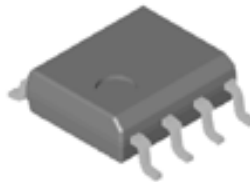


**P & N-Channel 30-V (D-S) MOSFET**

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	42 @ $V_{GS} = 4.5V$	5.8
	28 @ $V_{GS} = 10V$	7.1
-30	59 @ $V_{GS} = -4.5V$	-4.9
	39 @ $V_{GS} = -10V$	-6.0

- Low  $r_{DS(on)}$  provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe SOIC-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		$V_{GS}$	$\pm 20$	$\pm 20$	
Continuous Drain Current <sup>a</sup>	$T_A=25^\circ C$	$I_D$	7.1	-6.0	A
	$T_A=70^\circ C$		5.8	-4.9	
Pulsed Drain Current <sup>b</sup>		$I_{DM}$	20	-20	
Continuous Source Current (Diode Conduction) <sup>a</sup>		$I_S$	1.3	-1.3	A
Power Dissipation <sup>a</sup>	$T_A=25^\circ C$	$P_D$	2.1	2.1	W
	$T_A=70^\circ C$		1.3	1.3	
Operating Junction and Storage Temperature Range		$T_J, T_{stg}$	-55 to 150		$^\circ C$

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient <sup>a</sup>	$t \leq 10$ sec	$R_{\theta JA}$	62.5	$^\circ C/W$
	Steady State		110	$^\circ C/W$

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	-1.0			
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>GS</sub> = -20 V, V <sub>DS</sub> = 0 V	P			±100	nA
		V <sub>GS</sub> = 20 V, V <sub>DS</sub> = 0 V	N			±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>GS</sub> = 5 V, V <sub>DS</sub> = 10 V	N	20			A
		V <sub>GS</sub> = -5 V, V <sub>DS</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> = 7.1 A	N			28	mΩ
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 5.8 A				42	
		V <sub>GS</sub> = -10 V, I <sub>D</sub> = -6 A	P			39	
		V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -4.9 A				59	
Forward Transconductance <sup>A</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 6.9 A	N		25		S
		V <sub>DS</sub> = -15 V, I <sub>D</sub> = -5.2 A	P		10		
<b>Dynamic</b>							
Total Gate Charge	Q <sub>g</sub>	N-Channel V <sub>DS</sub> =15V, V <sub>GS</sub> =10V, I <sub>D</sub> =6.9A	N		4.0		nC
Gate-Source Charge	Q <sub>gs</sub>		P		10		
Gate-Drain Charge	Q <sub>gd</sub>	P-Channel V <sub>DS</sub> =-15V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-5.2A	N		1.1		nC
			P		2.2		
Turn-On Delay Time	t <sub>d(on)</sub>	N-Chaneel V <sub>DD</sub> =15V, V <sub>GS</sub> =10V, I <sub>D</sub> =1A , R <sub>GEN</sub> =6Ω,	N		1.4		nC
			P		1.7		
Rise Time	t <sub>r</sub>	P-Channel V <sub>DD</sub> =-15V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-1A R <sub>GEN</sub> =6Ω	N		8		nS
			P		10		
Turn-Off Delay Time	t <sub>d(off)</sub>		N		5		nS
			P		2.8		
Fall-Time	t <sub>f</sub>		N		23		nS
			P		53.6		
			N		3		nS
			P		46		

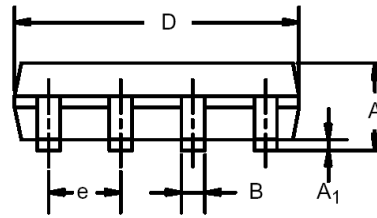
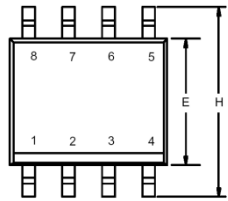
Notes

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

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Package Information

SO-8: 8LEAD



Dim	MILLIMETERS		INCHES	
	Min	Max	Min	Max
A	1.35	1.75	0.053	0.069
A <sub>1</sub>	0.10	0.20	0.004	0.008
B	0.35	0.51	0.014	0.020
C	0.19	0.25	0.0075	0.010
D	4.80	5.00	0.189	0.196
E	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
H	5.80	6.20	0.228	0.244
h	0.25	0.50	0.010	0.020
L	0.50	0.93	0.020	0.037
q	0°	8°	0°	8°

