

P & N-Channel 32-V (D-S) MOSFET

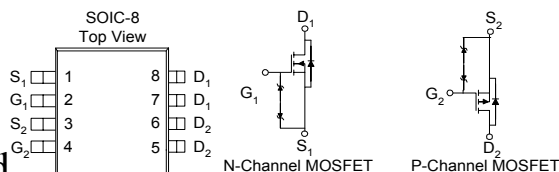
These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA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

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ m(Ω)	I_D (A)
30	82 @ $V_{GS} = 4.5V$	4.2
	50 @ $V_{GS} = 10V$	5.3
-30	80 @ $V_{GS} = -4.5V$	-4.2
	52 @ $V_{GS} = -10V$	-5.2

- 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



ESD Protected
2000V



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 ^a	I_D	$T_A=25^\circ C$	5.3	-5.2	A
		$T_A=70^\circ C$	4.2	-4.1	
Pulsed Drain Current ^b	I_{DM}	20	-20		
Continuous Source Current (Diode Conduction) ^a	I_S	1.3	-1.3	A	
Power Dissipation ^a	P_D	$T_A=25^\circ C$	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 ^a	$t \leq 10$ sec	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 _A = 25°C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	Test Conditions	Limits				Unit
			Ch	Min	Typ	Max	
Static							
Gate-Threshold Voltage	V _{GS(th)}	V _{GS} = V _{DS} , I _D = 250 uA	N	1.2			V
		V _{GS} = V _{DS} , I _D = -250 uA	P	-1.2		-2.5	
Gate-Body Leakage	I _{GSS}	V _{GS} = -20 V, V _{DS} = 0 V	P			±100	nA
		V _{GS} = 20 V, V _{DS} = 0 V	N			±100	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -24 V, V _{GS} = 0 V	P			-1	uA
		V _{DS} = 24 V, V _{GS} = 0 V	N			1	
On-State Drain Current ^A	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 10 V	N	20			A
		V _{DS} = -5 V, V _{GS} = -10 V	P	-20			
Drain-Source On-Resistance ^A	r _{DS(on)}	V _{GS} = 10 V, I _D = 5.3 A	N			50	mΩ
		V _{GS} = 4.5 V, I _D = 4.2 A				82	
		V _{GS} = -10 V, I _D = -5.2 A	P			52	
		V _{GS} = -4.5 V, I _D = -4.2 A				80	
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 1.3 A	N		0.75		V
		V _{GS} = 0 V, I _S = -1.3 A	P		-0.88		
Dynamic							
Total Gate Charge	Q _g	N-Channel V _{DS} =15V, V _{GS} =10V, I _D =5.3A P-Channel V _{DS} =-15V, V _{GS} =-10V, I _D =-5.2A	N		2.2		nC
Gate-Source Charge	Q _{gs}		P		10		
			N		0.5		
Gate-Drain Charge	Q _{gd}		P		2.2		
			N		0.8		
Turn-On Delay Time	t _{d(on)}		P		1.7		
		N		8			
Rise Time	t _r	P		10		nS	
		N		5			
Turn-Off Delay Time	t _{d(off)}	P		2.8			
		N		23			
Fall-Time	t _f	P		53.6			
		N		3			
		P		46			

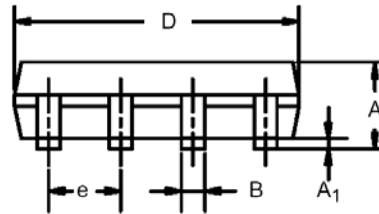
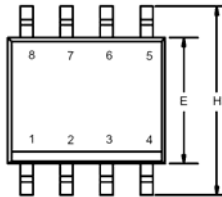
Notes

- 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 ₁	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°

