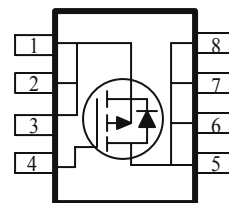
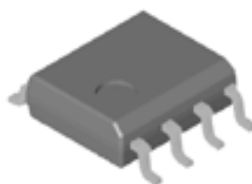


## P-Channel 60-V (D-S) MOSFET

These miniature surface mount MOSFETs utilize High Cell Density process. Low  $r_{DS(on)}$  assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are PWMDC-DC converters, power management in portable and battery-powered products such as computers, printers, battery charger, telecommunication power system, and telephones power system.

- Low  $r_{DS(on)}$  Provides Higher Efficiency and Extends Battery Life
- Miniature SO-8 Surface Mount Package Saves Board Space
- High power and current handling capability
- Extended VGS range ( $\pm 25$ ) for battery pack applications



PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ m( $\Omega$ )	$I_D$ (A)
-60	17 @ $V_{GS} = -10V$	-9.3
	23 @ $V_{GS} = -4.5V$	-8.0

ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Maximum	Units
Drain-Source Voltage		$V_{DS}$	-60	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	
Continuous Drain Current <sup>a</sup>	$T_A = 25^\circ\text{C}$	$I_D$	$\pm 9.3$	A
	$T_A = 70^\circ\text{C}$		$\pm 8.0$	
Pulsed Drain Current <sup>b</sup>		$I_{DM}$	$\pm 30$	
Continuous Source Current (Diode Conduction) <sup>a</sup>		$I_S$	-2.5	A
Power Dissipation <sup>a</sup>	$T_A = 25^\circ\text{C}$	$P_D$	3.1	W
	$T_A = 70^\circ\text{C}$		2.0	
Operating Junction and Storage Temperature Range		$T_J, T_{stg}$	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient <sup>a</sup>	$t \leq 10 \text{ sec}$	$R_{\theta JA}$	50	$^\circ\text{C/W}$

### Notes

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

**SPECIFICATIONS ( $T_A = 25^\circ\text{C}$  UNLESS OTHERWISE NOTED)**

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 uA	-1			
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -48 V, V <sub>GS</sub> = 0 V			-1	uA
		V <sub>DS</sub> = -48 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55°C			-10	
On-State Drain Current <sup>A</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> = -5 V, V <sub>GS</sub> = -10 V	-20			A
Drain-Source On-Resistance <sup>A</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = -10 V, I <sub>D</sub> = -9.3 A			17	mΩ
		V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -8.0 A			23	
Forward Tranconductance <sup>A</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -15 V, I <sub>D</sub> = -9.3 A		8		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = -2.5 A, V <sub>GS</sub> = 0 V			-1.2	V
Dynamic <sup>b</sup>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -30 V, V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -8.0 A		121		nC
Gate-Source Charge	Q <sub>gs</sub>			20.0		
Gate-Drain Charge	Q <sub>gd</sub>			32.0		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -30 V, R <sub>L</sub> = 30 Ω , I <sub>D</sub> = -1 A, V <sub>GEN</sub> = -10 V, R <sub>G</sub> = 6Ω		20		nS
Rise Time	t <sub>r</sub>			20		
Turn-Off Delay Time	t <sub>d(off)</sub>			205		
Fall-Time	t <sub>f</sub>			90		

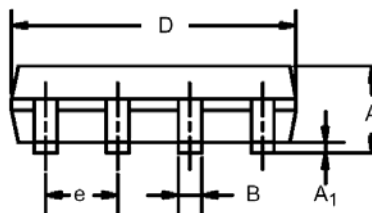
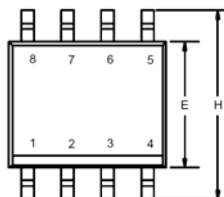
## Notes

- Pulse test:  $PW \leq 300\mu\text{s}$  duty cycle  $\leq 2\%$ .
- 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°

