

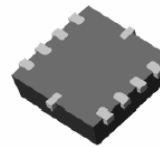
P-Channel 30-V (D-S) MOSFET

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.

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

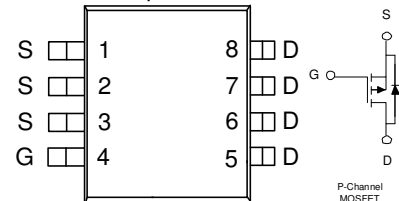


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PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ m(Ω)	I_D (A)
-30	60 @ $V_{GS} = -10V$	-5.9
	90 @ $V_{GS} = -4.5V$	-4.8

DFN3x3
Top View



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}	± 20	
Continuous Drain Current ^a	$T_A = 25^\circ\text{C}$	I_D	-5.9	A
	$T_A = 70^\circ\text{C}$		-4.8	
Pulsed Drain Current ^b		I_{DM}	± 50	
Continuous Source Current (Diode Conduction) ^a		I_S	-2.1	A
Power Dissipation ^a	$T_A = 25^\circ\text{C}$	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 ^a	$t \leq 10$ sec	$R_{\theta JA}$	35	$^\circ\text{C/W}$
	Steady State		81	$^\circ\text{C/W}$

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)

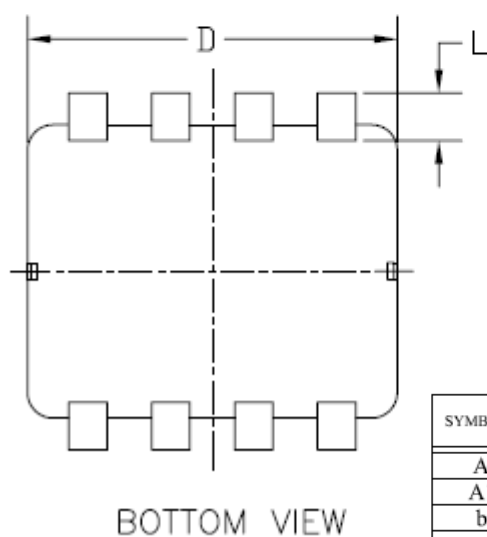
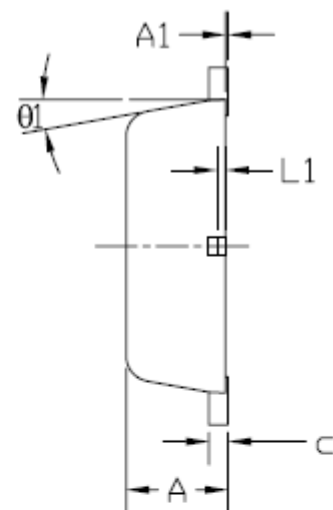
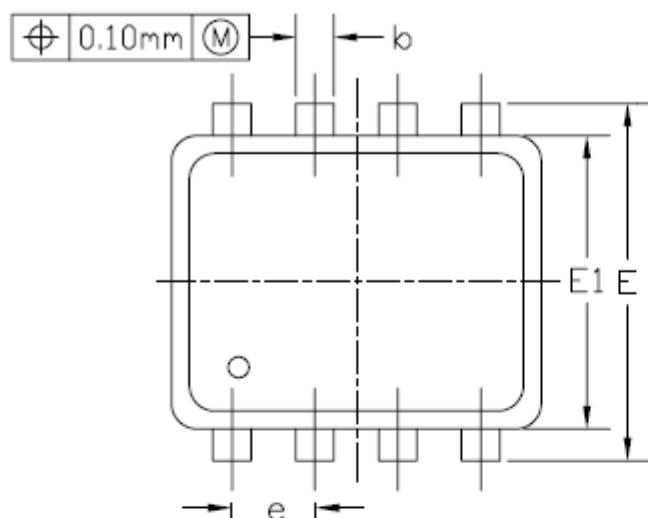
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\text{ }\mu\text{A}$	-1			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -24\text{ V}, V_{GS} = 0\text{ V}$			-1	μA
		$V_{DS} = -24\text{ V}, V_{GS} = 0\text{ V}, T_J = 55^{\circ}\text{C}$			-5	
On-State Drain Current ^A	$I_{D(on)}$	$V_{DS} = -5\text{ V}, V_{GS} = -10\text{ V}$	-50			A
Drain-Source On-Resistance ^A	$r_{DS(on)}$	$V_{GS} = -10\text{ V}, I_D = -1\text{ A}$			60	m Ω
		$V_{GS} = -4.5\text{ V}, I_D = -1\text{ A}$			90	
Forward Tranconductance ^A	g_{fs}	$V_{DS} = -15\text{ V}, I_D = -1\text{ A}$		29		S
Diode Forward Voltage	V_{SD}	$I_S = 1\text{ A}, V_{GS} = 0\text{ V}$		-0.8		V
Dynamic ^b						
Total Gate Charge	Q_g	$V_{DS} = -15\text{ V}, V_{GS} = -5\text{ V},$ $I_D = -1\text{ A}$		14		nC
Gate-Source Charge	Q_{gs}			4		
Gate-Drain Charge	Q_{gd}			8		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -15\text{ V}, R_L = 6\text{ }\Omega$, $I_D = -1\text{ A}, V_{GEN} = -10\text{ V}$		4		nS
Rise Time	t_r			5		
Turn-Off Delay Time	$t_{d(off)}$			80		
Fall-Time	t_f			40		

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



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.80	0.90	0.028	0.031	0.035
A1	0.00	—	0.05	0.000	—	0.002
b	0.24	0.30	0.35	0.009	0.012	0.014
c	0.08	0.15	0.25	0.003	0.006	0.010
D	2.90 BSC			0.114 BSC		
E	2.80 BSC			0.110 BSC		
E1	2.30 BSC			0.091 BSC		
e	0.65 BSC			0.026 BSC		
L	0.20	0.38	0.45	0.008	0.015	0.018
L1	0.05	—	—	0.002	—	—
θ1	0°	10°	12°	0°	10°	12°