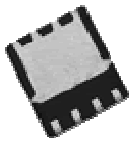
P-Channel 60-V (D-S) MOSFET

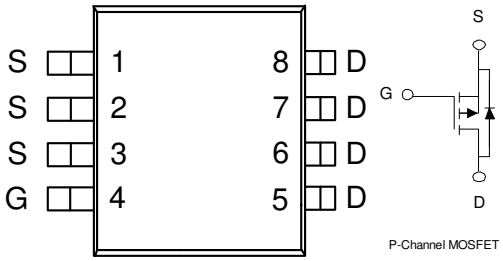
These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA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

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ m(Ω)	I_D (A)
-60	64 @ V_{GS} = -10V	-6.1
	109 @ V_{GS} = -4.5V	-4.7



DFN3x3-8PP
Top View



P-Channel MOSFET

Pb-free
RoHS COMPLIANT
HALOGEN FREE

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C UNLESS OTHERWISE NOTED)				
Parameter		**Symbol**	**Maximum**	**Units**
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current[a]	T_A=25°C	I_D	-6.1	A
	T_A=70°C		-5	
Pulsed Drain Current[b]		I_{DM}	±30	
Continuous Source Current (Diode Conduction)[a]		I_S	-3.5	A
Power Dissipation[a]	T_A=25°C	P_D	3.8	W
	T_A=70°C		2.0	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS				
Parameter		**Symbol**	**Maximum**	**Units**
Maximum Junction-to-Ambient[a]	t <= 10 sec	$R_{\theta JA}$	33	°C/W
	Steady State		81	°C/W

Notes

a. Surface Mounted on 1" x 1" FR4 Board.

b. Pulse width limited by maximum junction temperature

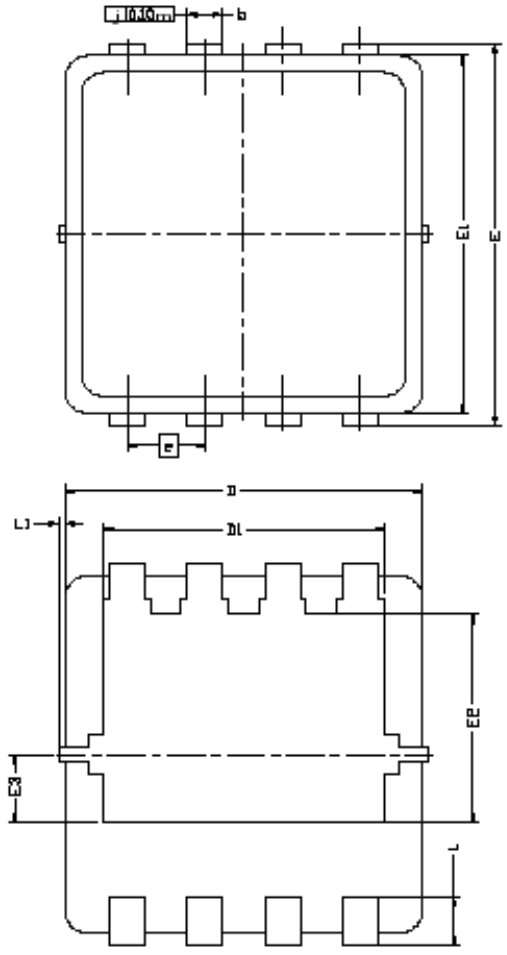
SPECIFICATIONS (T_A = 25°C UNLESS OTHERWISE NOTED)						
Parameter	**Symbol**	**Test Conditions**	**Limits**			**Unit**
			Min	**Typ**	**Max**	
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250 uA	-1			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -48 V, V_{GS} = 0 V			-1	uA
		V_{DS} = -48 V, V_{GS} = 0 V, T_J = 55°C			-5	
On-State Drain Current[A]	$I_{D(on)}$	V_{DS} = -5 V, V_{GS} = -10 V	-20			A
Drain-Source On-Resistance[A]	$r_{DS(on)}$	V_{GS} = -10 V, I_D = -6.1 A			64	mΩ
		V_{GS} = -4.5 V, I_D = -4.7 A			109	
Forward Tranconductance[A]	g_{fs}	V_{DS} = -15 V, I_D = -6.1 A		11		S
Diode Forward Voltage	V_{SD}	I_S = 3.5 A, V_{GS} = 0 V		-0.8		V
Dynamic[b]						
Total Gate Charge	Q_g	V_{DS} = -15 V, V_{GS} = -4.5 V, I_D = -6.1 A		15		nC
Gate-Source Charge	Q_{gs}			4		
Gate-Drain Charge	Q_{gd}			3		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -15 V, R_L = 6 Ω , I_D = -1 A, V_{GEN} = -10 V		12		nS
Rise Time	t_r			9		
Turn-Off Delay Time	$t_{d(off)}$			22		
Fall-Time	t_f			16		

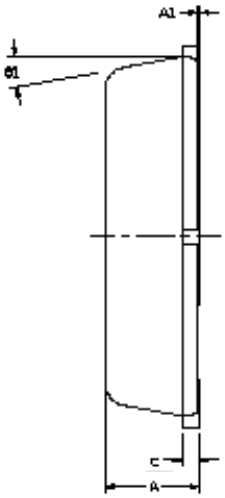
Notes

a. Pulse test: PW <= 300us duty cycle <= 2%.

b. Guaranteed by design, not subject to production testing.

Package Information





DIM.	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.700	0.80	0.900	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	2.35 BSC			0.093 BSC		
E	3.20 BSC			0.126 BSC		
E1	3.00 BSC			0.118 BSC		
E2	1.75 BSC			0.069 BSC		
E3	0.575 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
θ1	0°	10°	12°	0°	10°	12°