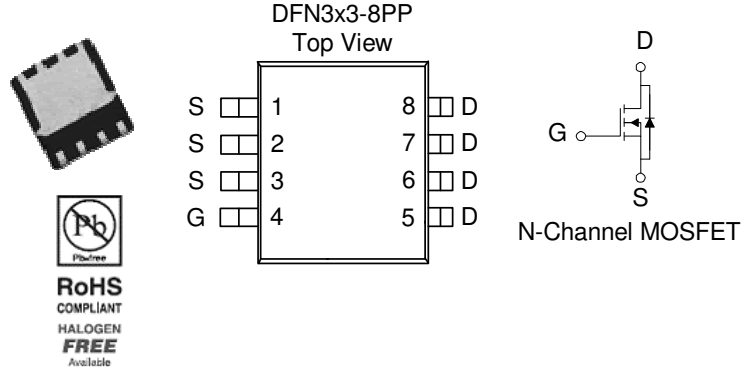


N-Channel 30-V (D-S) MOSFET

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.

- 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)
30	9 @ $V_{GS} = 4.5V$	17
	11 @ $V_{GS} = 2.5V$	15



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current ^a	$T_A=25^\circ C$	± 17	A
	$T_A=70^\circ C$	± 12	
Pulsed Drain Current ^b	I_{DM}	± 40	
Continuous Source Current (Diode Conduction) ^a	I_S	2	A
Power Dissipation ^a	$T_A=25^\circ C$	3.5	W
	$T_A=70^\circ C$	2	
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-Case ^a	$R_{\theta JC}$	25	$^\circ C/W$
Maximum Junction-to-Ambient ^a	$R_{\theta JA}$	50	$^\circ C/W$

Notes

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

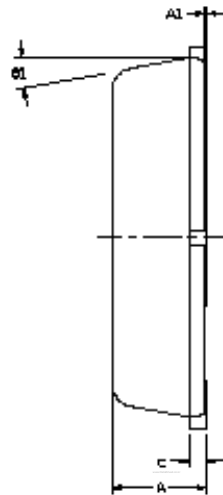
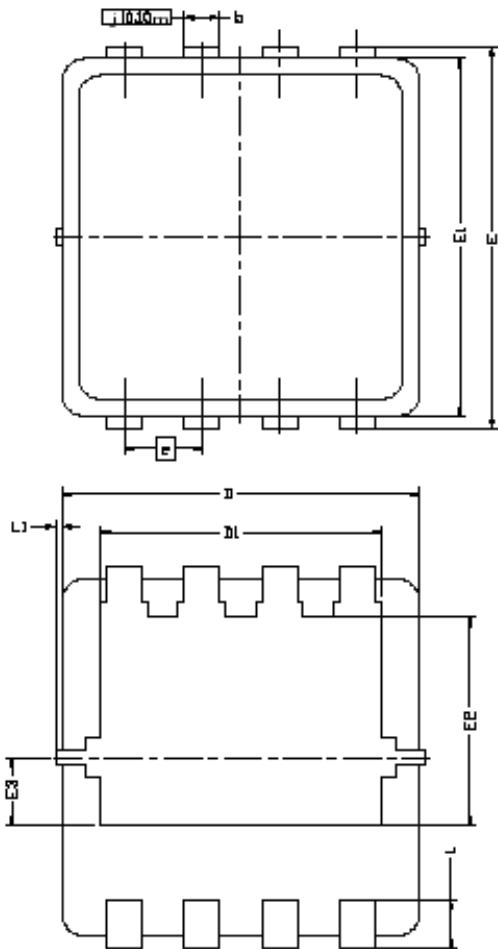
SPECIFICATIONS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	1		3	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = 8 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}$			1	uA
		$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$			25	
On-State Drain Current ^A	$I_{D(on)}$	$V_{DS} = 5 \text{ V}, V_{GS} = 10 \text{ V}$	20			A
Drain-Source On-Resistance ^A	$r_{DS(on)}$	$V_{GS} = 4.5 \text{ V}, I_D = 2 \text{ A}$			9	m Ω
		$V_{GS} = 2.5 \text{ V}, I_D = 2 \text{ A}$			11.0	
Forward Transconductance ^A	g_{fs}	$V_{DS} = 15 \text{ V}, I_D = 10 \text{ A}$		40		S
Diode Forward Voltage	V_{SD}	$I_S = 2.3 \text{ A}, V_{GS} = 0 \text{ V}$		0.7		V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 15 \text{ V}, V_{GS} = 4.5 \text{ V},$ $I_D = 10 \text{ A}$		11		nC
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			4		
Input Capacitance	C_{iss}	$V_{DS} = 15 \text{ V}, V_{GS} = 0 \text{ V},$ $= 1\text{MHz}$	f	1302		pF
Output Capacitance	C_{oss}			423		
Reverse Transfer Capacitance	C_{rss}			171		
Turn-On Delay Time	$t_{d(on)}$			10		
Rise Time	t_r	$V_{DD} = 25 \text{ V}, R_L = 25 \Omega, I_D = 1 \text{ A},$ $V_{GEN} = 10 \text{ V}$		5		nS
Turn-Off Delay Time	$t_{d(off)}$			22		
Fall-Time	t_f			4		

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



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°