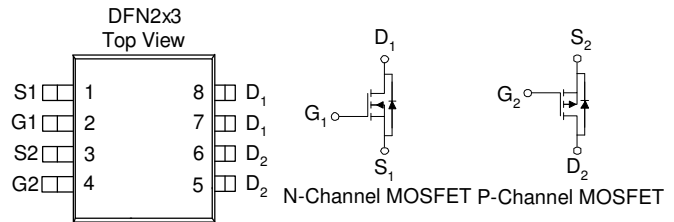


N & P-Channel 20-V (D-S) MOSFET

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 DFN2X3 saves board space
- Fast switching speed
- High performance trench technology

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
20	0.058 @ $V_{GS} = 4.5V$	5
	0.077 @ $V_{GS} = 2.5V$	4.3
-20	0.064 @ $V_{GS} = -4.5V$	-4.7
	0.085 @ $V_{GS} = -2.5V$	-4.1



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)				
Parameter	Symbol	N-Channel	P-Channel	Units
Drain-Source Voltage	V_{DS}	20	-20	V
Gate-Source Voltage	V_{GS}	± 8	± 8	
Continuous Drain Current ^a	I_D	$T_A=25^\circ C$	5	A
		$T_A=70^\circ C$	4.1	
Pulsed Drain Current ^b	I_{DM}	8	-8	
Continuous Source Current (Diode Conduction) ^a	I_S	4.5	-4.5	A
Power Dissipation ^a	P_D	$T_A=25^\circ C$	2.1	W
		$T_A=70^\circ C$	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	80	$^\circ C/W$	

Notes

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

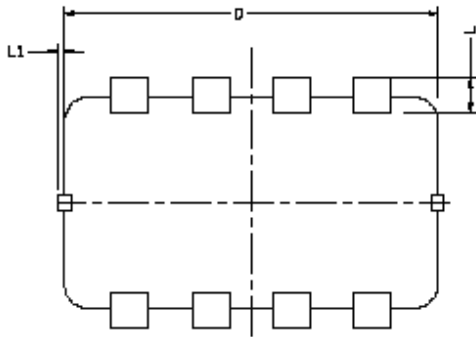
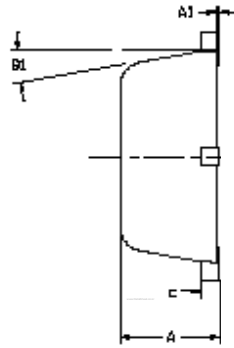
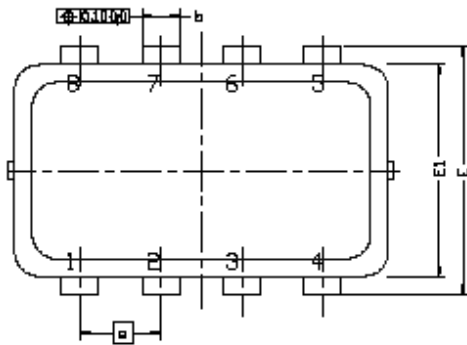
SPECIFICATIONS (T _A = 25°C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	Test Conditions	Limits				Unit
			Ch	Min	Typ	Max	
Static							
Gate-Threshold Voltage	V _{GS(th)}	V _{GS} = V _{DS} , I _D = 250 uA	N	1			V
		V _{GS} = V _{DS} , I _D = -250 uA	P	-1			
Gate-Body Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = 8 V	N			100	μA
		V _{DS} = 0 V, V _{GS} = -8 V	P			-100	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16 V, V _{GS} = 0 V	N			1	μA
		V _{DS} = -16 V, V _{GS} = 0 V	P			-1	
		V _{DS} = 16 V, V _{GS} = 0 V, T _J = 55°C	N			10	μA
		V _{DS} = -16 V, V _{GS} = 0 V, T _J = 55°C	P			-10	
On-State Drain Current ^A	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 4.5 V	N	5			A
		V _{DS} = -5 V, V _{GS} = -4.5 V	P	-5			
Drain-Source On-Resistance ^A	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 1 A	N			0.058	Ω
		V _{GS} = -4.5 V, I _D = 1 A	P			0.077	
		V _{GS} = 2.5 V, I _D = 1 A	N			0.064	
		V _{GS} = -2.5 V, I _D = -1 A	P			0.085	
Forward Transconductance ^A	g _{fs}	V _{DS} = 5 V, I _D = 1 A	N		10		S
		V _{DS} = -5 V, I _D = 1 A	P		5		
Diode Forward Voltage ^A	V _{SD}	I _S = 1 A, V _{GS} = 0 V	N		0.80		S
		I _S = -1 A, V _{GS} = 0 V	P		-0.83		
Dynamic^b							
Total Gate Charge	Q _g	N-Channel V _{DS} =15V, V _{GS} =4.5V, I _D =1A P-Channel V _{DS} =-15V, V _{GS} =-4.5V, I _D =-1A	N		2		nC
Gate-Source Charge	Q _{gs}		P		7		
Gate-Drain Charge	Q _{gd}		N		0.4		
Turn-On Delay Time	t _{d(on)}	N-Chanceel V _{DD} =15V, V _{GS} =4.5V, I _D =1A , R _{GEN} =15Ω, P-Channel V _{DD} =-15V, V _{GS} =-4.5V, I _D =-1A R _{GEN} =15Ω	N		0.7		nS
			P		2		
Rise Time	t _r		N		6		
			P		10		
Turn-Off Delay Time	t _{d(off)}		N		9		
			P		1		
Fall-Time	t _f	N		5			
		P		11			
			N		16		
			P		12		

Notes

- a. Pulse test: PW <= 300us duty cycle <= 2%.
- b. 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	0.0313	0.0354
A1	0.00	---	0.03	0.000	---	0.002
b	0.24	0.30	0.35	0.009	0.012	0.014
c	0.08	0.152	0.25	0.003	0.006	0.010
D	3.00 BSC			0.118 BSC		
E	2.00 BSC			0.079 BSC		
E1	1.70 BSC			0.067 BSC		
e	0.65 BSC			0.026 BSC		
L	0.20	0.275	0.400	0.008	0.011	0.0157
L1	0	---	0.100	0	---	0.004
Ø	0°	10°	12°	0°	10°	12°