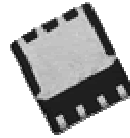


N-Channel 40-V (D-S) MOSFET

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.

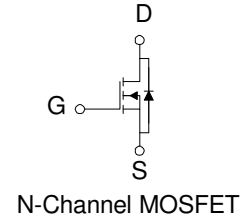
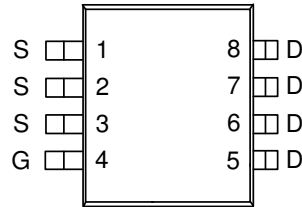
- Low $r_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe DFN3x3-8PP saves board space
- Fast switching speed
- High performance trench technology



RoHS
COMPLIANT
HALOGEN
FREE

PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} m(Ω)	I _D (A)
40	5.5 @ V _{GS} = 10V	21
	7 @ V _{GS} = 4.5V	19

DFN3x3-8PP
Top View



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V _{DS}	40	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current ^a	I _D	T _A =25°C	21
		T _A =70°C	17
Pulsed Drain Current ^b	I _{DM}	±40	A
Continuous Source Current (Diode Conduction) ^a	I _S	2.9	A
Power Dissipation ^a	P _D	T _A =25°C	3.5
		T _A =70°C	2
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	R _{θJA}	t ≤ 10 sec	35
		Steady State	81

Notes

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

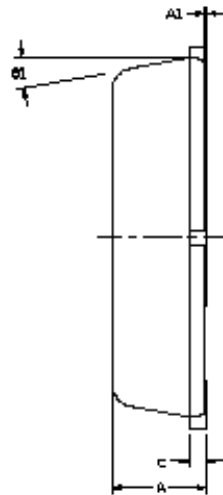
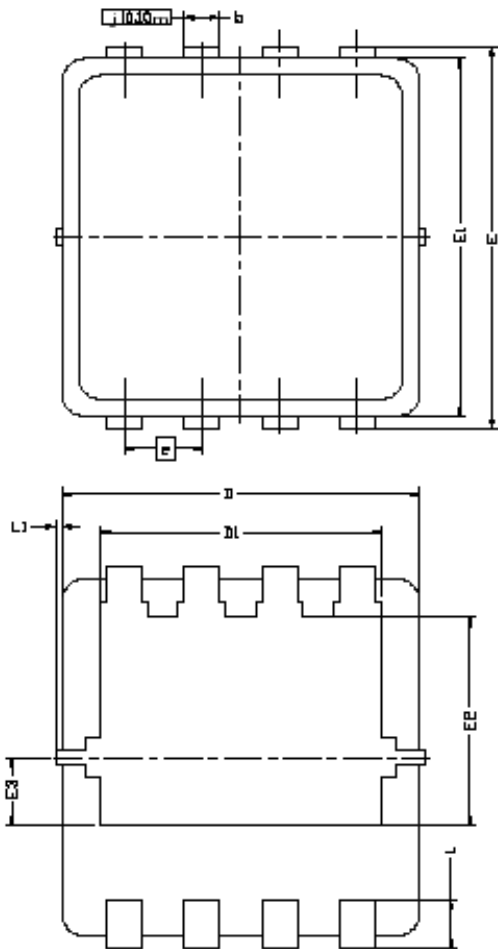
SPECIFICATIONS (T _A = 25°C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 uA	1			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 32 V, V _{GS} = 0 V			1	uA
		V _{DS} = 32 V, V _{GS} = 0 V, T _J = 55°C			25	
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 = 1 A			5.5	mΩ
		V _{GS} = 4.5 V, I _D = 1 A			7	
Forward Transconductance ^A	g _{fs}	V _{DS} = 15 V, I _D = 1 A		40		S
Diode Forward Voltage	V _{SD}	I _S = 1 A, V _{GS} = 0 V		0.7		V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 10 V, V _{GS} = 4.5 V, I _D = 1 A		30		nC
Gate-Source Charge	Q _{gs}			9		
Gate-Drain Charge	Q _{gd}			10		
Turn-On Delay Time	t _{d(on)}	V _{DD} = 10 V, R _L = 6 Ω, I _D = 1 A, V _{GEN} = 10 V		9		nS
Rise Time	t _r			10		
Turn-Off Delay Time	t _{d(off)}			100		
Fall-Time	t _f			30		

Notes

- Pulse test: PW ≤ 300us duty cycle ≤ 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°