

Dual N-Channel 20-V (D-S) MOSFET

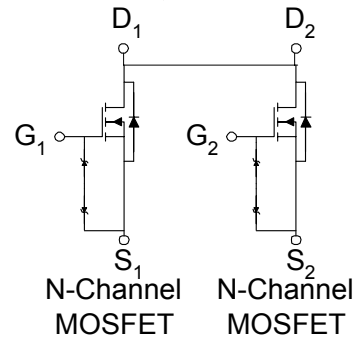
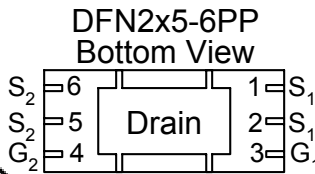
These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA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

- Low $r_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe DFN2x5-6PP saves board space
- Fast switching speed
- High performance trench technology



ESD Protected
2000V

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ m(Ω)	I_D (A)
20	22 @ $V_{GS}=4.5V$	11
	28 @ $V_{GS}=2.5V$	9.2



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 12	
Continuous Drain Current ^a	$T_A=25^\circ C$	I_D	11	A
	$T_A=70^\circ C$		8.5	
Pulsed Drain Current ^b		I_{DM}	± 40	
Continuous Source Current (Diode Conduction) ^a		I_S	3.1	A
Power Dissipation ^a	$T_A=25^\circ C$	P_D	3.5	W
	$T_A=70^\circ C$		1.8	
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	$R_{\theta JA}$	36	$^\circ C/W$
	Steady State		76	$^\circ C/W$

Notes

- Surface Mounted on 1" x 1" FR4 Board.
- 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	0.5			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 12 V			±10	uA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16 V, V _{GS} = 0 V			1	uA
		V _{DS} = 16 V, V _{GS} = 0 V, T _j = 55°C			30	
On-State Drain Current ^A	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 4.5 V	20			A
Drain-Source On-Resistance ^A	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 0.5 A			22	mΩ
		V _{GS} = 2.5 V, I _D =0.5 A			28	
Forward Tranconductance ^A	g _{fs}	V _{DS} = 15 V, I _D = 6 A		22		S
Diode Forward Voltage	V _{SD}	I _S = 0.5 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 = 6 A		9.2		nC
Gate-Source Charge	Q _{gs}			1.9		
Gate-Drain Charge	Q _{gd}			2.8		
Turn-On Delay Time	t _{d(on)}	V _{DD} = 10 V, R _L = 15 Ω , I _D = 1 A, V _{GEN} = 4.5 V		1.7		nS
Rise Time	t _r			2.3		
Turn-Off Delay Time	t _{d(off)}			1.1		
Fall-Time	t _f			4.4		

Notes

- Pulse test: PW ≤ 300µs duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.

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