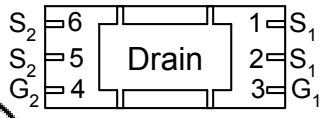
Dual N-Channel 20-V (D-S) MOSFET

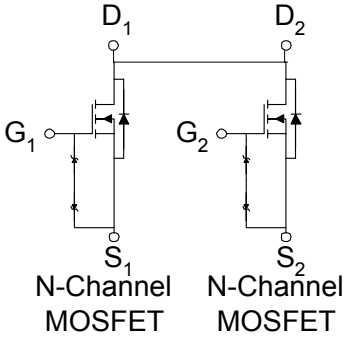
These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA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

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

- 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

DFN2x5-6PP
Bottom View





ESD Protected
2000V

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °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°C	I_D	11	A
	T_A=70°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°C	P_D	3.5	W
	T_A=70°C		1.8	
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	$R_{\theta JA}$	36	°C/W
	Steady State		76	°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	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

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

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