



FMS06N20D 20V N-Channel Enhancement-Mode MOSFET

$V_{DS} = 20V, I_D = 6A$

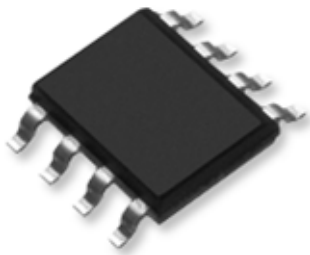
$R_{DS(ON)}, V_{GS}@2.5V, I_{DS}@5.2A = 40m\Omega$

$R_{DS(ON)}, V_{GS}@4.5V, I_{DS}@6A = 28m\Omega$

Features

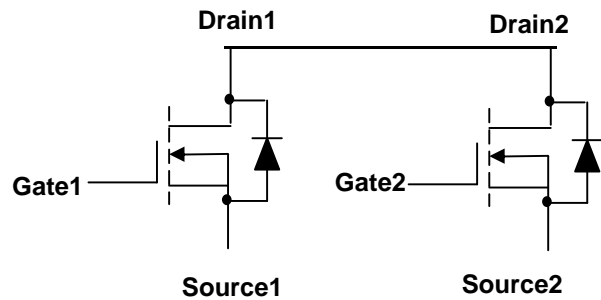
- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- High Power and Current handing capability
- Fully Characterized Avalanche Voltage and Current
- Ideal for Li ion battery pack applications

SOP-08



Top View

Internal Schematic Diagram



N-Channel MOSFET

Maximum Ratings and Thermal Characteristics ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V_{DS}	20	V	
Gate-Source Voltage	V_{GS}	± 12		
Continuous Drain Current	I_D	6	A	
Pulsed Drain Current ¹⁾	I_{DM}	30		
Maximum Power Dissipation	P_D	$T_A = 25^\circ C$	2.0	W
		$T_A = 75^\circ C$	1.3	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ C$	
Junction-to-Ambient Thermal Resistance (PCB mounted) ²⁾	$R_{\theta JA}$	62.5	$^\circ C/W$	

Note: 1. Maximum DC current limited by the package

2. 1-in² 2oz Cu PCB board



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ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	20	-	-	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 2.5V, I_D = 5.2A$		34	40	m Ω
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 6A$		24	28	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.6			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Gate Body Leakage	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$			± 100	nA
Gate Resistance	R_g					
Forward Transconductance	g_{fs}	$V_{DS} = 10V, I_D = 6A$	7	13		S
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = 10V, I_D = 6A$ $V_{GS} = 4.5V$		4.86		nC
Gate-Source Charge	Q_{gs}			0.92		
Gate-Drain Charge	Q_{gd}			1.4		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10V,$ $I_D = 1A, V_{GEN} = 4.5V$ $R_G = 6\Omega$		8.1		ns
Turn-On Rise Time	t_r			9.95		
Turn-Off Delay Time	$t_{d(off)}$			21.85		
Turn-Off Fall Time	t_f			5.35		
Input Capacitance	C_{iss}	$V_{DS} = 8V, V_{GS} = 0V$ $f = 1.0\text{ MHz}$		562		pF
Output Capacitance	C_{oss}			106		
Reverse Transfer Capacitance	C_{rss}			75		
Source-Drain Diode						
Max. Diode Forward Current	I_S				1.7	A
Diode Forward Voltage	V_{SD}	$I_S = 1.7A, V_{GS} = 0V$			1.2	V

Note: Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

