

20V N-Channel Enhancement-Mode MOSFET

$V_{DS} = 20V$, $I_D = 6.0A$

$R_{DS(ON)}$, $V_{GS} @ 2.5V$, $I_{DS} @ 5.2A = 30m\Omega$

$R_{DS(ON)}$, $V_{GS} @ 4.5V$, $I_{DS} @ 6A = 20m\Omega$

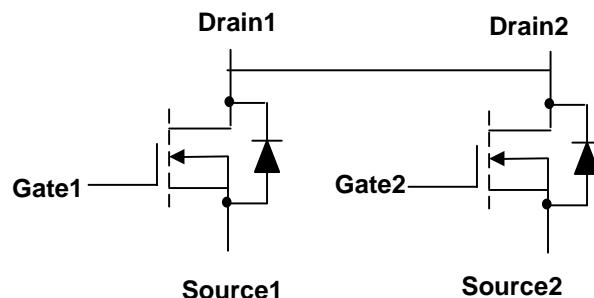
Features

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

TSSOP-08



Internal Schematic Diagram



Top View

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	2.0	W
		1.3	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	°C
Junction-to-Ambient Thermal Resistance (PCB mounted) ²⁾	$R_{\theta JA}$	62.5	°C/W

Note: 1. Maximum DC current limited by the package

2. 1-in² 2oz Cu PCB board

N-Channel Enhancement-Mode MOSFET ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 500\mu A$	20	-	-	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 2.5V, I_D = 5.2A$		24	30	$m\Omega$
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 6A$		17	20	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 500\mu A$	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_f	$V_{DS} = 10V, I_D = 6A$	7	13		S
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = 10V, I_D = 6A$ $V_{GS} = 4.5V$		7.53		nC
Gate-Source Charge	Q_{gs}			1.43		
Gate-Drain Charge	Q_{gd}			2.17		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10V,$ $I_D = 1A, V_{GEN} = 4.5V$ $R_G = 6\Omega$		12.56		ns
Turn-On Rise Time	t_r			15.43		
Turn-Off Delay Time	$t_{d(off)}$			33.87		
Turn-Off Fall Time	t_f			8.29		
Input Capacitance	C_{iss}	$V_{DS} = 8V, V_{GS} = 0V$ $f = 1.0 \text{ MHz}$		871.1		pF
Output Capacitance	C_{oss}			164.3		
Reverse Transfer Capacitance	C_{rss}			116.25		
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 <= 300us, duty cycle <= 2%

