



MCM1206

P-Channel Power MOSFET

Features

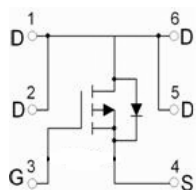
- Advanced trench MOSFET process technology
- Ultra low on-resistance with low gate charge
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking:1206

Maximum Ratings @ 25°C Unless Otherwise Specified

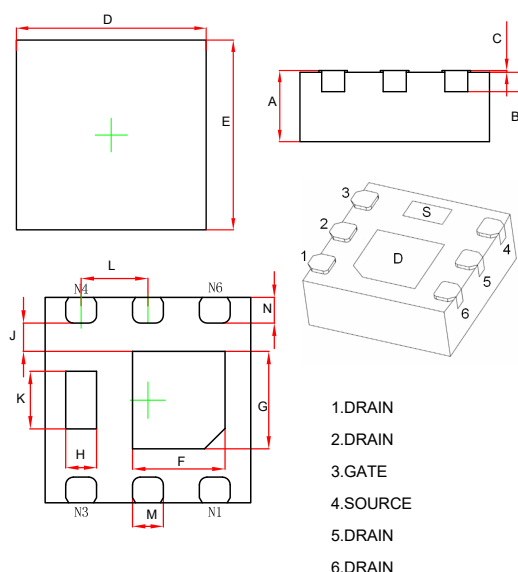
Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	-12	V
I_D	Drain Current-Continuous	-6	A
I_{DM}	Pulsed Drain Current (note1)	-20	A
V_{GS}	Gate-source Voltage	± 8	V
$R_{\theta JA}$	Thermal Resistance Junction to Ambient(note1)	357	$^{\circ}\text{C/W}$
T_J	Operating Junction Temperature	-55 to +150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	-55 to +150	$^{\circ}\text{C}$

(1).Repetitive rating:Pluse width limited by junction temperature

Equivalent Circuit



DFN2020-6J



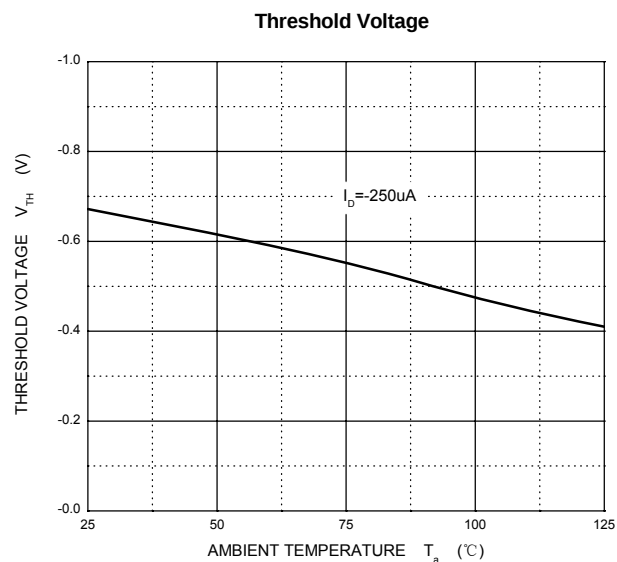
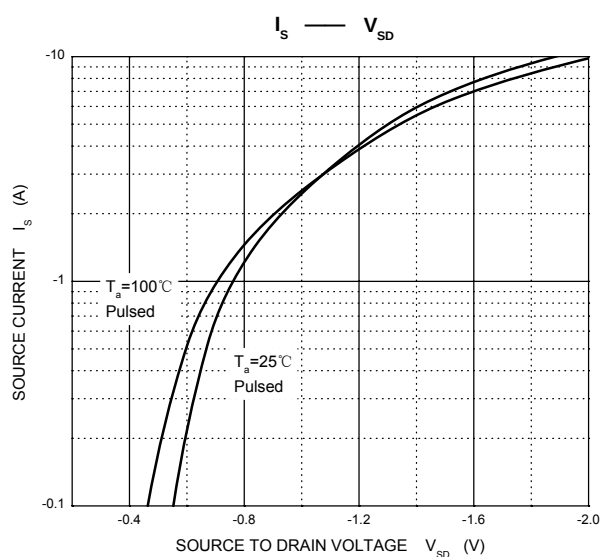
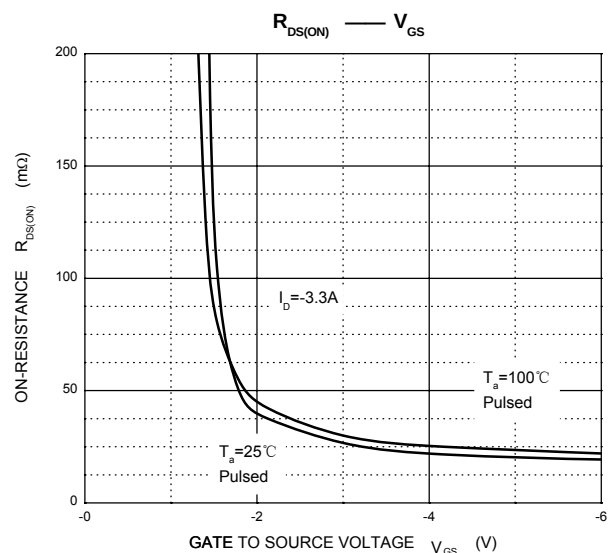
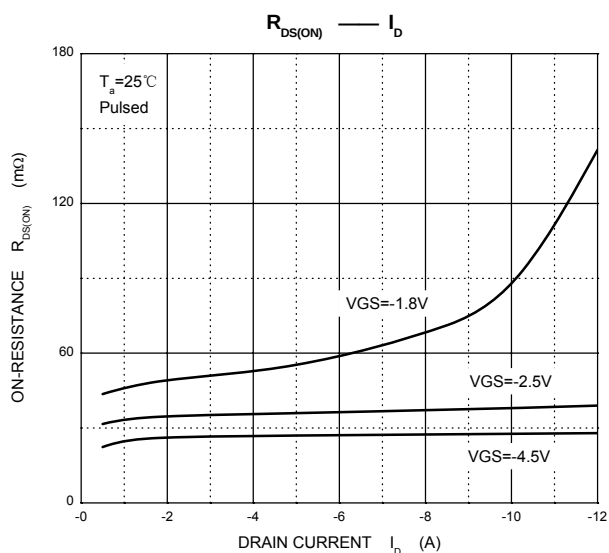
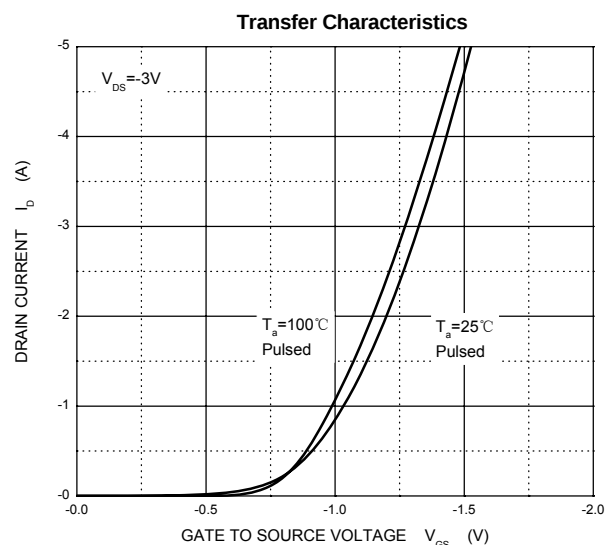
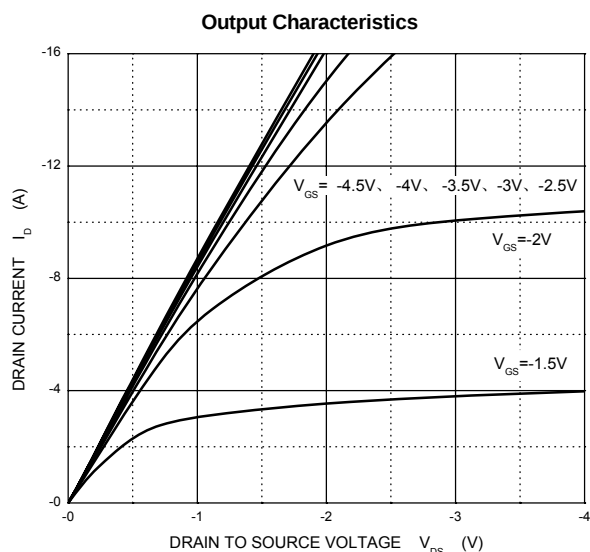
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.028	.032	0.700	0.800	
B	0.008REF.		0.203REF.		
C	0.000	0.002	0.000	0.050	
D	0.076	0.082	1.924	2.076	
E	0.076	0.082	1.924	2.076	
F	0.031	0.039	0.800	1.000	
G	0.033	0.041	0.850	1.050	
H	0.008	0.016	0.200	0.400	
J	0.008	---	0.200	---	
K	0.018	0.026	0.460	0.660	
L	0.026TYP.		0.650TYP.		
M	0.010	0.014	0.250	0.350	
N	0.007	0.013	0.174	0.326	

ELECTRICAL CHARACTERISTICS($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-12			V
Gate-source threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.5		-0.9	
Gate-source leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 8V$			± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -8V, V_{GS} = 0V$			-1	μA
Drain-source on-state resistance ^a	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -3.5A$		30	45	m Ω
		$V_{GS} = -2.5V, I_D = -3A$		40	60	
		$V_{GS} = -1.8V, I_D = -2.0A$		60	90	
Forward transconductance ^a	g_{fs}	$V_{DS} = -5V, I_D = -4.1A$	6			S
Dynamic						
Input capacitance ^{b,c}	C_{iss}	$V_{DS} = -4V, V_{GS} = 0V, f = 1MHz$		740		pF
Output capacitance ^{b,c}	C_{oss}			290		
Reverse transfer capacitance ^{b,c}	C_{rss}			190		
Total gate charge ^b	Q_g	$V_{DS} = -4V, V_{GS} = -4.5V, I_D = -4.1A$		7.8		nC
		$V_{DS} = -4V, V_{GS} = -2.5V, I_D = -4.1A$		4.5		
Gate-source charge ^b	Q_{gs}	$V_{DS} = -4V, V_{GS} = -2.5V, I_D = -4.1A$		1.2		
Gate-drain charge ^b	Q_{gd}			1.6		
Gate resistance ^{b,c}	R_g	$f = 1MHz$	1.4	7	14	Ω
Turn-on delay time ^{b,c}	$t_{d(on)}$	$V_{DD} = -4V, R_L = 1.2\Omega, I_D \approx -3.3A, V_{GEN} = -4.5V, R_g = 1\Omega$		13	2	ns
Rise time ^{b,c}	t_r			35	5	
Turn-off Delay time ^{b,c}	$t_{d(off)}$			32	4	
Fall time ^{b,c}	t_f			10	2	
Turn-on delay time ^{b,c}	$t_{d(on)}$	$V_{DD} = -4V, R_L = 1.2\Omega, I_D \approx -3.3A, V_{GEN} = -8V, R_g = 1\Omega$		5	10	
Rise time ^{b,c}	t_r			11	1	
Turn-off delay time ^{b,c}	$t_{d(off)}$			22	3	
Fall time ^{b,c}	t_f			16	2	
Drain-source body diode characteristics						
Continuous source-drain diode current	I_S				-6	A
Pulse diode forward current ^a	I_{SM}				-20	
Body diode voltage	V_{SD}	$I_F = -3.3A$			-1.2	V

Note :

- a. Pulse Test ; Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
- b. Guaranteed by design, not subject to production testing.
- c. These parameters have no way to verify.



Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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