Micro Commercial Components

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20736 Marilla Street Chatsworth
CA 91311
Phone: (818) 701-4933
Fax: (818) 701-4939

MCM1206

P-Channel Power MOSFET

Features

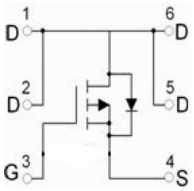
- Advanced trench MOSFET process technology
- Ultra low on-resistance with low gate charge
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking:1206

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	℃/W
T_J	Operating Junction Temperature	-55 to +150	℃
T_{STG}	Storage Temperature	-55 to +150	℃

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

Equivalent Circuit



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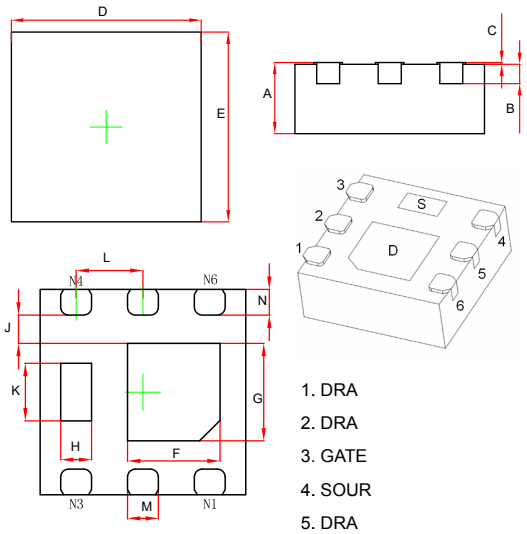


1. DRA
2. DRA
3. GATE
4. SOUR
5. DRA
6. DRA

Dimensions					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.028	.032	0.700	0.800	
B	0.008REF.		0.203REF.		
C	0000	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	0326	

ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-12			V
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.5		-0.9	V
Gate-source leakage	I_{GSS}	V_{DS} =0V, V_{GS} =±8V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} =-8V, V_{GS} =0V			-1	μA
Drain-source on-state[a] resistance	$R_{DS(on)}$	V_{GS} =-4.5V, I_D =-3.5A		30	45	mΩ
		V_{GS} =-2.5V, I_D =-3A		40	60	mΩ
		V_{GS} =-1.8V,I_D=-2.0A		60	90	mΩ
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		pF
Reverse transfer capacitance[b,c]	C_{rss}			190		pF
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		nC
Gate-source charge[b]	Q_{gs}			1.2		nC
Gate-drain charge[b]	Q_{gd}			1.6		nC
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=1.2Ω, I_D ≈-3.3A, V_{GEN}=-4.5V,Rg=1Ω		13	2	ns
Rise time[b,c]	t_r			35	5	ns
Turn-off Delay time[b,c]	$t_{d(off)}$			32	4	ns
Fall time[b,c]	t_f			10	2	ns
Turn-on delay time[b,c]	$t_{d(on)}$	V_{DD}=-4V, R_L=1.2Ω, I_D ≈-3.3A, V_{GEN}=-8V,Rg=1Ω		5	10	ns
Rise time[b,c]	t_r			11	1	ns
Turn-off delay time[b,c]	$t_{d(off)}$			22	3	ns
Fall time[b,c]	t_f			16	2	ns
Drain-source body diode characteristics						
Continuous source-drain diode current	I_S				-6	A
Pulse diode forward current[a]	I_{SM}				-20	A
Body ciode voltage	V_{SD}	I_F=-3.3A			-1.2	V

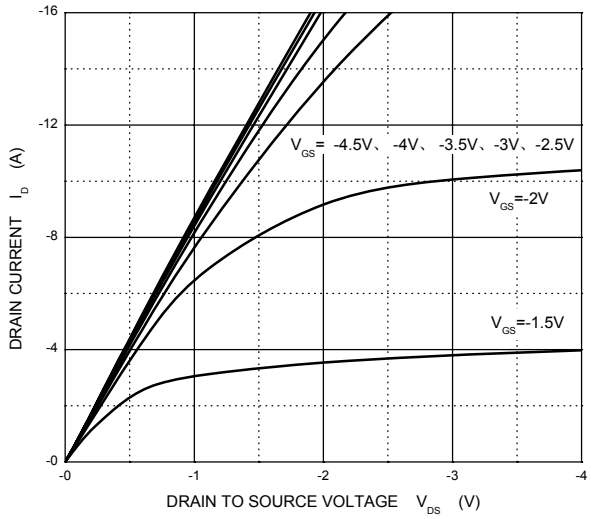
Note :

a. Pulse Test ; Pulse Width ≤300μs, Duty Cycle ≤2%.

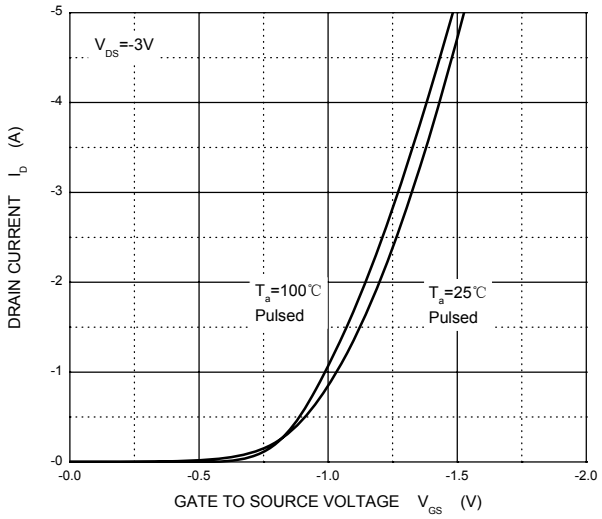
b. Guaranteed by design, not subject to production testing.

c. These parameters have no way to verify.

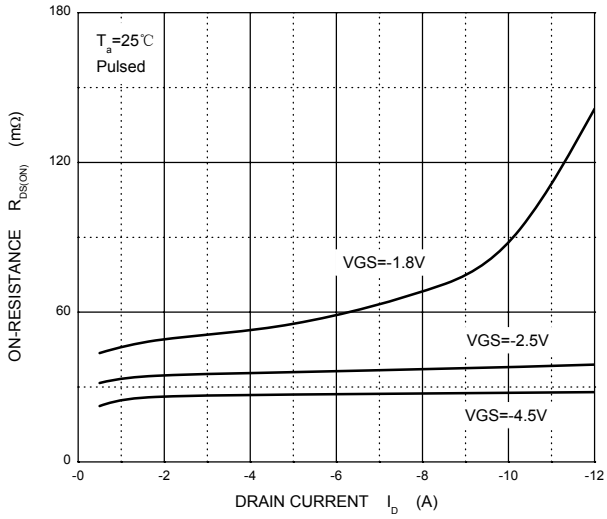
Output Characteristics



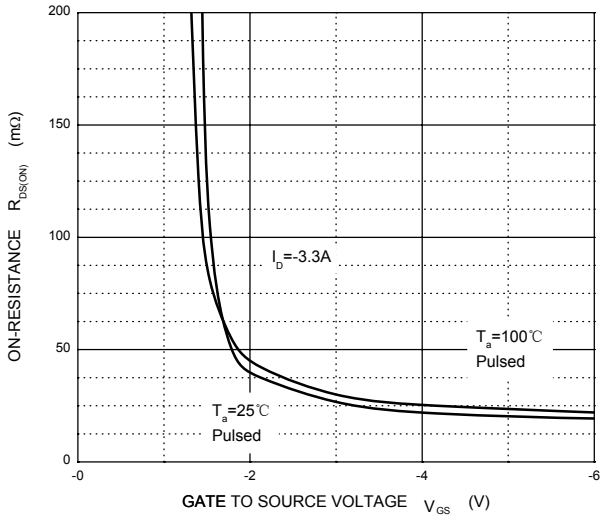
Transfer Characteristics



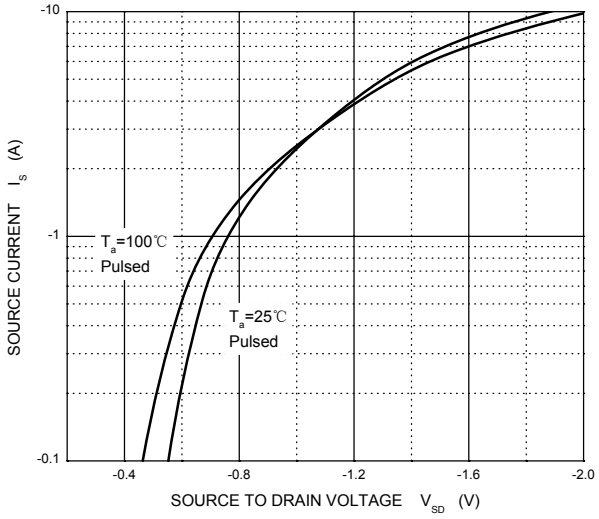
$R_{DS(ON)}$ —— I_D



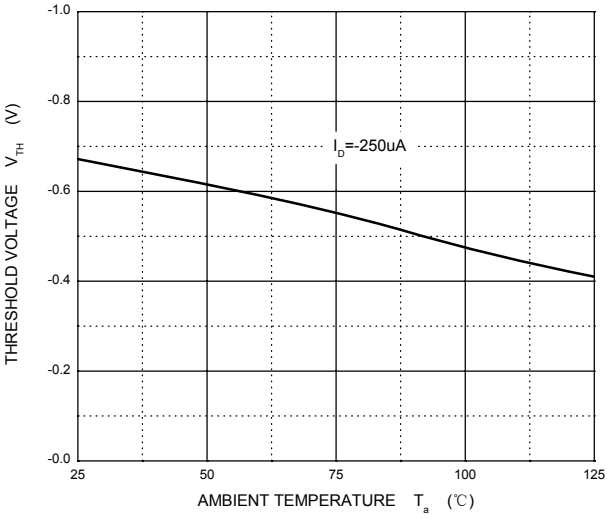
$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}



Threshold Voltage



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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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