



Micro Commercial Components



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MCM1208

Features

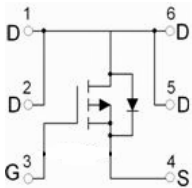
- Advanced trench MOSFET process technology
- Ultra low on-resistance with low gate charge
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking: 1208

Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	-12	V
I_D	Drain Current-Continuous	-8	A
I_{DM}	Pulsed Drain Current (note1)	-28	A
V_{GS}	Gate-source Voltage	± 8	V
$R_{\theta JA}$	Thermal Resistance Junction to Ambient(note1)	357	$^{\circ}C/W$
T_J	Operating Junction Temperature	-55 to +150	$^{\circ}C$
T_{STG}	Storage Temperature	-55 to +150	$^{\circ}C$

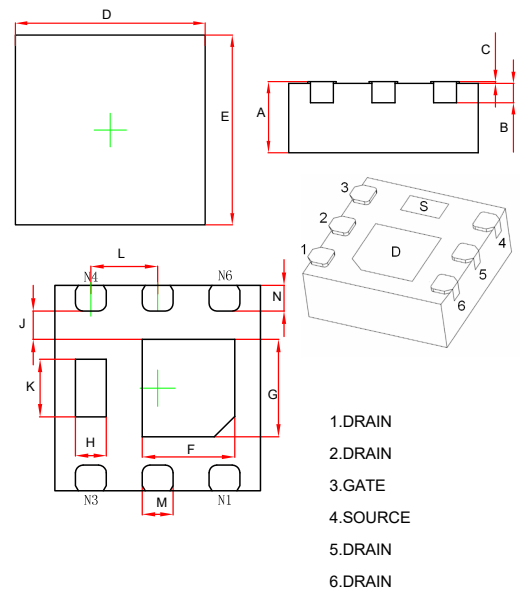
(1).Repetitive rating:Pluse width limited by junction temperature

Equivalent Circuit



P-Channel Power MOSFET

DFN2020-6J



- 1.DRAIN
- 2.DRAIN
- 3.GATE
- 4.SOURCE
- 5.DRAIN
- 6.DRAIN

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	

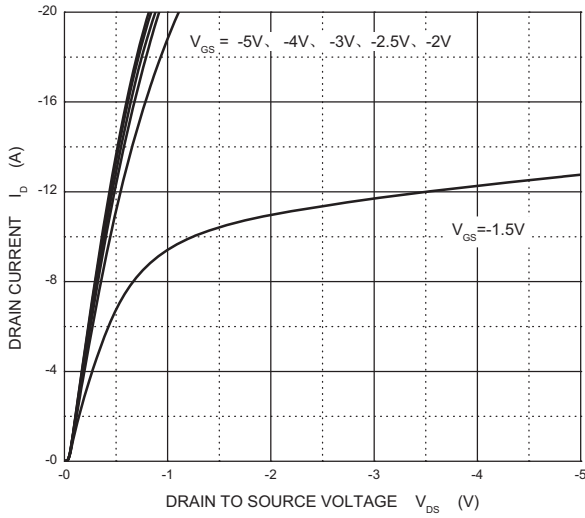
ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-12			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -12V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±8V, V _{DS} = 0V			±0.1	uA
Gate threshold voltage (note 1)	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4		-1	V
Drain-source on-resistance (note 1)	R _{DS(on)}	V _{GS} = -4.5V, I _D = -5A			28	mΩ
		V _{GS} = -3.7V, I _D = -4.6A			32	
		V _{GS} = -2.5V, I _D = -4.3A			40	
		V _{GS} = -1.8V, I _D = -1A			63	
		V _{GS} = -1.5V, I _D = -0.5A			150	
Forward tranconductance (note 1)	g _{FS}	V _{DS} = -5V, I _D = -5A		18		S
Dynamic characteristics (note 2)						
Input Capacitance	C _{iss}	V _{DS} = -6V, V _{GS} = 0V, f = 1MHz		1275		pF
Output Capacitance	C _{oss}			255		pF
Reverse Transfer Capacitance	C _{rss}			236		pF
Gate resistance	R _g	f = 1MHz	1.9		19	Ω
Total Gate Charge	Q _g	V _{DS} = -6V, V _{GS} = -4.5V, I _D = -5A		14	21	nC
Gate-Source Charge	Q _{gs}			2.3		nC
Gate-Drain Charge	Q _{gd}			3.6		nC
Turn-on delay time	t _{d(on)}	V _{DD} = -6V, V _{GEN} = -4.5V, I _D = -4A R _L = 6Ω, R _{GEN} = 1Ω		26	40	ns
Turn-on rise time	t _r			24	40	ns
Turn-off delay time	t _{d(off)}			45	70	ns
Turn-off fall time	t _f			20	35	ns
Source-Drain Diode characteristics						
Diode forward current	I _S				-8	A
Diode pulsed forward current	I _{SM}				-28	A
Diode Forward voltage (note 1)	V _{DS}	V _{GS} = 0V, I _S = -4A			-1.2	V
Diode reverse recovery time (note 2)	t _{rr}	I _F = -4A, di/dt = 100A/μs		24	48	ns
Diode reverse recovery charge (note 2)	Q _{rr}			8	16	nC

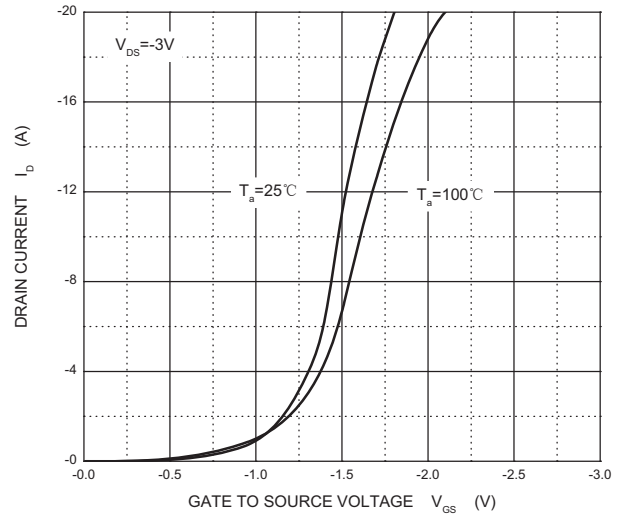
Notes : 1. Pulse test; pulse width ≤ 300μs, duty cycles ≤ 2%.

Typical Characteristics

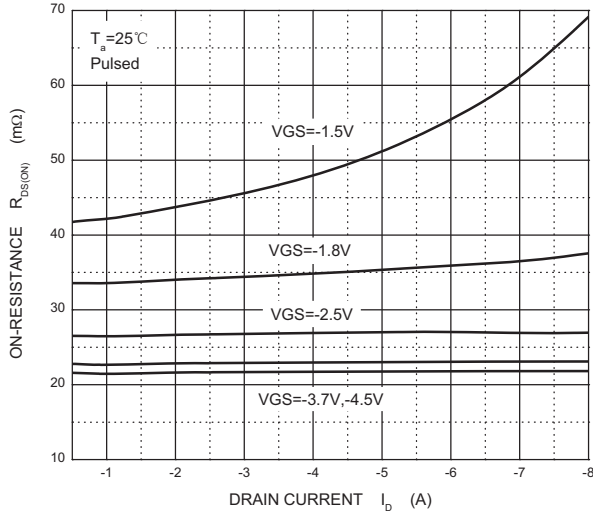
Output Characteristics



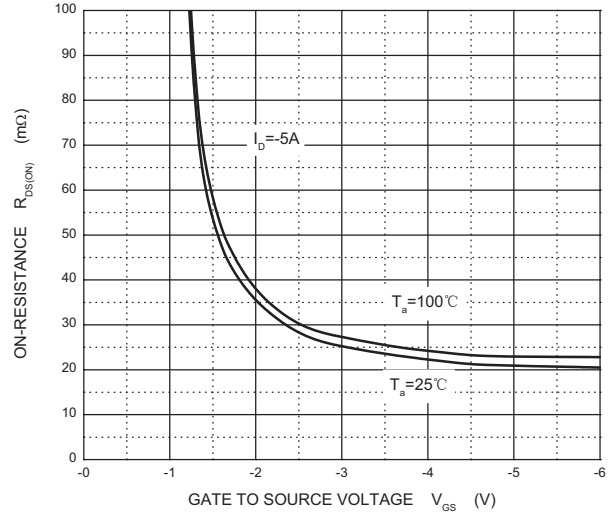
Transfer Characteristics



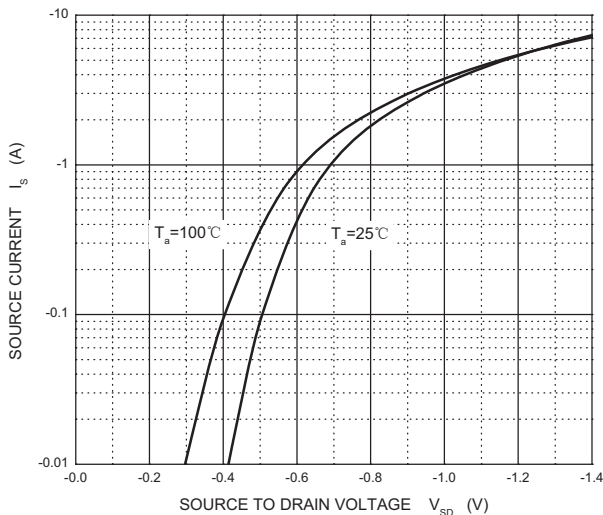
$R_{DS(ON)}$ — I_D



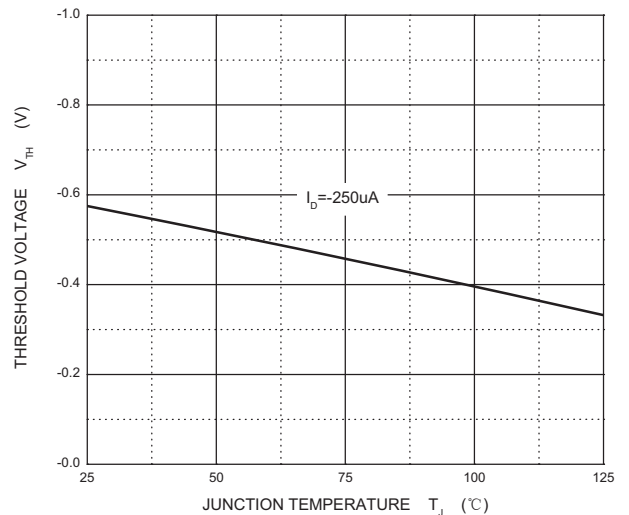
$R_{DS(ON)}$ — V_{GS}



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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