



Micro Commercial Components



Micro Commercial Components  
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# MCM1216

## 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:1216

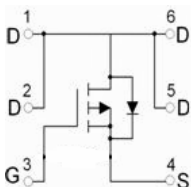
### Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
$V_{DS}$	Drain-source Voltage	-12	V
$I_D$	Drain Current-Continuous	-16	A
$I_{DM}$	Pulsed Drain Current (note1)	-65	A
$V_{GS}$	Gate-source Voltage	$\pm 8$	V
$P_D$	Power Dissipation(note2, $T_a=25^\circ\text{C}$ ) Maximum Power Dissipation(note3, $T_c=25^\circ\text{C}$ )	2.5 18	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient(note4)	50	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction to Case(note4)	6.9	$^\circ\text{C/W}$
$T_J$	Operating Junction Temperature	-55 to +150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 to +150	$^\circ\text{C}$

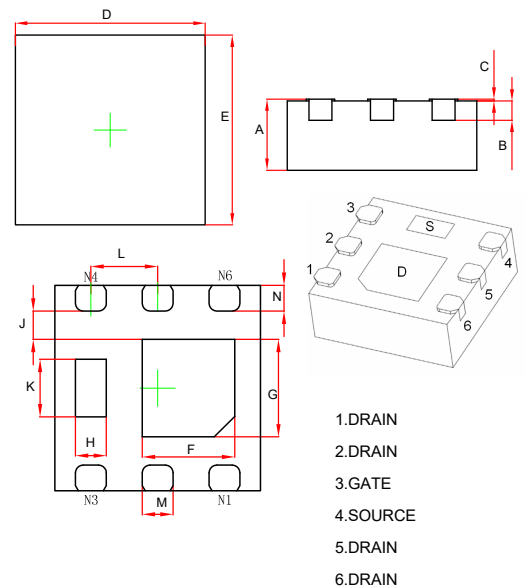
#### Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at  $T_a=25^\circ\text{C}$ .
3. This test is performed with infinite heat sink at  $T_c=25^\circ\text{C}$ .
4. Surface mounted on FR4 board,  $t \leq 10\text{S}$ .

### Equivalent Circuit



### DFN2020-6J



DIM	Dimensions				NOTE
	INCHES		MM		
	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	

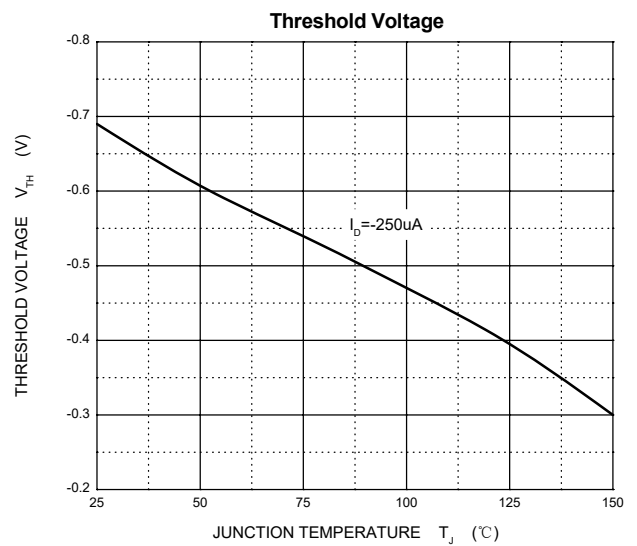
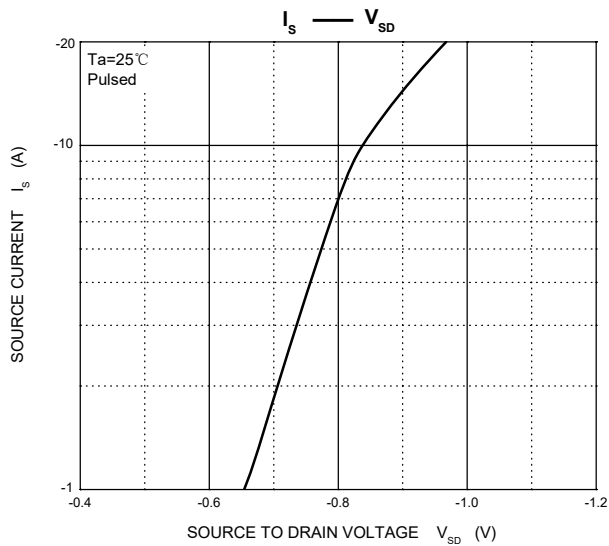
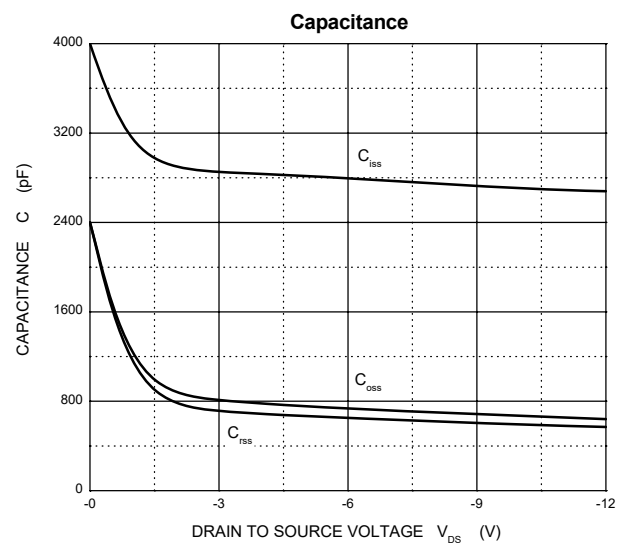
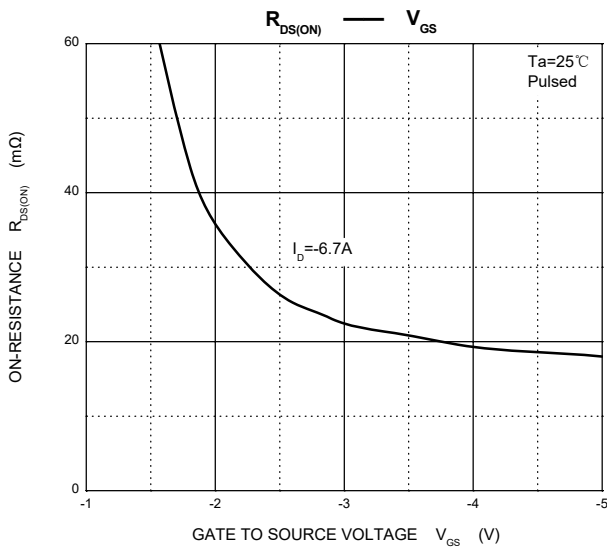
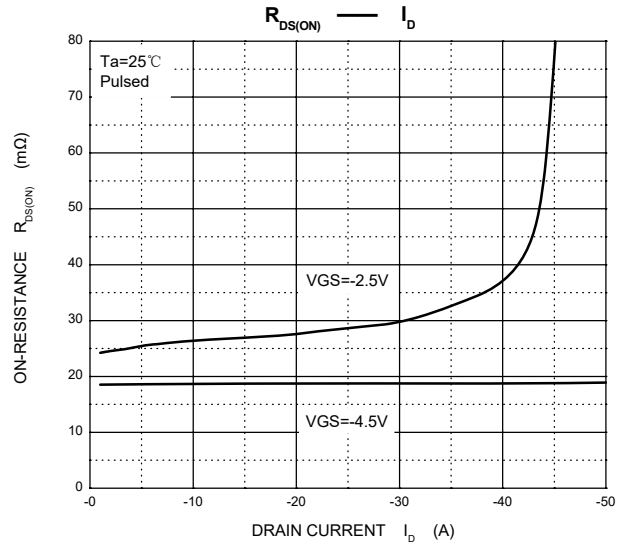
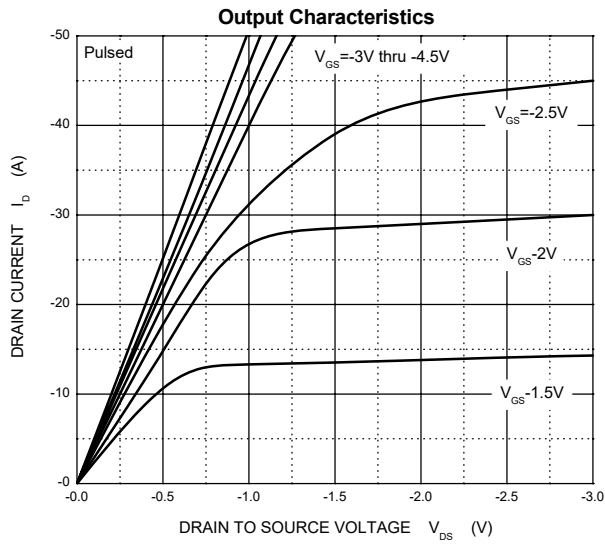
**ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-12			V
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±8V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -12V, V <sub>GS</sub> = 0V			-1	μA
<b>On Characteristics (note 5)</b>						
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.4	-0.7	-1	V
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -6.7A			21	mΩ
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -6.2A			27	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> = -10V, I <sub>D</sub> = -6.7A		40		S
<b>Dynamic Characteristics (note 6)</b>						
Input Capacitance	C <sub>iSS</sub>	V <sub>DS</sub> = -10V, V <sub>GS</sub> = 0V, f = 1MHz		2700		pF
Output Capacitance	C <sub>oSS</sub>			680		
Reverse Transfer Capacitance	C <sub>rSS</sub>			590		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -6V, V <sub>GS</sub> = -8V, I <sub>D</sub> = -10A		60	100	nC
		V <sub>DS</sub> = -6V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -10A		35	48	
Gate-Source Charge	Q <sub>gs</sub>			5		
Gate-Drain Charge	Q <sub>gd</sub>			10		
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Current (note 5)	I <sub>S</sub>				-16	A
Diode Forward Voltage(note 4)	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>SD</sub> = -8A			-1.2	V

**Notes:**

5. Pulse Test: Pulse With ≤300μs, Duty Cycle ≤2%.
6. Guaranteed by design, not subject to production testing.

## Typical Characteristics





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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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