



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

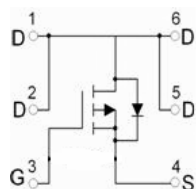
Maximum Ratings @ 25°C Unless Otherwise Specified

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	± 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	$^\circ\text{C}$

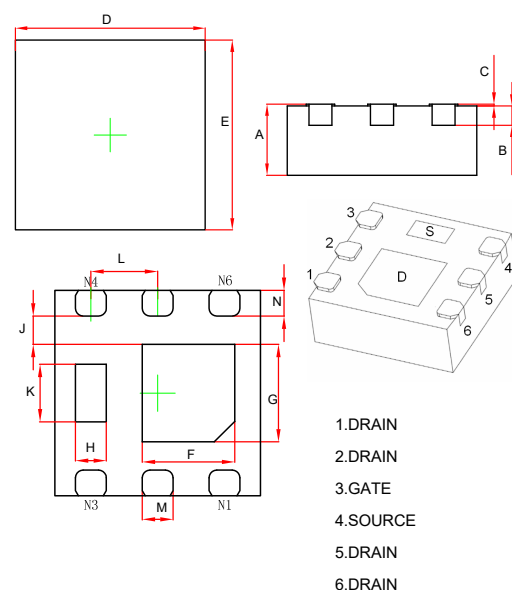
Notes:

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



Dimensions					
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	

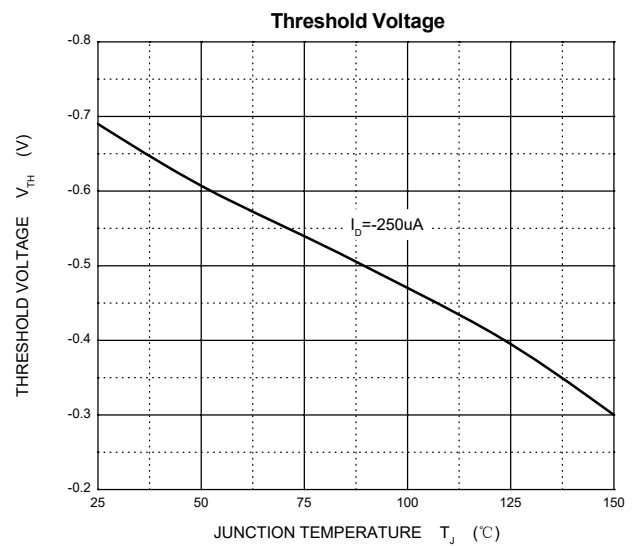
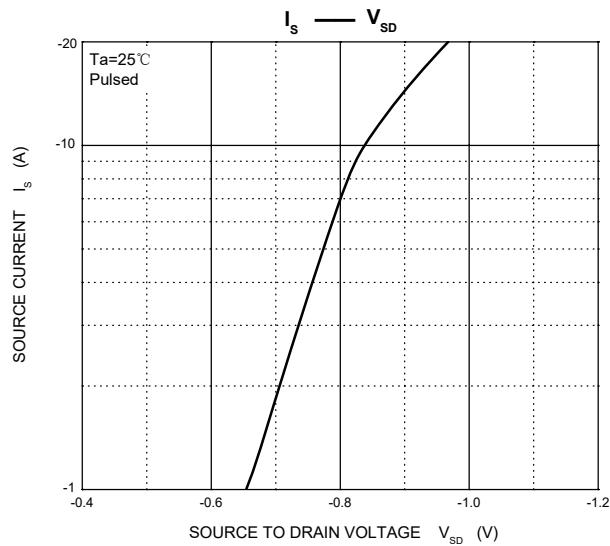
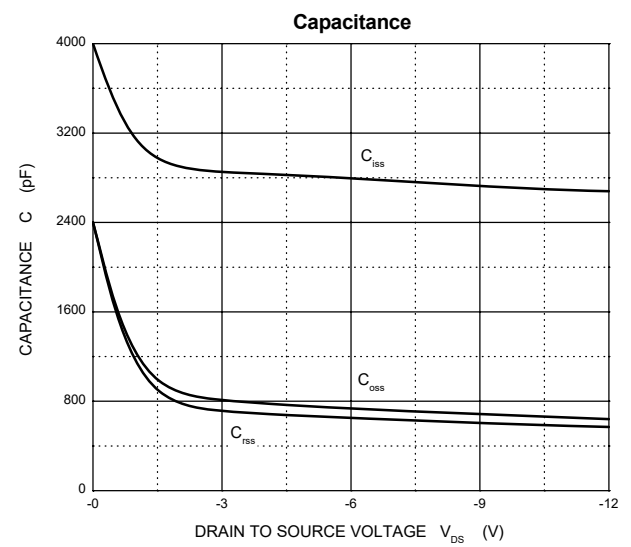
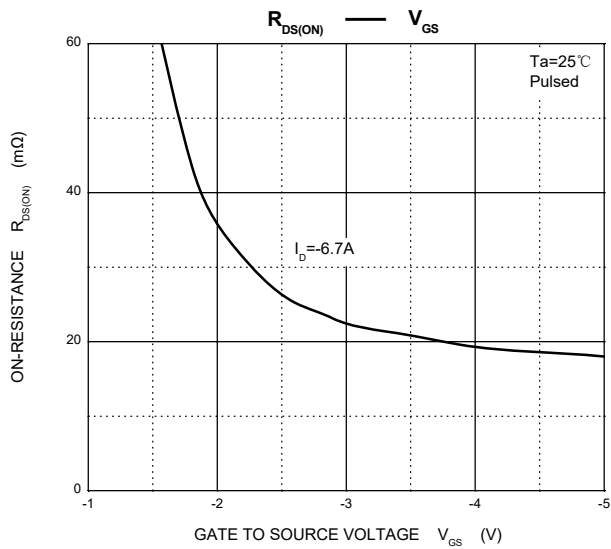
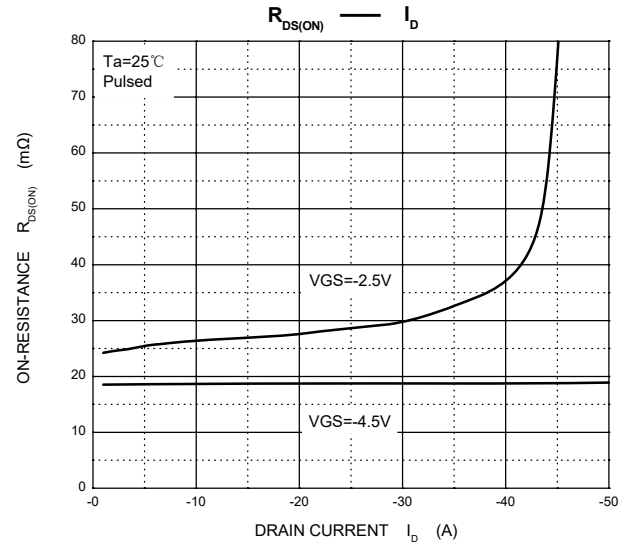
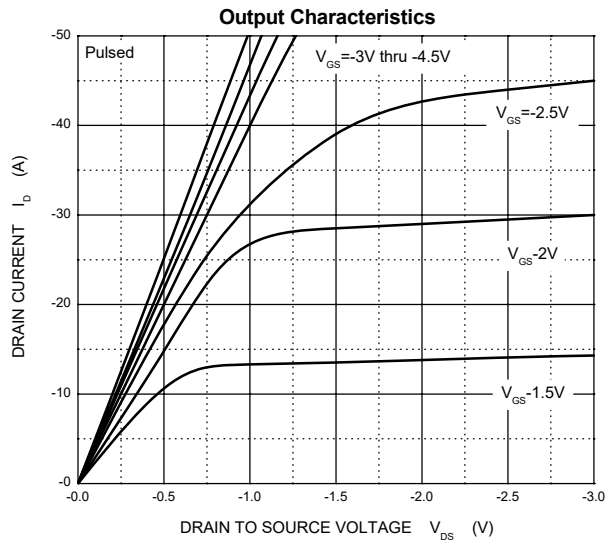
ELECTRICAL CHARACTERISTICS($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-12			V
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 8V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -12V, V_{GS} = 0V$			-1	μA
On Characteristics (note 5)						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4	-0.7	-1	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -6.7A$			21	m Ω
		$V_{GS} = -2.5V, I_D = -6.2A$			27	
Forward Transconductance	g_{FS}	$V_{DS} = -10V, I_D = -6.7A$		40		S
Dynamic Characteristics (note 6)						
Input Capacitance	C_{iss}	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$		2700		pF
Output Capacitance	C_{oss}			680		
Reverse Transfer Capacitance	C_{rss}			590		
Total Gate Charge	Q_g	$V_{DS} = -6V, V_{GS} = -8V, I_D = -10A$		60	100	nC
		$V_{DS} = -6V, V_{GS} = -4.5V, I_D = -10A$		35	48	
Gate-Source Charge	Q_{gs}			5		
Gate-Drain Charge	Q_{gd}			10		
Drain-Source Diode Characteristics						
Diode Forward Current (note 5)	I_S				-16	A
Diode Forward Voltage(note 4)	V_{SD}	$V_{GS} = 0V, I_{SD} = -8A$			-1.2	V

Notes:

- Pulse Test: Pulse With $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

Typical Characteristics





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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