Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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

MCMN2012

N-Channel Enhancement Mode Field Effect Transistor

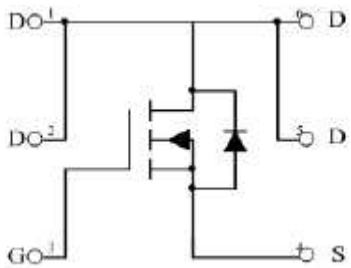
Features

- TrenchFET Power MOSFET
- Small package
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking:N2012

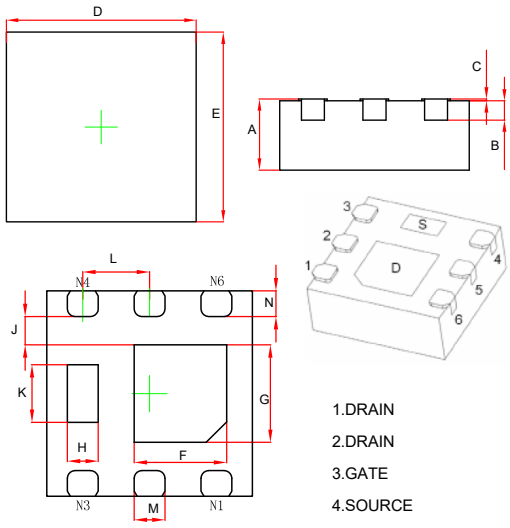
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	20	V
I_D	Drain Current-Continuous	12	A
I_{DM}	Pulsed Drain Current (note1)	40	A
V_{GS}	Gate-source Voltage	± 10	V
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	167	℃/W
T_J	Operating Junction Temperature	-55 to +150	℃
T_{STG}	Storage Temperature	-55 to +150	℃

Equivalent Circuit



DFN2020-6J



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

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	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =20V,V_{GS} = 0V			1	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±10V, V_{DS} = 0V			±100	nA
Gate threshold voltage (note 3)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.35	0.7	1	V
Drain-source on-resistance(note 3)	$R_{DS(on)}$	V_{GS} =4.5V, I_D =9.7A		9	11	mΩ
		V_{GS} =2.5V, I_D =9A		12	13	mΩ
		V_{GS} =1.8V, I_D =8.1A		15.5	16	mΩ
		V_{GS} =1.5V, I_D =4.5A		21	22	mΩ
		V_{GS} =1.2V, I_D =2.4A			41	mΩ
Forward tranconductance(note 3)	g_{FS}	V_{DS} =4V, I_D =9.7A	20			S
Diode forward voltage (note 3)	V_{SD}	I_S=10A, V_{GS} = 0V			1.2	V
DYNAMIC PARAMETERS (note 4)						
Input Capacitance	C_{iss}	V_{DS} =4V,V_{GS} =0V,f =1MHz		1800		pF
Output Capacitance	C_{oss}			650		pF
Reverse Transfer Capacitance	C_{rss}			450		pF
Gate Resistance	R_g	f=1MHz		2.5		Ω
SWITCHING PARAMETERS (note 4)						
Turn-on delay time	$t_{d(on)}$	V_{GEN}=4.5V,V_{DD}=4V, I_D=10A,R_g=1Ω R_L=0.4Ω		12	20	ns
Turn-on rise time	t_r			10	15	ns
Turn-off delay time	$t_{d(off)}$			65	100	ns
Turn-off fall time	t_f			20	30	ns
Total Gate Charge	Q_g	V_{DS}=4V,V_{GS}=5V I_D=10A			32	nC
Gate-Source Chage	Q_{gs}			2.5		nC
Gage-Drain Charge	Q_{gd}			6.5		nC

Notes :

1.Surface mounted on FR4 board using 1 square inch pad size,1oz copper.

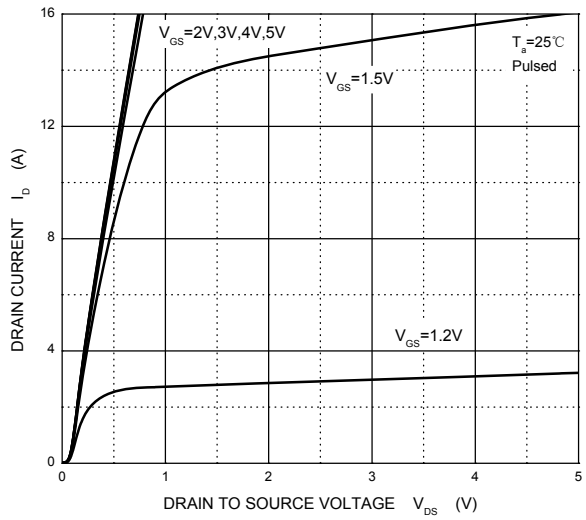
2.Surface mounted on FR4 board using the minimum pad size,1oz copper.

3. Pulse test : Pulse width=300μs, duty cycle≤2%.

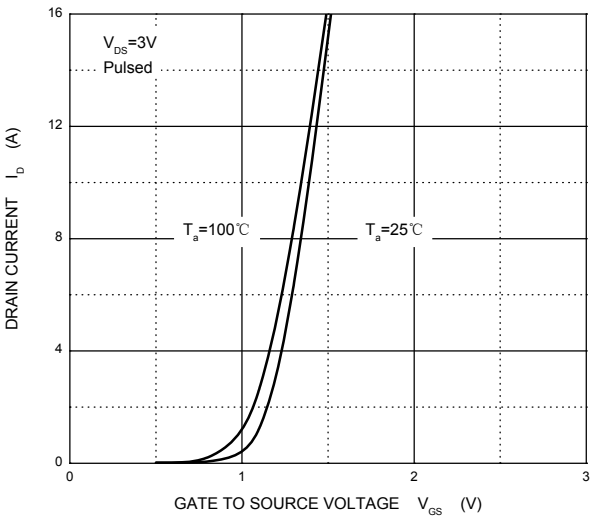
4. These parameters have no way to verify.

Typical Characteristics

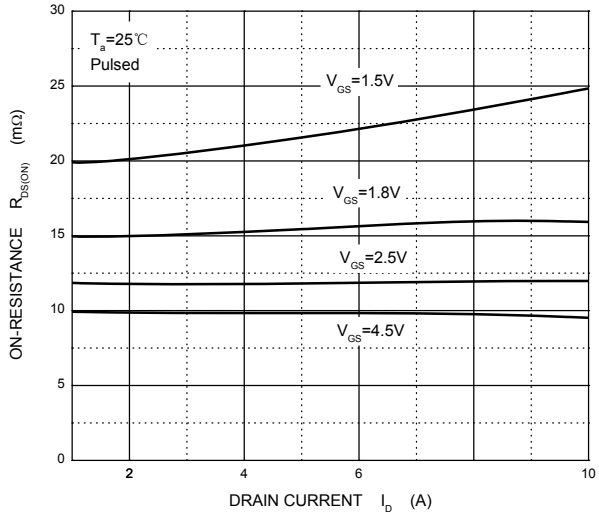
Output Characteristics



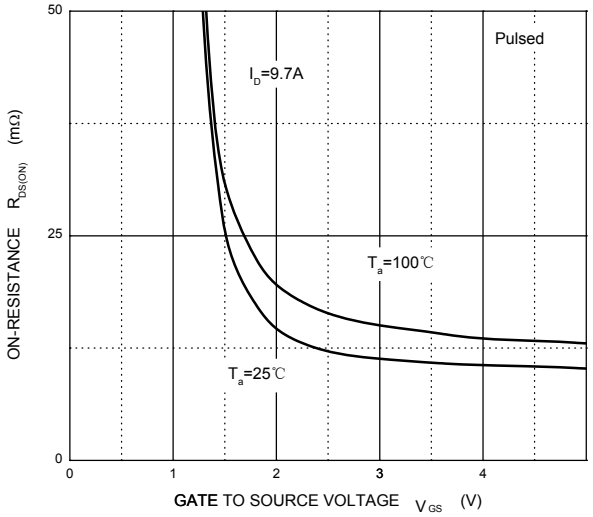
Transfer Characteristics



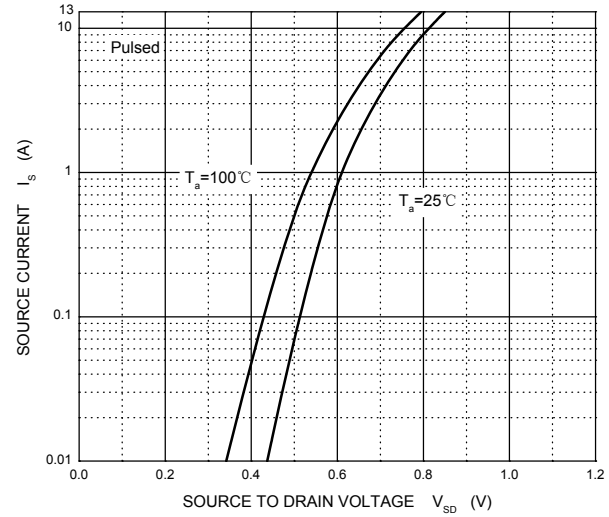
$R_{DS(ON)}$ —— I_D



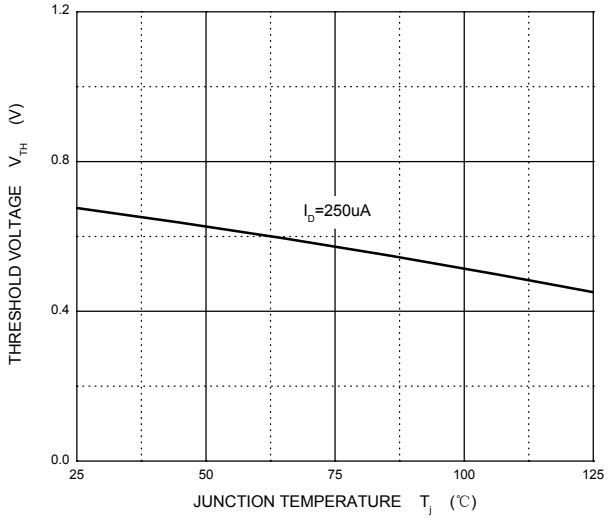
$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}



Threshold Voltage



Micro Commercial Components

Ordering Information :

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

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