Features

- TrenchFET Power MOSFET
- Epoxy meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. “Green” Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)

N-Channel MOSFET

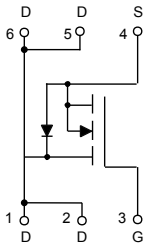
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 88°C/W Junction to Ambient(Note 2)

Parameter	Symbol	Rating	Unit
Drain -Source Voltage	V_{DS}	20	V
Gate-Source Volltage	V_{GS}	±10	V
Drain Current	I_D	12	A
Drain Current-Pulse (Note3)	I_{DM}	40	A

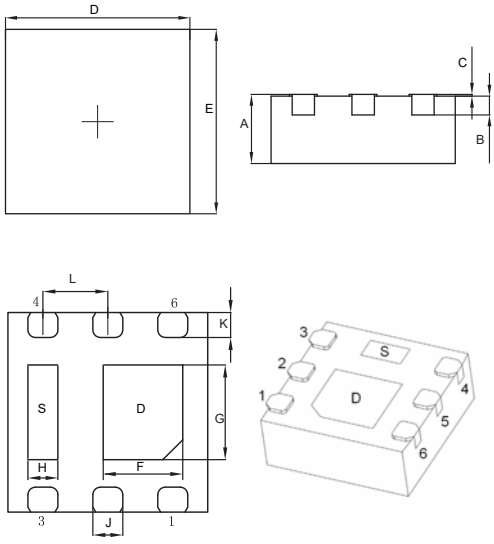
Note:
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure



Marking: N2012

DFN2020-6J



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.030	0.034	0.750	0.850	
B	0.008		0.200		BSC.
C	0.000	0.004	0.000	0.100	
D	0.075	0.083	1.900	2.100	
E	0.075	0.083	1.900	2.100	
F	0.024	0.031	0.610	0.810	
G	0.028	0.036	0.710	0.910	
H	0.008	0.016	0.200	0.400	
J	0.008	0.016	0.200	0.400	
K	0.006	0.014	0.150	0.350	
L	0.026		0.650		BSC.

ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	20			V
Gate-Threshold Voltage(Note 4)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.35	0.7	1.0	V
Gate-Body Leakage Current	I_{GSS}	V_{GS} =± 10V, V_{DS} =0V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =20V, V_{GS} =0V			1	μA
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=5A		10	15	mΩ
		V_{GS}=2.5V, I_D=5A		13	18	
		V_{GS}=1.8V, I_D=5A		18	30	
Forward Tranconductance(Note 4)	g_{FS}	V_{DS}=4V, I_D=9.7A	20			S
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=10A			1.2	V
Dynamic Characteristics(Note 5)						
Input Capacitance	C_{iss}	V_{DS}=4V,V_{GS}=0V, f=1MHz		1800		pF
Output Capacitance	C_{oss}			650		
Reverse Transfer Capacitance	C_{rss}			450		
Gate Resistance	R_g	f=1MHz		2.5		Ω
Switching Characteristics(Note 5)						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=4V,V_{GEN}=4.5V,R_L=0.4Ω, I_D=10A,R_G=1Ω		12	20	ns
Turn-On Rise Time	t_r			10	15	
Turn-Off Delay Time	$t_{d(off)}$			65	100	
Turn-Off Fall Time	t_f			20	30	
Total Gate Charge	Q_g	V_{DS}=4V,Vgs=5V,I_D=10A			32	nC
Gate-Source Chage	Q_{gs}			2.5		
Gage-Drain Charge	Q_{gd}			6.5		

Note:

2. Surface Mounted On FR4 Board Using The Minimum Pad Size,1oz Copper.
3. Surface Mounted On FR4 Board Using 1 Square Inch Pad Size, 1oz Copper.
4. Pulse Test: Pulse Width≤300μs,Duty Cycle≤2%.
5. These Parameters Have No Way To Verify.

Curve Characteristics

Fig. 1 - Output Characteristics

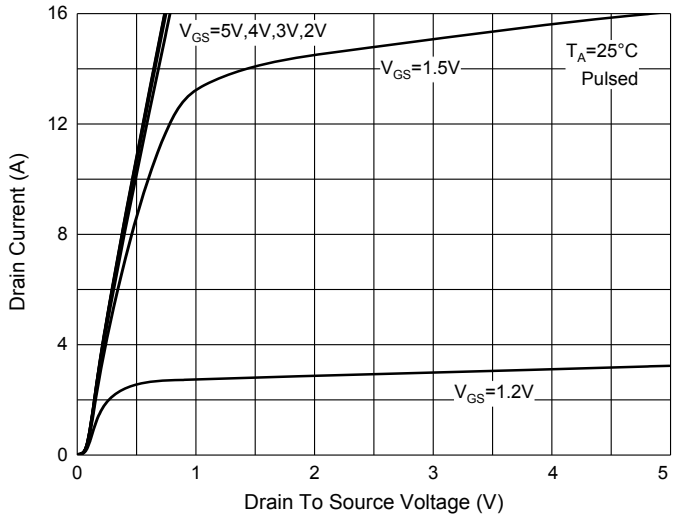


Fig. 2 - Transfer Characteristics

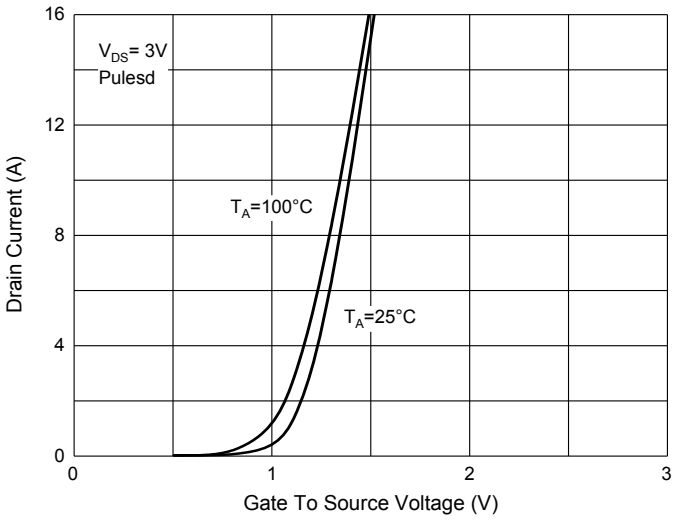


Fig. 3 - $R_{DS(ON)}$—I_D

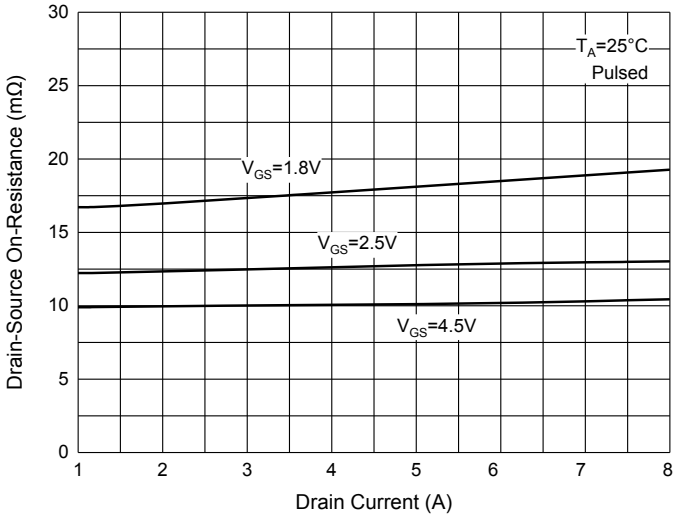


Fig. 4 - $R_{DS(ON)}$—V_{GS}

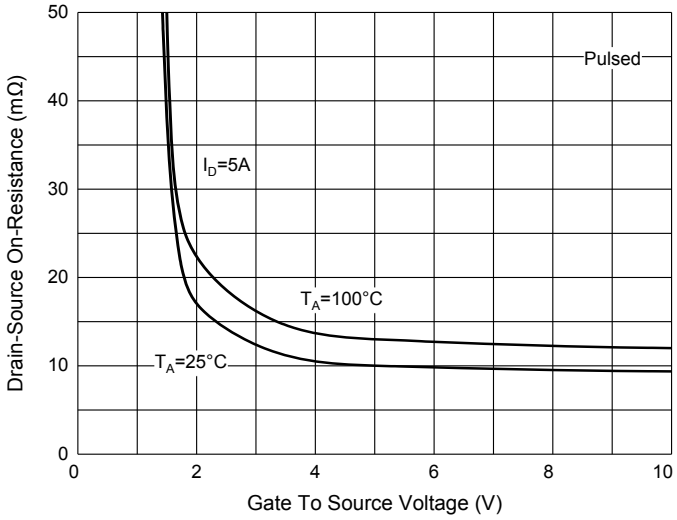


Fig. 5 - I_S—V_{SD}

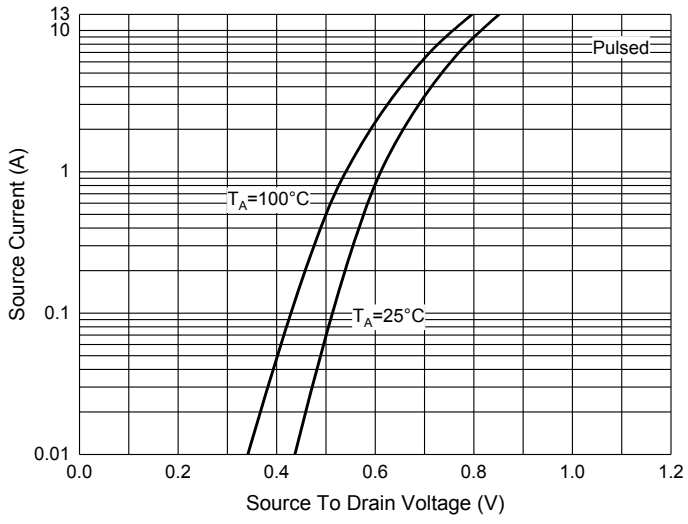
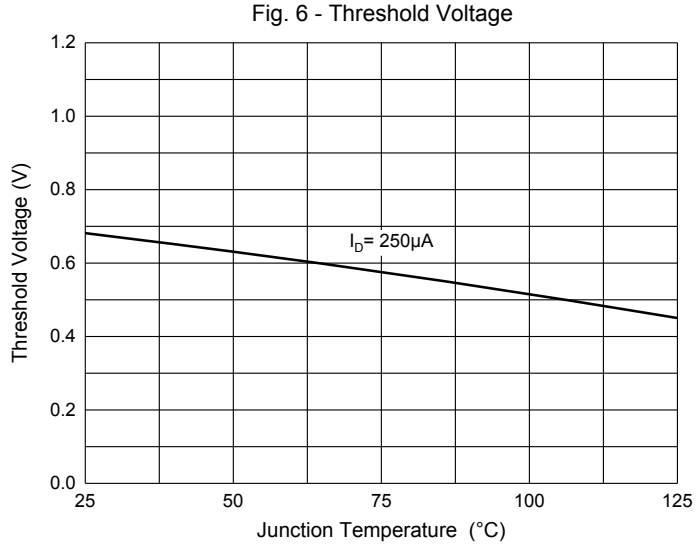


Fig. 6 - Threshold Voltage



Ordering Information

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