Features

- Trench Power LV MOSFET technology
- Moisture Sensitivity Level 1
- Halogen Free. “Green” Device (Note 1)
- Epoxy Meets UL94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)

N-Channel MOSFET

Maximum Ratings

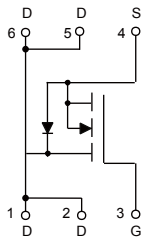
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 75°C/W Junction to Ambient(Note 2)
- Maximum Thermal Resistance: 9 °C/W Junction to Case

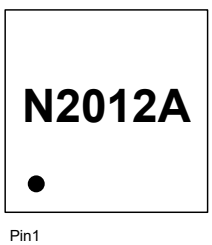
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Volltage		V_{GS}	±10	V
Continuous Drain Current	T_C=25°C	I_D	12	A
	T_C=100°C		7.5	
Pulsed Drain Current (Note3)		I_{DM}	48	A
Total Power Dissipation (Note4)		P_D	13.8	W

Note:

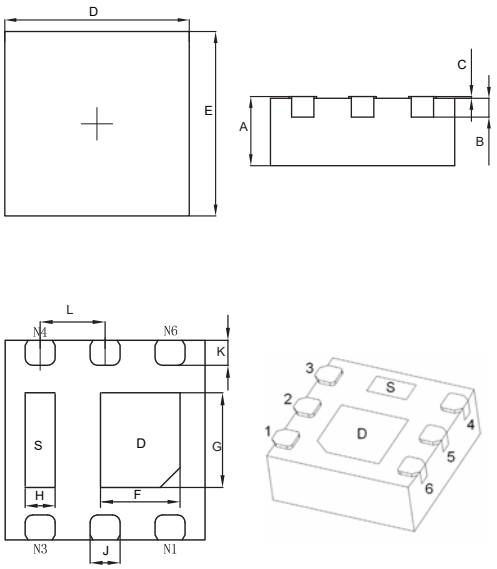
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of RθJA is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. PD is based on max. junction temperature, using junction-case thermal resistance.

Internal Structure and Marking Code





DFN2020-6JA



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.028	0.032	0.700	0.800	
B	0.006		0.150		REF.
C	0.000	0.002	0.000	0.050	
D	0.077	0.081	1.950	2.050	
E	0.077	0.081	1.950	2.050	
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	0.010	0.014	0.250	0.350	
K	0.008	0.012	0.200	0.300	
L	0.026		0.650		TYP.

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-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±10V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.35	0.7	1	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=5A		9.5	13	mΩ
		V_{GS}=2.5V, I_D=5A		12.5	18	
		V_{GS}=1.8V, I_D=5A		17	30	
Gate Resistance	R_G	f=1MHz, Open drain		2.5		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				12	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=10A			1.2	V
Reverse Recovery Time	t_{rr}	I_F=6A, dI_F/dt=100A/μs		20		ns
Reverse Recovery Charge	Q_{rr}			7		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=4V,V_{GS}=0V,f=1MHz		863		pF
Output Capacitance	C_{oss}			208		
Reverse Transfer Capacitance	C_{rss}			183		
Total Gate Charge	Q_g	V_{DS}=4V,V_{GS}=5V,I_D=10A		11.8		nC
Gate-Source Charge	Q_{gs}			1.3		
Gate-Drain Charge	Q_{gd}			2.2		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=4V,V_{GS}=4.5V, R_G=1Ω, I_D=10A		7		ns
Turn-On Rise Time	t_r			11		
Turn-Off Delay Time	$t_{d(off)}$			21		
Turn-Off Fall Time	t_f			5		

Curve Characteristics

Fig.1 - Typical Output Characteristics

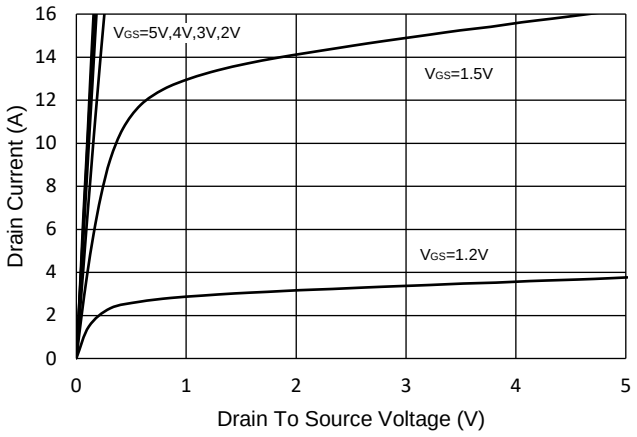


Fig.2 - Transfer Characteristic

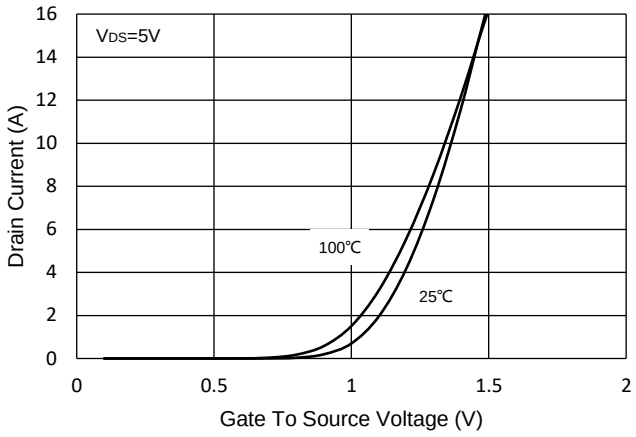


Fig.3 - $R_{DS(ON)}$ - V_{GS}

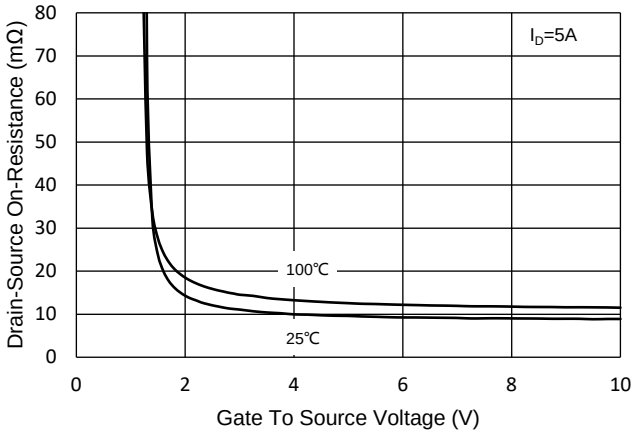


Fig.4 - $R_{DS(ON)}$ - I_D

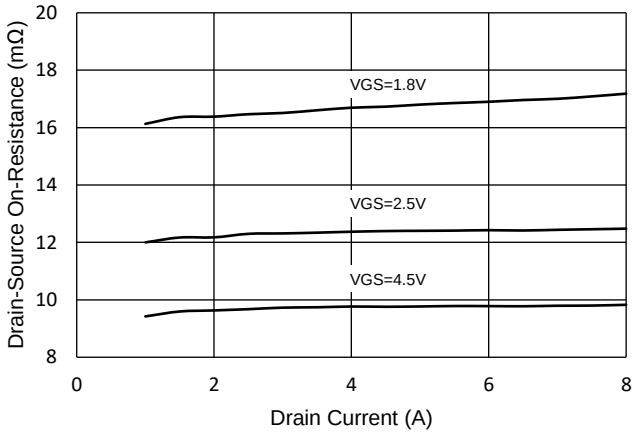


Fig.5 - Capacitance Characteristics

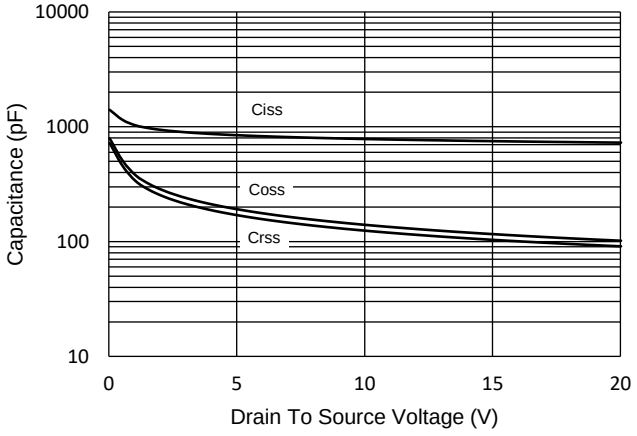
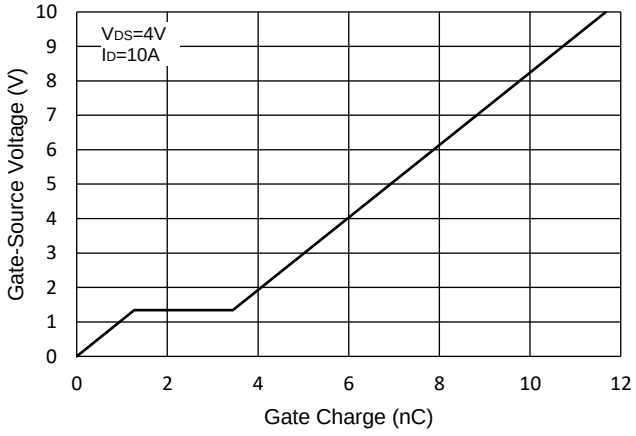


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

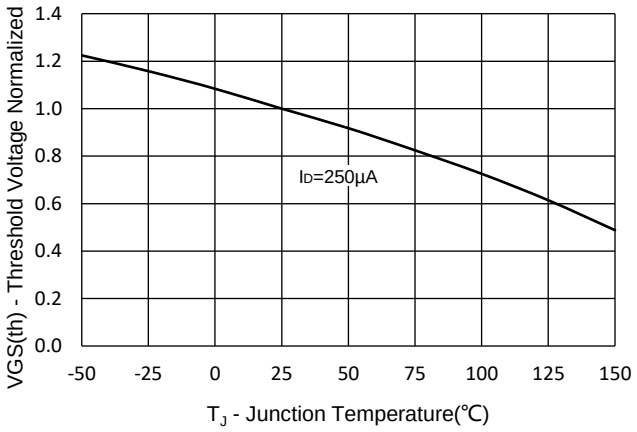


Fig.8 - Normalized On Resistance Characteristics

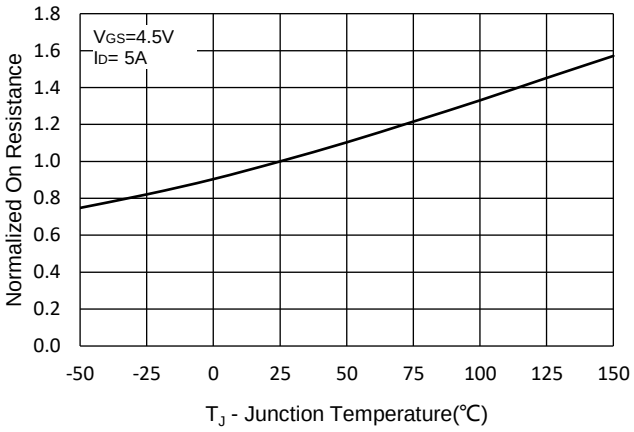


Fig.9 - I_S - V_{SD}

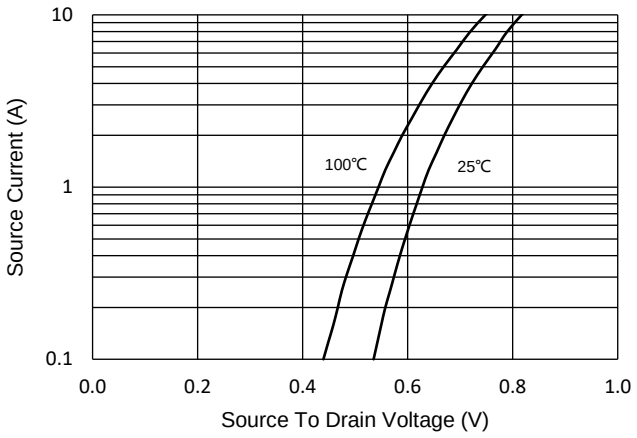


Fig.10 - Drain Current

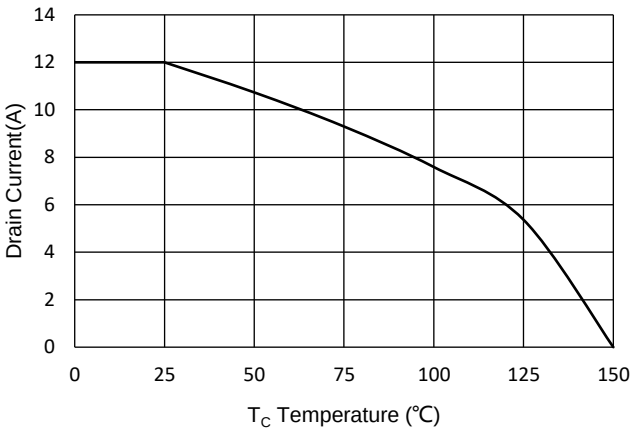
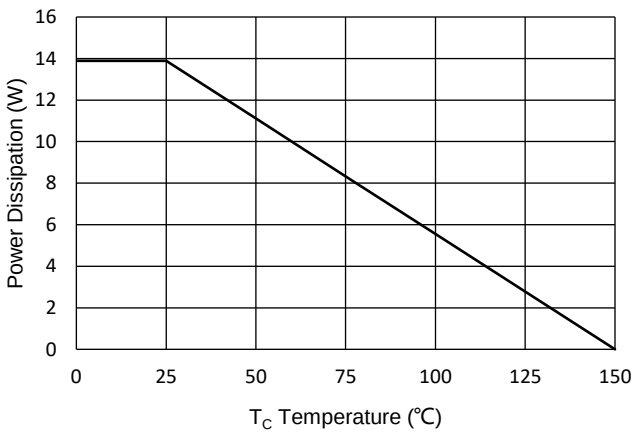


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

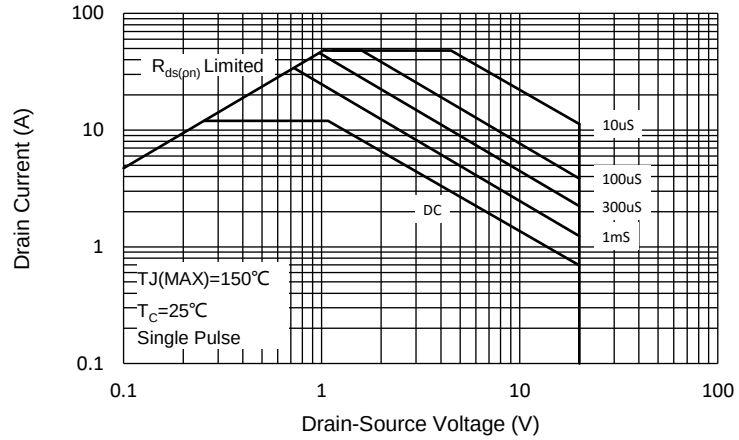
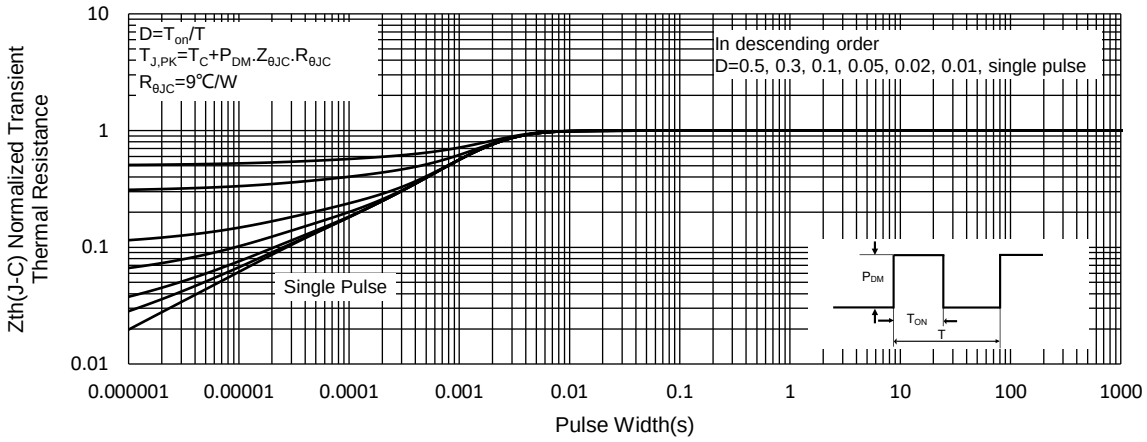


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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

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