

Features

- Trench Power LV MOSFET technology
- High Dense Cell Design For Extremely Low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

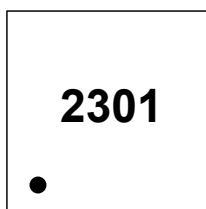
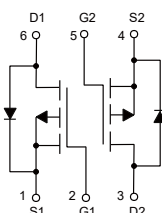
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 89°C/W Junction to Ambient (Note 2)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	-20	V
Gate-Source Voltlage		V _{GS}	±10	V
Continuous Drain Current	T _A =25°C	I _D	-3.8	A
	T _A =70°C		-3	
Pulsed Drain Current (Note3)		I _{DM}	-15.2	A
Total Power Dissipation(Note4)		P _D	1.4	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 $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-ambient thermal resistance.

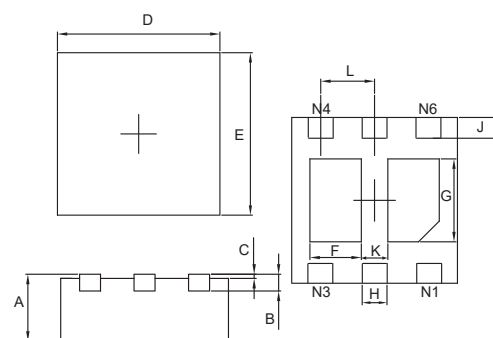
Internal Structure and Marking Code



Pin1

P-Channel MOSFET

DFN2020-6L



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.030	0.034	0.750	0.850	
B	0.008		0.200		TYP.
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	0.017	0.027	0.440	0.690	
G	0.033	0.043	0.840	1.090	
H	0.010	0.014	0.250	0.350	
J	0.007	0.015	0.175	0.375	
K	0.010	0.014	0.250	0.350	
L	0.026		0.650		TYP

Electrical Characteristics @ 25°C (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} =±8V			±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	-0.5	-0.7	-0.9	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-1.9A		44	55	mΩ
		V _{GS} =-2.5V, I _D =-1.9A		59	75	
Gate Resistance	R _g	f=1MHz, Open drain		14		Ω
Diode Characteristics						
Diode Forward Voltage	I _S				-3.8	A
Continuous Body Diode Current	V _{SD}	V _{GS} =0V, I _S =-1.9A			-1.2	v
Reverse Recovery Chrage	t _{rr}	I _F =-1.9A, dI _F /dt=100A/μs		27		ns
Reverse Recovery Time	Q _{rr}			12		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-6V,V _{GS} =0V,f=1MHz		492		pF
Output Capacitance	C _{oss}			83		
Reverse Transfer Capacitance	C _{rss}			70		
Total Gate Charge	Q _g	V _{DS} =-6V,V _{GS} =-4.5V,I _D =-2.8A		5.8		nC
Gate-Source Charge	Q _{gs}			0.8		
Gate-Drain Charge	Q _{gd}			1.2		
Turn-On Delay Time	t _{d(on)}	V _{GS} =-4.5V, V _{DD} =-6V, I _D =-1A,R _G =6Ω		8		ns
Turn-On Rise Time	t _r			8		
Turn-Off Delay Time	t _{d(off)}			54		
Turn-Off Fall Time	t _f			21		

Curve Characteristics

Fig.1 - Typical Output Characteristics

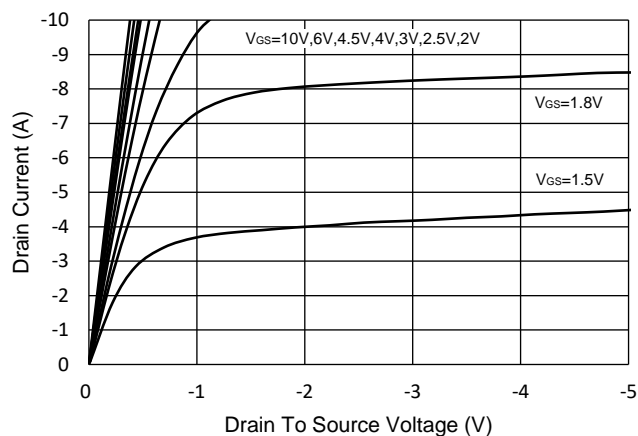


Fig.2 - Transfer Characteristic

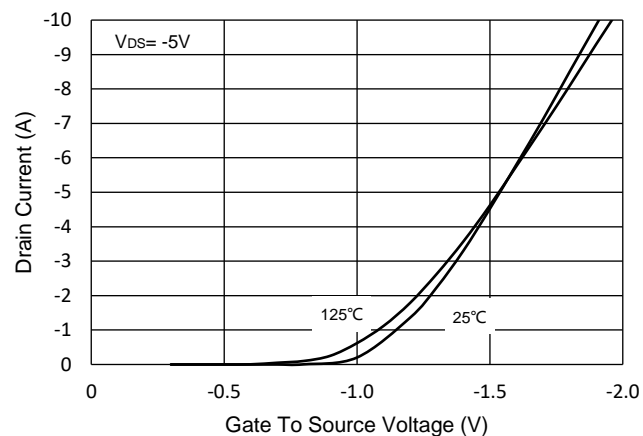


Fig.3 - $R_{DS(ON)}$ - V_{GS}

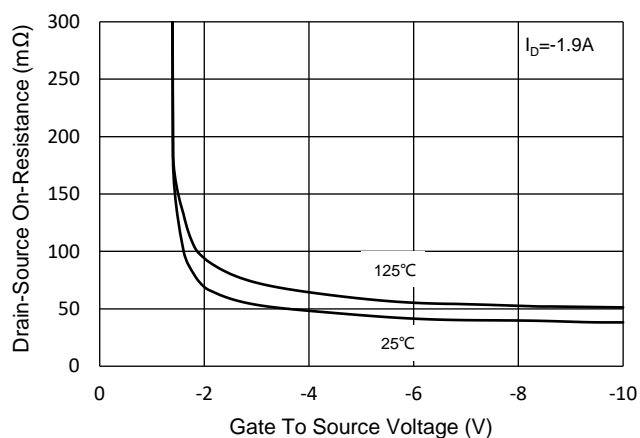


Fig.4 - $R_{DS(ON)}$ - I_D

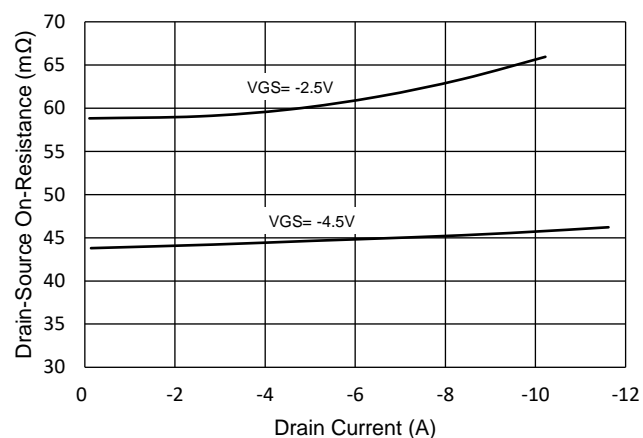


Fig.5 - Capacitance Characteristics

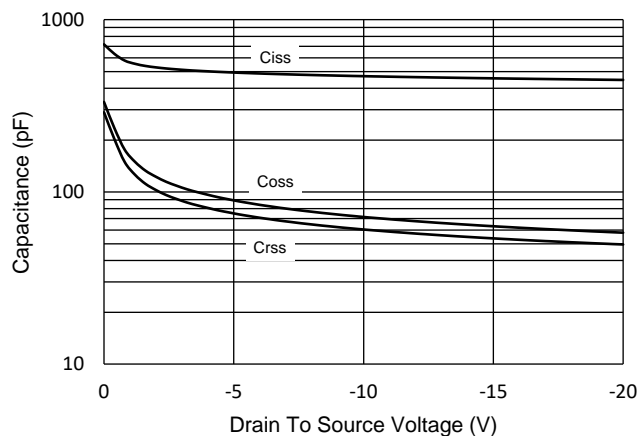
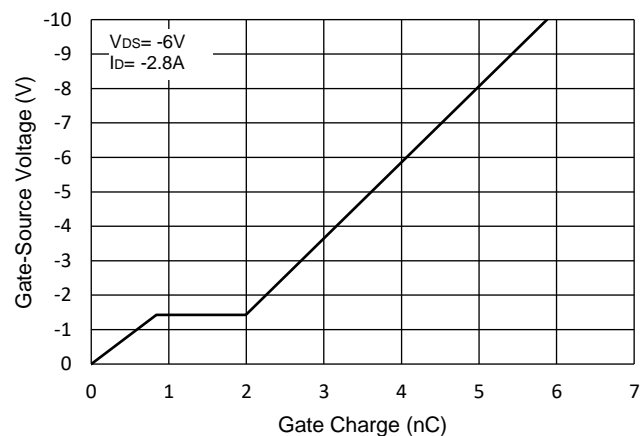


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

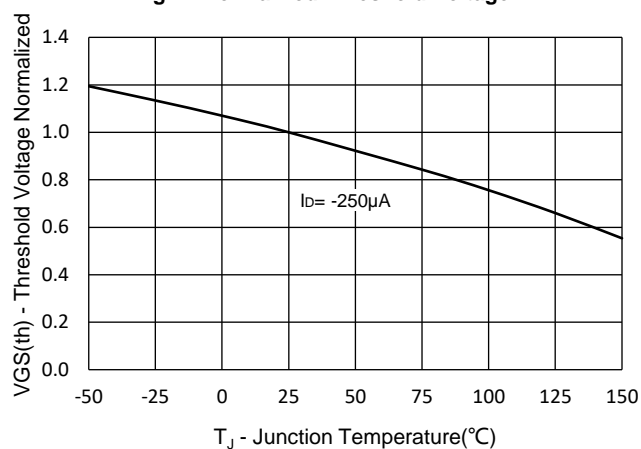


Fig.8 - Normalized On Resistance Characteristics

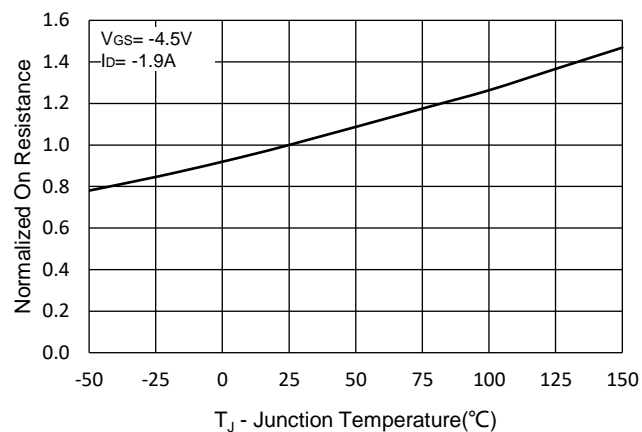


Fig.9 - $I_S - V_{SD}$

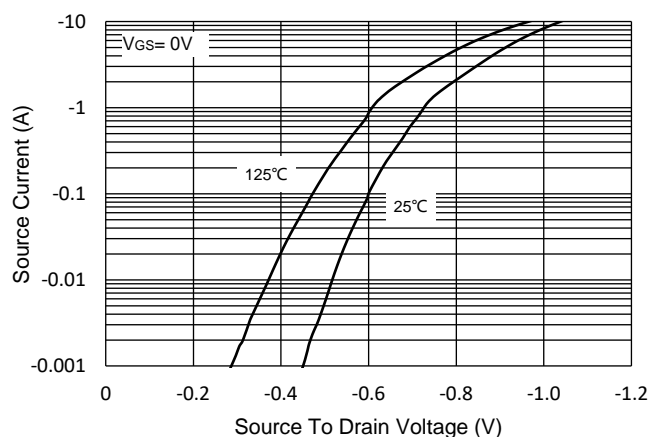


Fig.10 - Drain Current

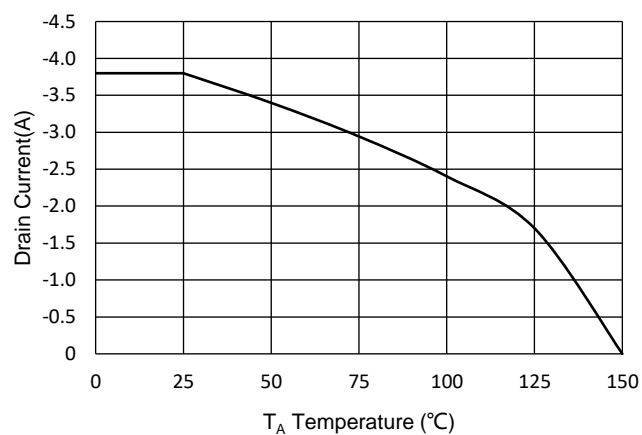
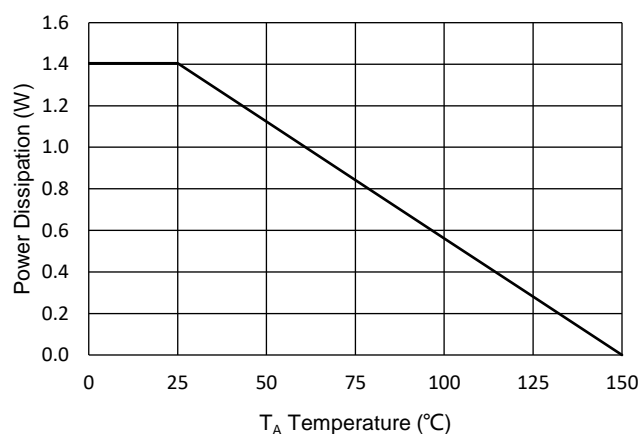


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

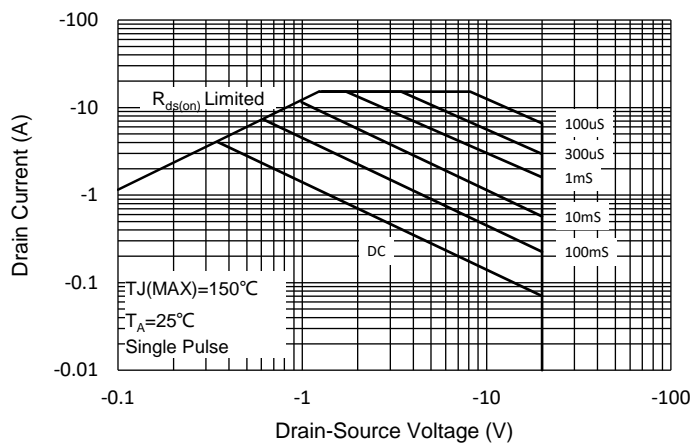
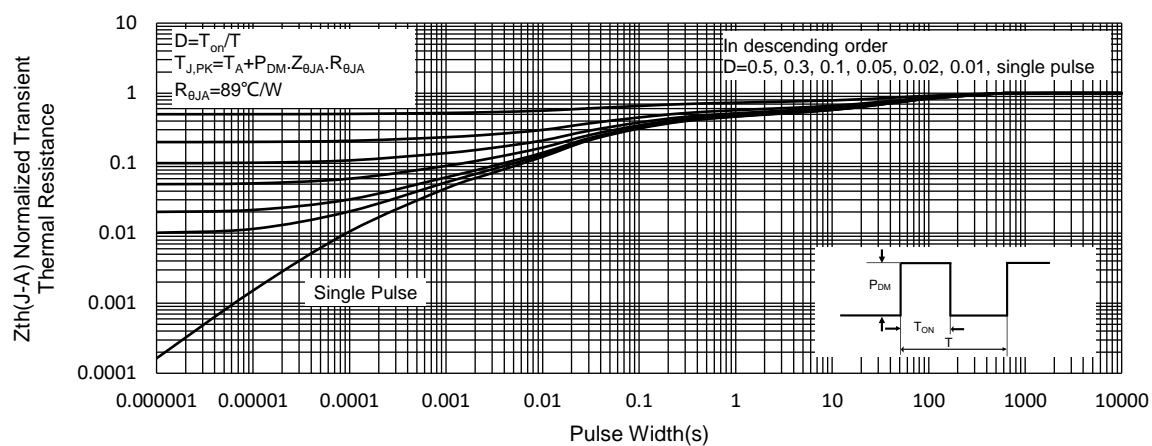


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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

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