Features

- Trench Power LV MOSFET technology
- High Density Cell Design 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)

P-CHANNEL MOSFET

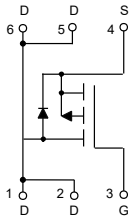
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 60°C/W Junction to Ambient(Note2)
- Thermal Resistance: 6.9°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	-16	A
	T_C=70°C		-12.8	
Pulsed Drain Current (Note3)		I_{DM}	-64	A
Total Power Dissipation(Note4)		P_D	18	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. P_D is based on max. junction temperature, using junction-case thermal resistance.

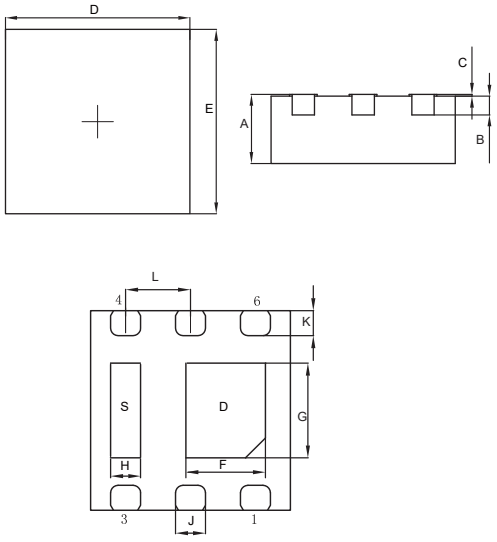
Internal Structure and Marking Code





Pin1

DFN2020-6JA



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.030	0.034	0.750	0.850	
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 @ 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} =±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	-0.4	-0.6	-1	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-10A		12	16	mΩ
		V_{GS}=-2.5V, I_D=-6.5A		14	21	
		V_{GS}=-1.8V, I_D=-4A		22	30	
Gate Resistance	R_g	f=1MHz, Open drain		13		Ω
Diode Characteristics						
Diode Forward Voltage	I_S				-16	A
Continuous Body Diode Current	V_{SD}	V_{GS}=0V, I_S=-13A			-1.2	V
Reverse Recovery Chrage	t_{rr}	I_S=-8A, dI_F/dt=100A/μs		102		ns
Reverse Recovery Time	Q_{rr}			158		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-10V,V_{GS}=0V,f=1MHz		2130		pF
Output Capacitance	C_{oss}			290		
Reverse Transfer Capacitance	C_{rss}			262		
Total Gate Charge	Q_g	V_{DS}=-15V,V_{GS}=-10V,I_D=-9.1A		54		nC
Gate-Source Charge	Q_{gs}			3		
Gate-Drain Charge	Q_{gd}			8		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=-10V, V_{DD}=-15V, I_D=-6A,R_G=2.5Ω		6		ns
Turn-On Rise Time	t_r			5		
Turn-Off Delay Time	$t_{d(off)}$			263		
Turn-Off Fall Time	t_f			102		

Curve Characteristics

Fig.1 - Typical Output Characteristics

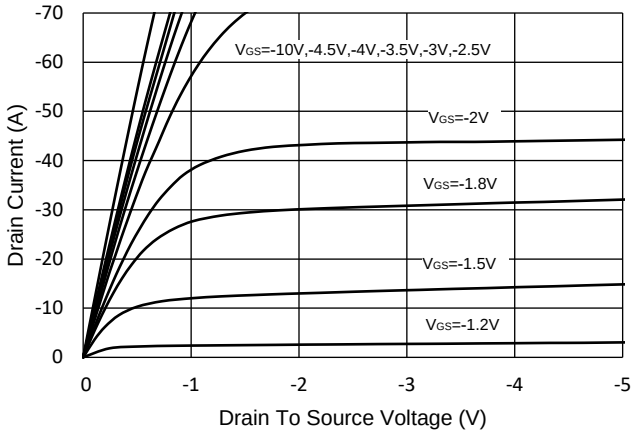


Fig.2 - Transfer Characteristic

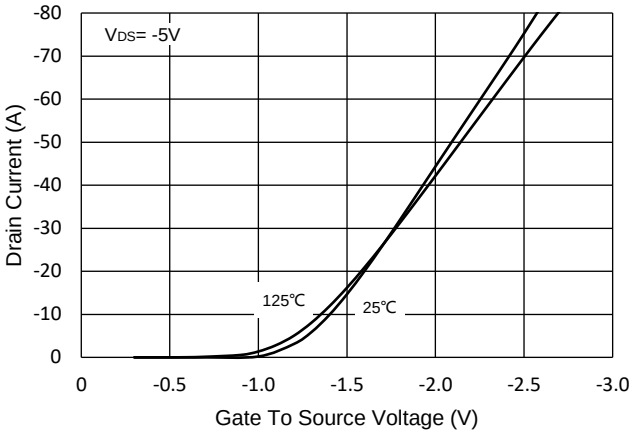


Fig.3 - $R_{DS(ON)}$ - V_{GS}

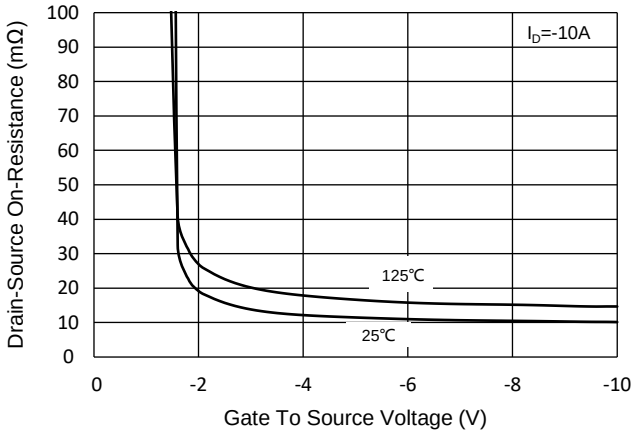


Fig.4 - $R_{DS(ON)}$ - I_D

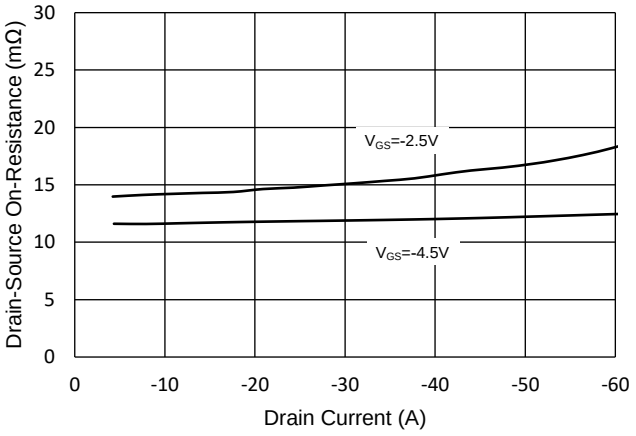


Fig.5 - Capacitance Characteristics

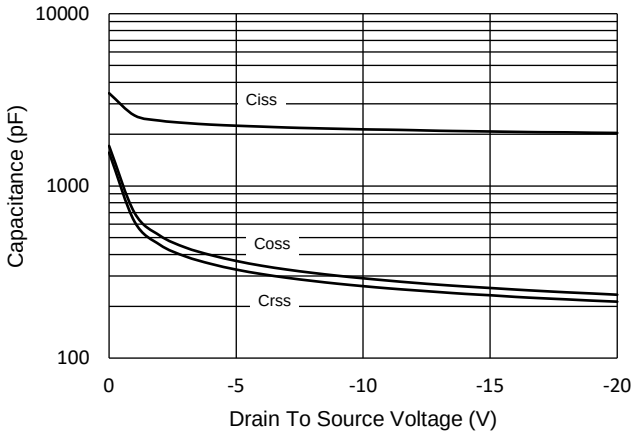
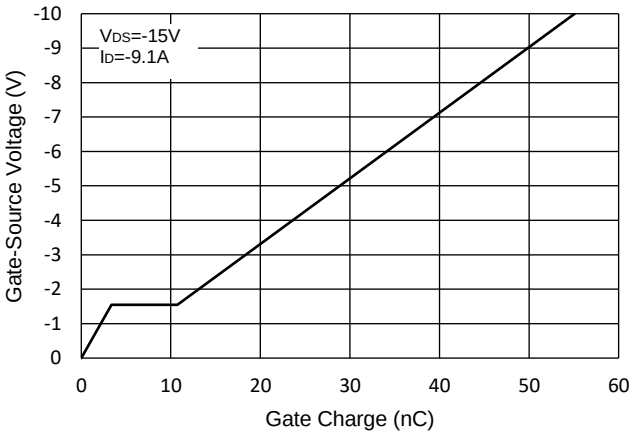


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

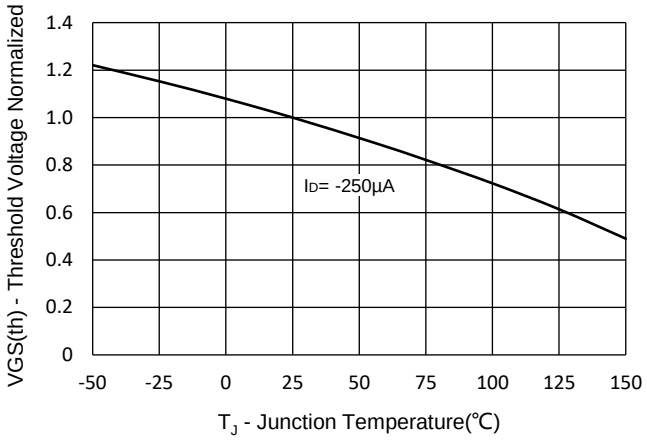


Fig.8 - Normalized On Resistance Characteristics

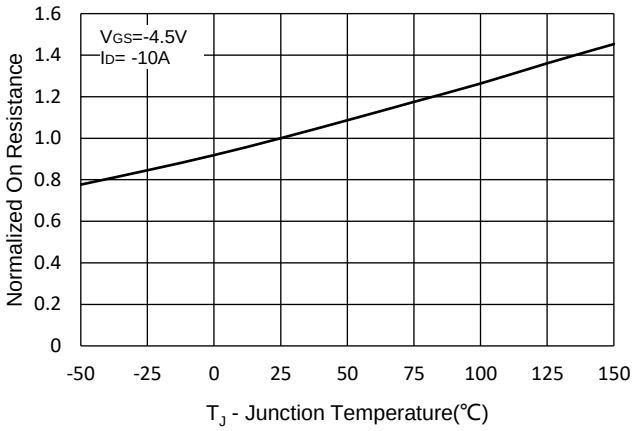


Fig.9 - I_S - V_{SD}

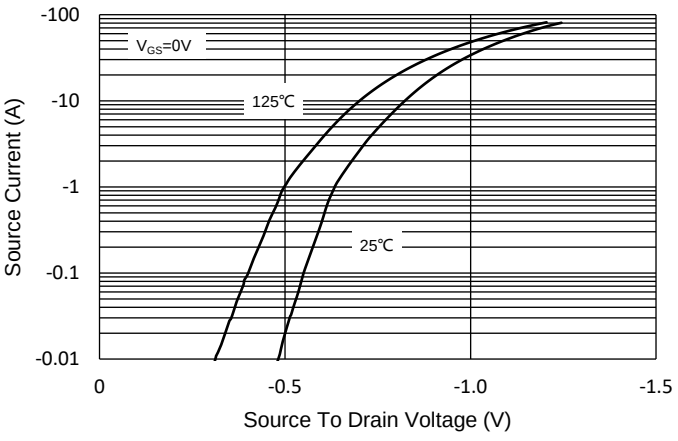


Fig.10 - Drain Current

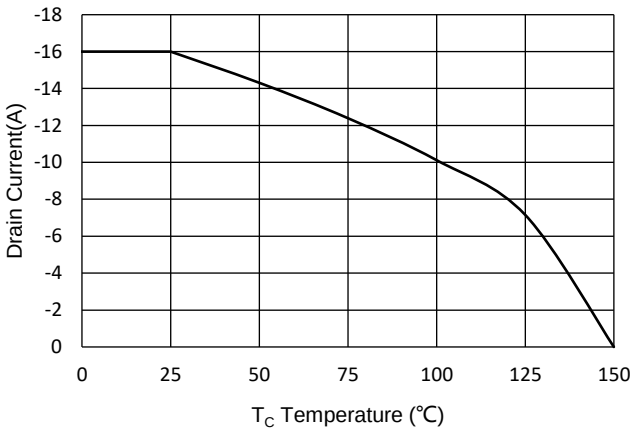
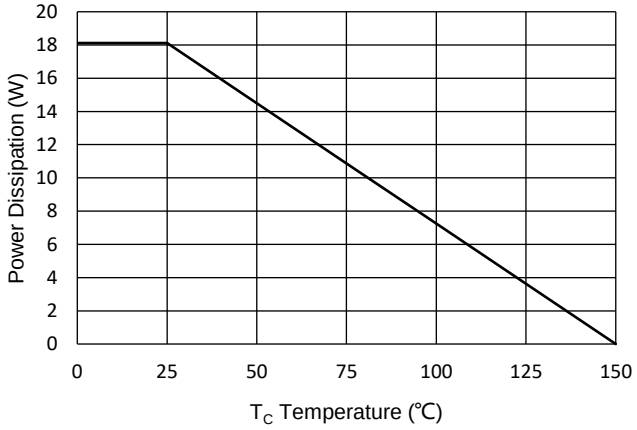


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

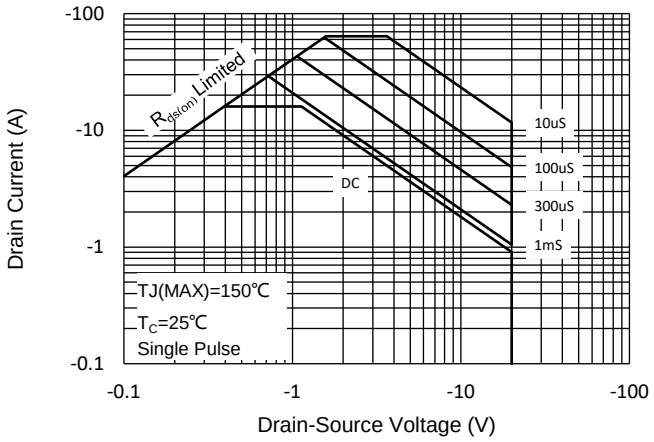
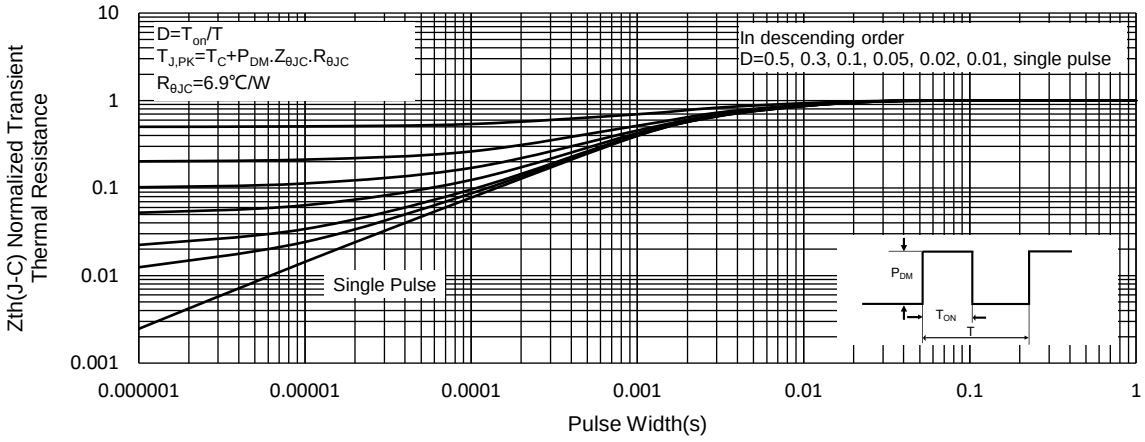


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel
Part Number-13P	Tape&Reel:10Kpcs/Reel

For packaging details, go to our website at https://www.mccsemi.com/pdf/productpackaging/DFN2020-6JA%20Package.pdf

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