

Features

- High Dense Cell Design For Extremely Low $R_{DS(ON)}$
- Rugged and reliable
- High Speed Switching
- 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)

Maximum Ratings

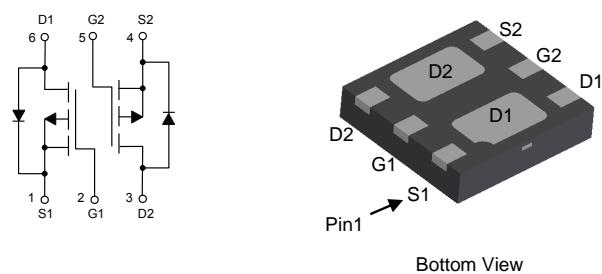
- Operating Junction Temperature Range : -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Maximum Thermal Resistance: 89°C/W Junction to Ambient^(Note 2)

Parameter	Symbol	Rating	Unit
Drain -source Voltage	V_{DS}	-20	V
Gate -Source Voltage	V_{GS}	± 10	V
Drain Current-Continuous	I_D	-3.8	A
Drain Current-Pulse ^(Note 2)	I_{DM}	-13	A
Power Dissipation	P_D	1.4	W

Note:

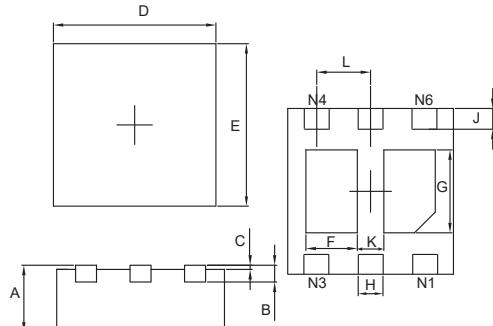
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure



P-Channel MOSFET

DFN2020-6L



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	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 (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate-Threshold Voltage ^(Note 4)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5	-0.7	-0.9	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
Drain-Source On-Resistance ^(Note 4)	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-1.9A$		49	70	$m\Omega$
		$V_{GS}=-2.5V, I_D=-1.9A$		59	90	
Forward Tranconductance ^(Note 4)	g_{FS}	$V_{DS}=-5V, I_D=-2.8A$		8		S
Diode Forward Current ^(Note 3)	I_S				-0.75	S
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-0.75A$			-1.2	V
Dynamic Characteristics^(Note 5)						
Input Capacitance	C_{iss}	$V_{DS}=-6V, V_{GS}=0V, f=1MHz$		880		pF
Output Capacitance	C_{oss}			270		
Reverse Transfer Capacitance	C_{rss}			175		
Switching Characteristics^(Note 5)						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-6V, V_{GS}=-4.5V, I_D=-1A, R_{GEN}=6\Omega$		11	20	ns
Turn-On Rise Time	t_r			5	10	
Turn-Off Delay Time	$t_{d(off)}$			32	65	
Turn-Off Fall Time	t_f			23	45	
Total Gate Charge	Q_g			11	14.5	nC
Gate-Source Charge	Q_{gs}	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-2.8A$		1.5		
Gage-Drain Charge	Q_{gd}			2.1		

Note:

2. Surface Mounted on FR4 Board, $t < 5$ sec.
3. Repetitive Rating : Pulse width limited by maximum junction temperature.
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
5. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Output Characteristics

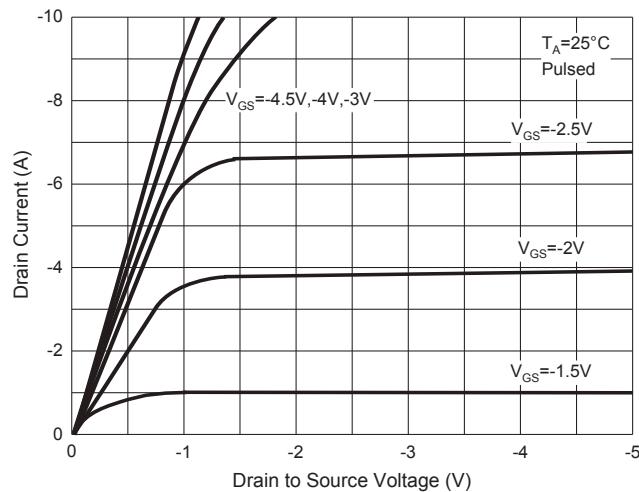


Fig. 2 - Transfer Characteristics

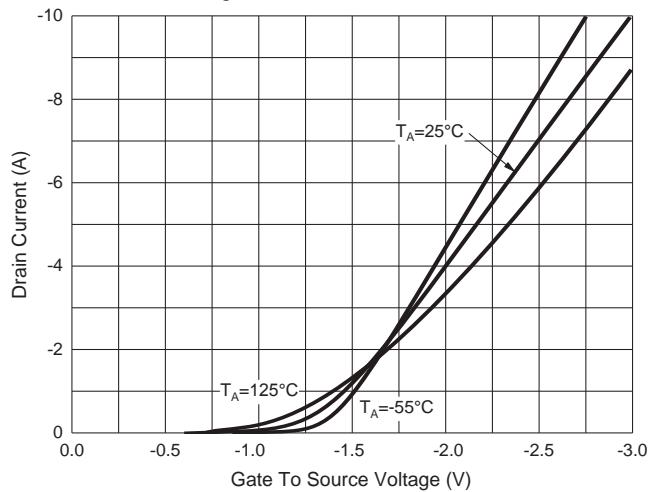


Fig. 3 - Capacitance Characteristics

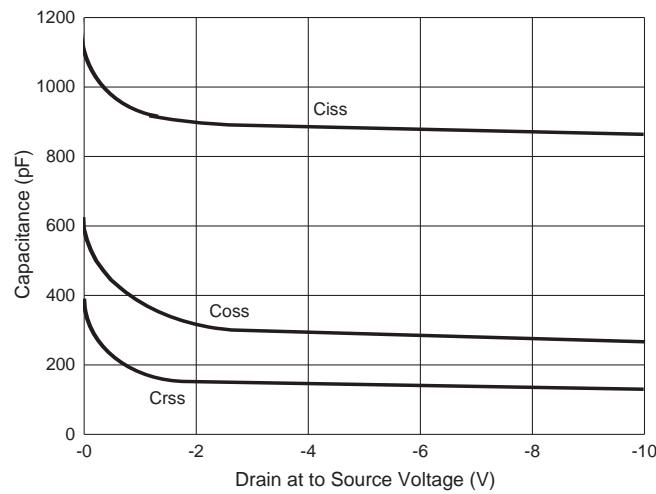


Fig. 4 - $R_{DS(ON)}$ —Temperature

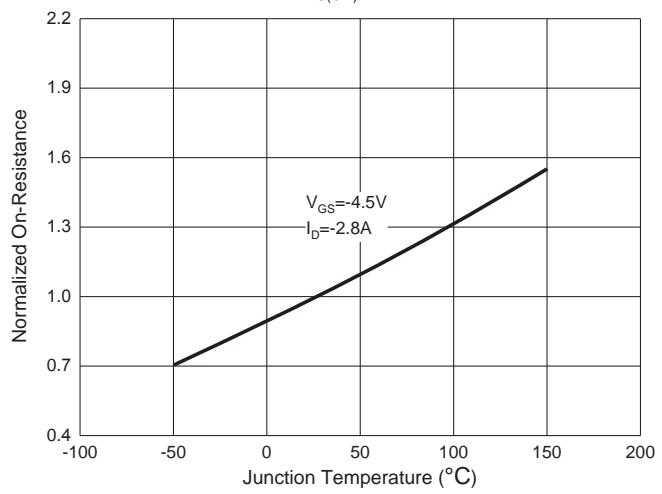


Fig. 5 - Threshold Voltage

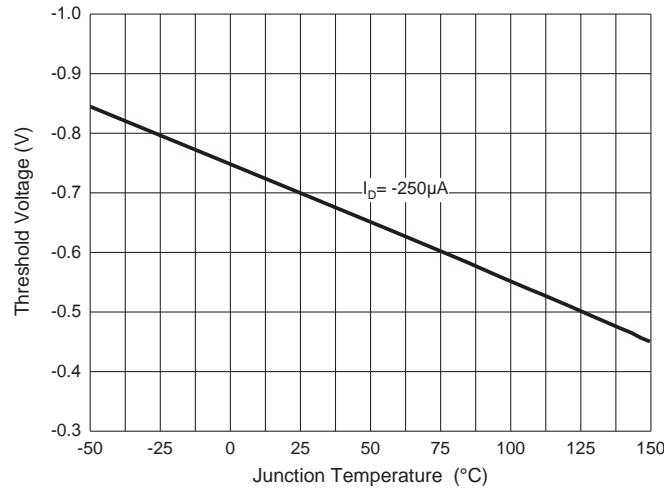
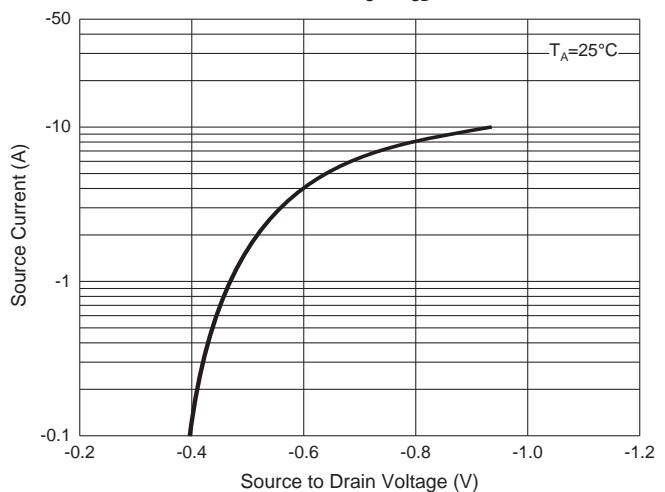


Fig. 6 - I_S — V_{SD}



Ordering Information

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

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