

**Features**

- Advanced Trench MOSFET Process Technology
- 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**

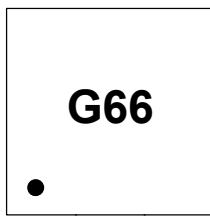
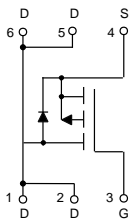
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 74°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-16	V
Gate-Source Voltage	$V_{GS}$	$\pm 8$	V
Continuous Drain Current	$I_D$	-5.8	A
Pulsed Drain Current (Note 3)	$I_{DM}$	-15	A
Total Power Dissipation	$P_D$	1.7	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. Surface Mounted on FR4 Board,  $t \leq 10$  sec.
3. Pulse Width Limited by Maximum Junction Temperature.

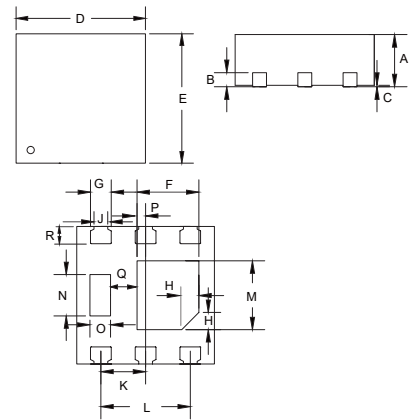
**Internal Structure and Marking Code**



Pin1

**P-CHANNEL  
MOSFET**

**DFN2020-6G**



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.028	0.032	0.700	0.800	
B	0.008		0.203		TYP.
C	0.000	0.002	0.000	0.050	
D	0.075	0.083	1.900	2.100	
E	0.075	0.083	1.900	2.100	
F	0.033	0.037	0.850	0.950	
G	0.010	0.014	0.250	0.350	
H	0.010		0.250		TYP.
J	0.008		0.250		TYP.
K	0.026		0.650		TYP.
L	0.051		1.300		TYP.
M	0.037	0.041	0.950	1.050	
N	0.022	0.026	0.550	0.650	
O	0.010	0.014	0.250	0.350	
P	0.003	0.007	0.080	0.180	
Q	0.013	0.017	0.330	0.430	
R	0.008	0.012	0.200	0.300	

**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$		-16		V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 8V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-12V, V_{GS}=0V$			-1	$\mu A$
Gate-Threshold Voltage <sup>(Note 3)</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.45	-0.7	-1	V
Drain-Source On-Resistance <sup>(Note 3)</sup>	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-4.1A$		33	45	m $\Omega$
		$V_{GS}=-2.5V, I_D=-3A$		45	60	
Forward Transconductance <sup>(Note 3)</sup>	$g_{FS}$	$V_{DS}=-5V, I_D=-3.5A$		8.5		S
<b>Dynamic Characteristics<sup>(Note 4)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=-4V, V_{GS}=0V, f=1MHz$		740		pF
Output Capacitance	$C_{oss}$			290		
Reverse Transfer Capacitance	$C_{rss}$			190		
Total Gate Charge	$Q_g$	$V_{DS}=-4V, V_{GS}=-4.5V, I_D=-4.1A$		7.8		nC
Gate-Source Charge	$Q_{gs}$			1.2		
Gate-Drain Charge	$Q_{gd}$			1.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-4V, V_{GEN}=-4.5V, I_D=-3.3A$ $R_L=1.2\Omega, R_{GEN}=1\Omega$		12		ns
Turn-On Rise Time	$t_r$			35		
Turn-Off Delay Time	$t_{d(off)}$			30		
Turn-Off Fall Time	$t_f$			10		
<b>Drain-Source Body Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				-16	A
Body Diode Voltage	$V_{SD}$	$I_S=-1.6A, V_{GS}=0V$			-1.2	V

Note: 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

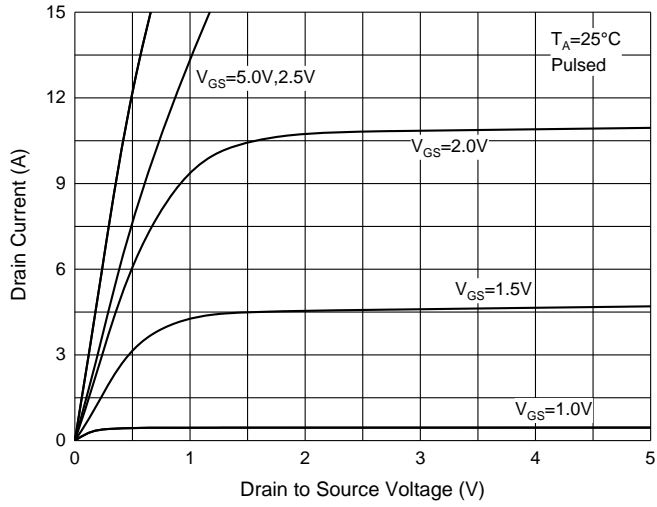


Fig. 2 - Transfer Characteristics

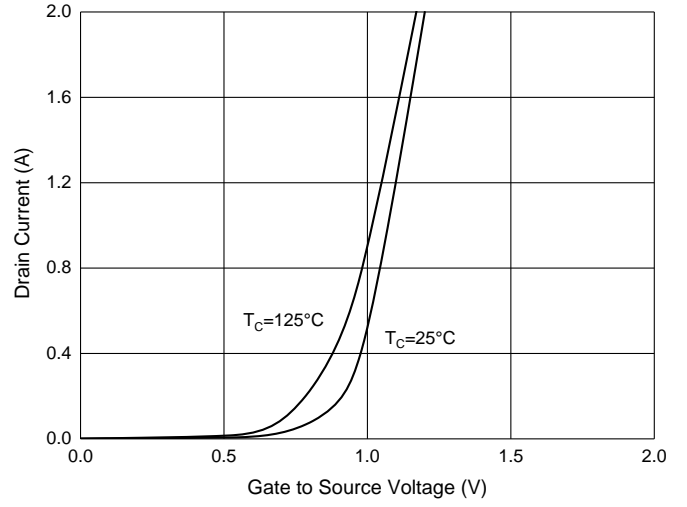


Fig. 3 -  $R_{DS(ON)} - I_D$

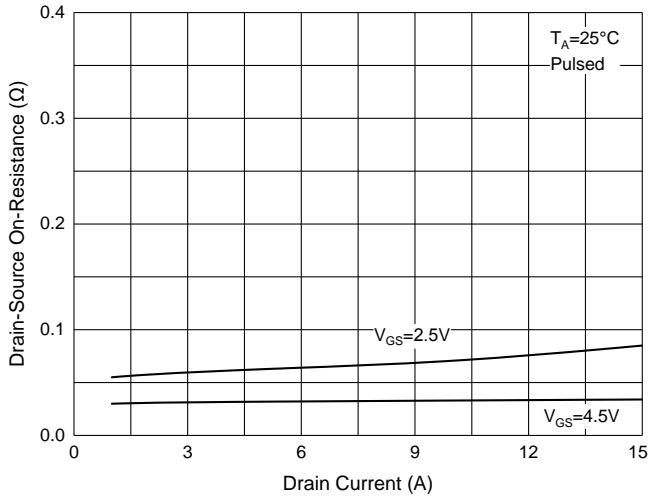


Fig. 4 -  $R_{DS(ON)} - V_{GS}$

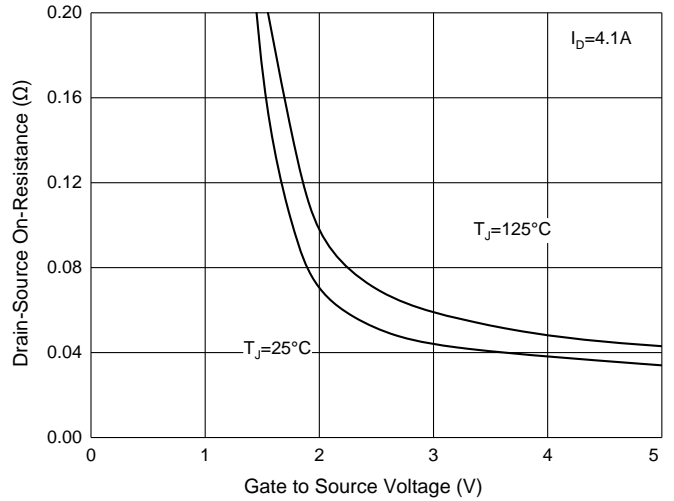
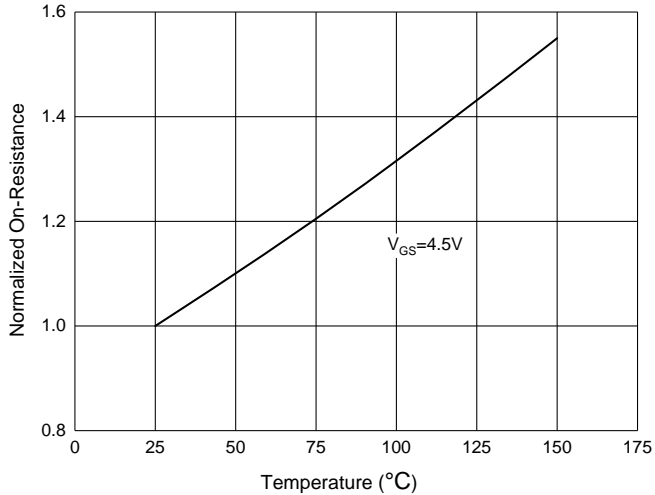


Fig. 5 -  $R_{DS(ON)} - \text{Temperature}$



## Ordering Information

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

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