

Features

- Advanced Trench MOSFET Process Technology
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

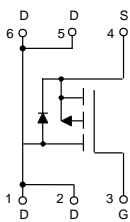
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 6.9°C/W Junction to Case^(Note 1)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-12	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	-16	A
Pulsed Drain Current ^(Note 2)	I_{DM}	-65	A
Total Power Dissipation	P_D	18	W

Note 1. Surface Mounted on FR4 Board, $t < 10$ sec.

2. Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature.

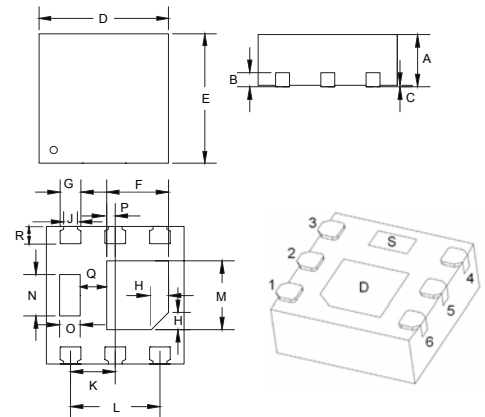
Internal Structure



Marking: G69

**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
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-12			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 8V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-12V, V_{GS}=0V$			-1	μA
Gate-Threshold Voltage ^(Note 3)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.7	-1	V
Drain-Source On-Resistance ^(Note 3)	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-6A$		12	21	m Ω
		$V_{GS}=-2.5V, I_D=-4A$		15	27	
Diode Forward Current	I_S				-16	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-8A$			-1.2	V
Forward tranconductance ^(Note 3)	g_{FS}	$V_{DS}=-5V, I_D=-6.7A$	20			S
Dynamic Characteristics^(Note 4)						
Input Capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$		2700		pF
Output Capacitance	C_{oss}			680		
Reverse Transfer Capacitance	C_{rss}			590		
Switching Characteristics^(Note 4)						
Total Gate Charge	Q_g	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-10A$		35	48	nC
Gate-Source Charge	Q_{gs}			5		
Gate-Drain Charge	Q_{gd}			10		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-10V, I_D=-1A$ $V_{GS}=-4.5V, R_{GEN}=10\Omega$		11		ns
Turn-On Rise Time	t_r			35		
Turn-Off Delay Time	$t_{d(off)}$			30		
Turn-Off Fall Time	t_f			10		

Note 3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

4. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Output Characteristics

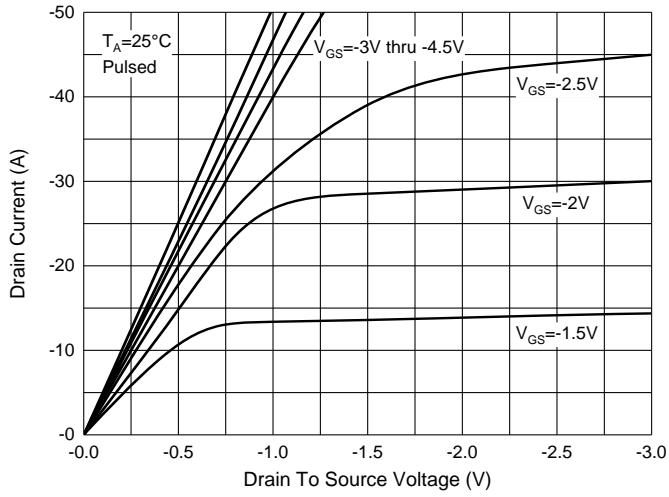


Fig. 2 - Capacitance Characteristics

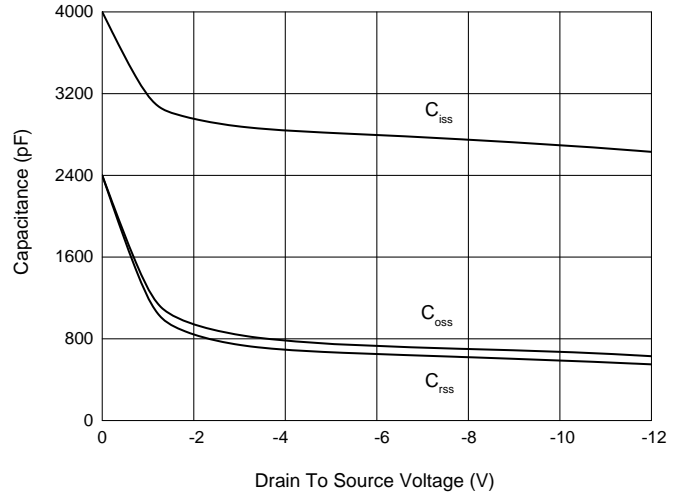


Fig. 3 - $R_{DS(ON)} - I_D$

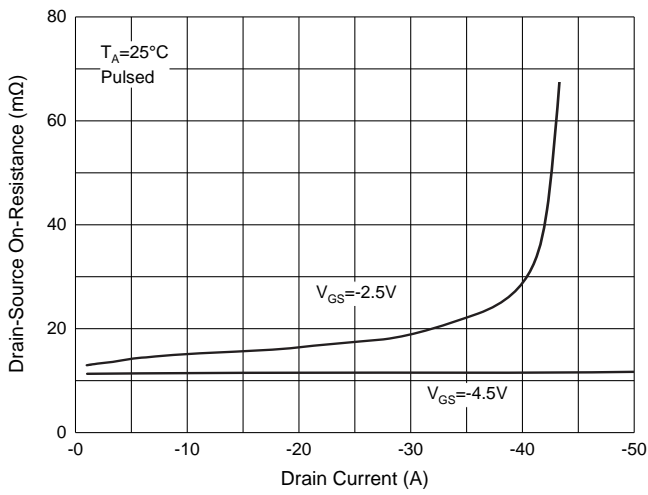


Fig. 4 - $R_{DS(ON)} - V_{GS}$

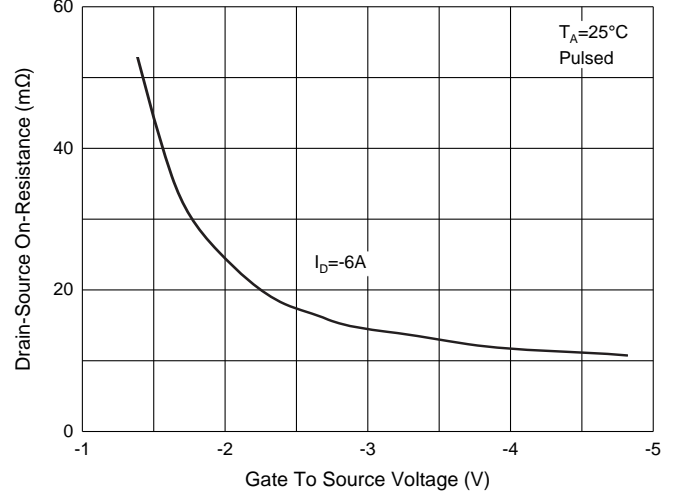


Fig. 5 - $I_S - V_{SD}$

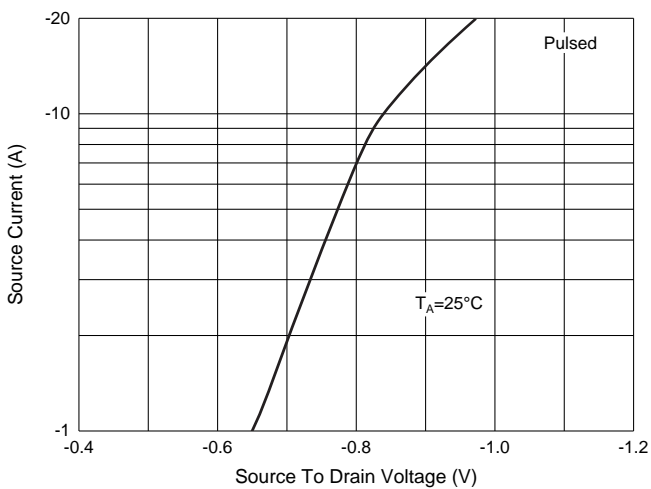
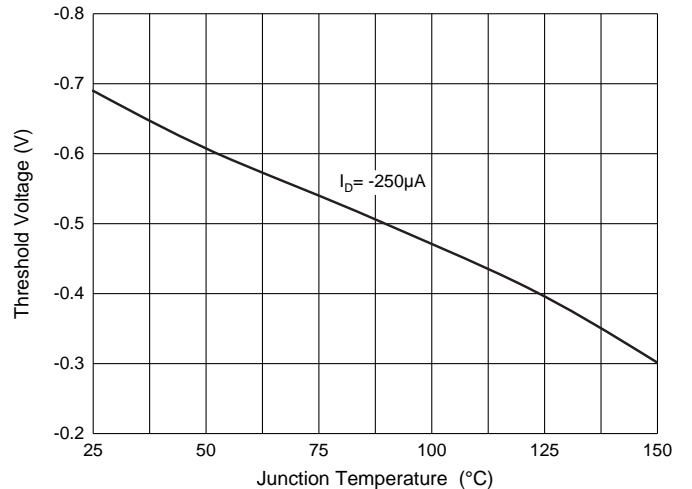


Fig. 6 - Threshold Voltage



Ordering Information

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

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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