

**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)

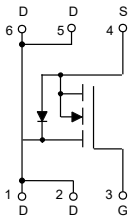
**Maximum Ratings**

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 73.5°C/W Junction to Ambient<sup>(Note2)</sup>

Parameter	Symbol	Rating	Unit
Drain -Source Voltage	V <sub>DS</sub>	60	V
Gate -Source Voltage	V <sub>GS</sub>	±20	V
Drain Current-Continuous	I <sub>D</sub>	5	A
Pulsed Drain Current <sup>(Note1)</sup>	I <sub>DM</sub>	30	A
Power Dissipation	P <sub>D</sub>	1.7	W

Noet:1.Pulse Width Limited by Maximum Junction Temperature.  
2.Surface Mounted on FR4 Board, t ≤ 10 sec.

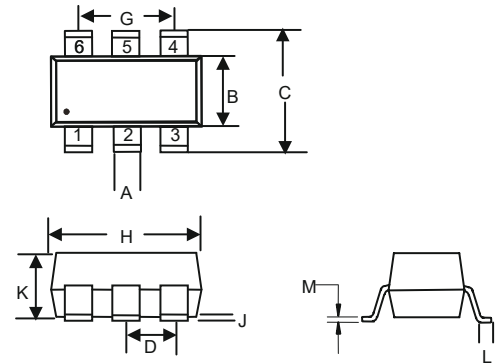
**Internal Structure**



**Marking: 5N06**

**N-Channel  
Power MOSFET**

**SOT23-6L**



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.012	0.020	0.30	0.50	
B	0.051	0.070	1.30	1.80	
C	0.087	0.126	2.20	3.20	
D	0.037		0.95		TYP.
G	0.074		1.90		TYP.
H	0.106	0.122	2.70	3.10	
J	0.002	0.006	0.05	0.15	
K	0.030	0.051	0.75	1.30	
L	0.012	0.024	0.30	0.60	
M	0.003	0.008	0.08	0.22	

**ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Gate-Threshold Voltage <sup>(Note3)</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0		3.0	V
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 60V, V_{GS} = 0V$			1	$\mu A$
Drain-Source On-Resistance <sup>(Note3)</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=5A$		37	45	m $\Omega$
Forward Transconductance <sup>(Note3)</sup>	$g_{fs}$	$V_{DS}=5V, I_D=4.5A$	11			S
<b>Dynamic Characteristics<sup>(Note4)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		500		pF
Output Capacitance	$C_{oss}$			60		
Reverse Transfer Capacitance	$C_{rss}$			25		
<b>Switching Characteristics<sup>(Note4)</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS}=48V, V_{GS}=10V, I_D=15A$		12		nC
Gate-Source Charge	$Q_{gs}$			4.1		
Gate-Drain Charge	$Q_{gd}$			4.5		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=30V, V_{GS}=10V, I_D=2A, R_G=3\Omega, R_L=6.7\Omega$		5.0		ns
Turn-on Rise Time	$t_r$			2.6		
Turn-off Delay Time	$t_{d(off)}$			16.1		
Turn-off Fall Time	$t_f$			2.3		
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage <sup>(Note3)</sup>	$V_{SD}$	$V_{GS}=0V, I_s=20A$			1.2	V
Diode Forward Current <sup>(Note2)</sup>	$I_s$				20	A
Reverse Recovery Time	$t_{rr}$	$I_F=20A, di/dt=100A/us$ <sup>(Note4)</sup>		35		nS
Reverse Recovery Charge	$Q_{rr}$				53	
Forward Turn-On Time	$t_{on}$	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

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

4. Guaranteed by design, not subject to production.

## Curve Characteristics

Fig. 1 -  $R_{DS(ON)} - I_D$

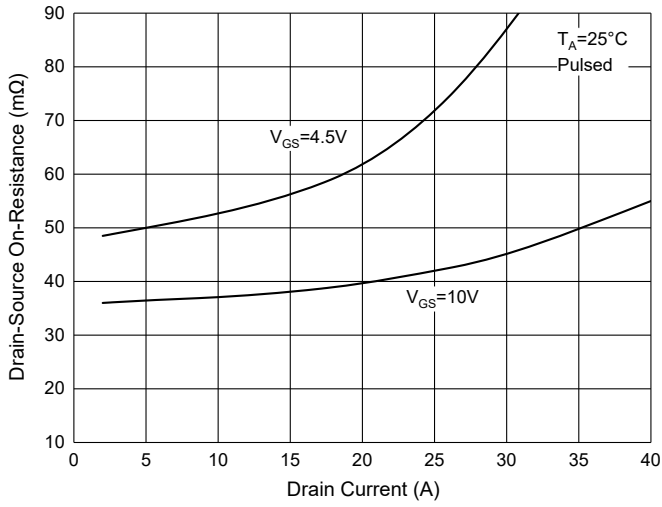


Fig. 2 - Gate Charge

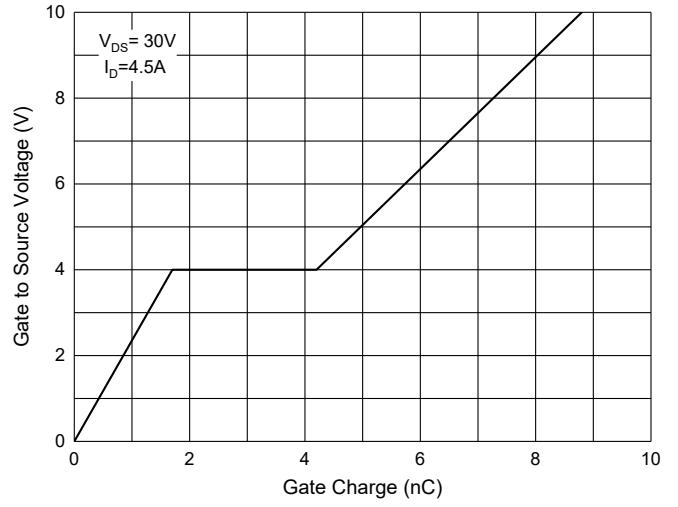


Fig. 3 - Capacitance Characteristics

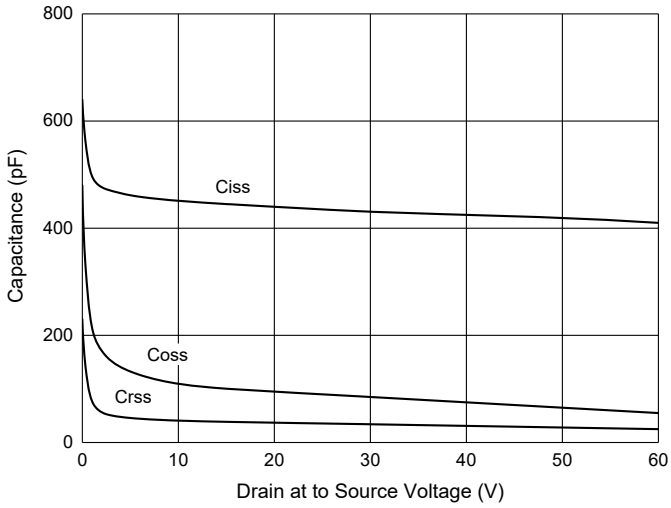
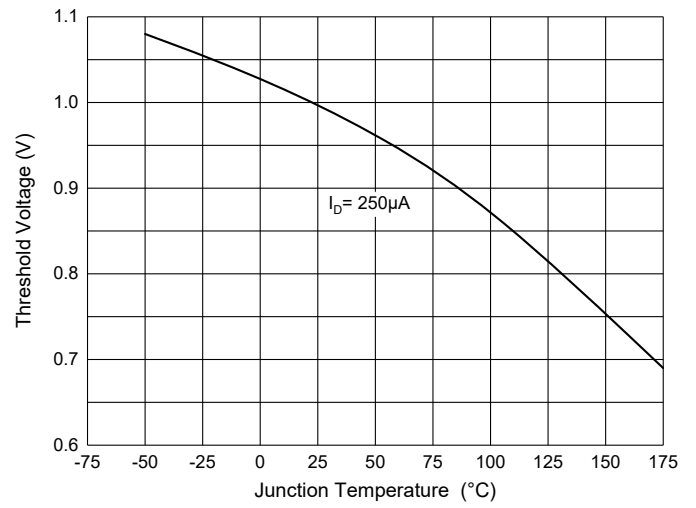


Fig. 4 - Threshold Voltage



## 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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