

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)

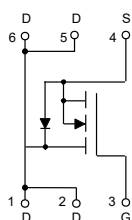
Maximum Ratings

- 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^(Note2)

Parameter	Symbol	Rating	Unit
Drain -Source Voltage	V_{DS}	60	V
Gate -Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	5	A
Pulsed Drain Current ^(Note1)	I_{DM}	30	A
Power Dissipation	P_D	1.7	W

Note: 1. Pulse Width Limited by Maximum Junction Temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.

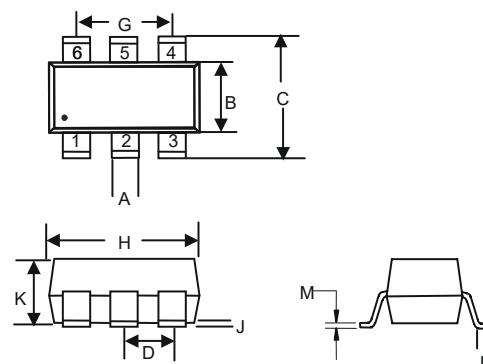
Internal Structure



Marking: 5N06

N-Channel Power MOSFET

SOT23-6L



DIMENSIONS					
DIM	INCHES		MM		NOTE
	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
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	60			V
Gate-Threshold Voltage ^(Note3)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0		3.0	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =± 20V, V _{DS} =0V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Drain-Source On-Resistance ^(Note3)	R _{DS(on)}	V _{GS} =10V, I _D =5A		37	45	mΩ
Forward Transconductance ^(Note3)	g _{fs}	V _{DS} =5V, I _D =4.5A	11			S
Dynamic Characteristics ^(Note4)						
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		
Switching Characteristics ^(Note4)						
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 =3Ω, R _L =6.7Ω		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		
Drain-Source Diode Characteristics						
Diode Forward Voltage ^(Note3)	V _{SD}	V _{GS} =0V, I _s =20A			1.2	V
Diode Forward Current ^(Note2)	I _S				20	A
Reverse Recovery Time	t _{rr}	I _F =20A,di/dt=100A/us ^(Note4)		35		nS
Reverse Recovery Charge	Q _{rr}			53		μC
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 - $R_{DS(ON)} - I_D$

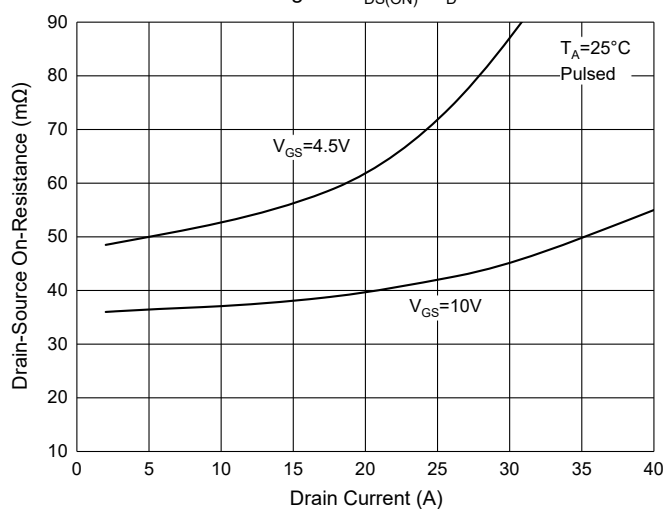


Fig. 2 - Gate Charge

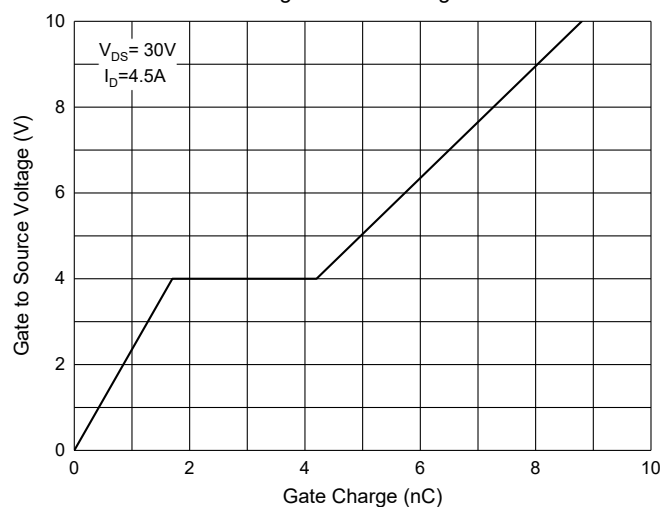


Fig. 3 - Capacitance Characteristics

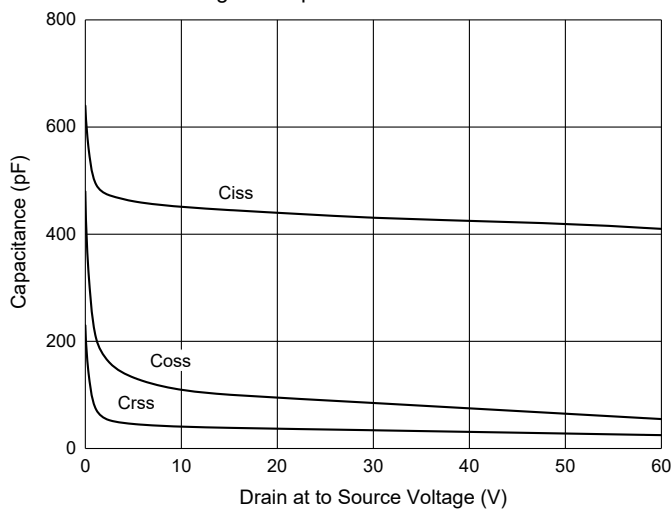
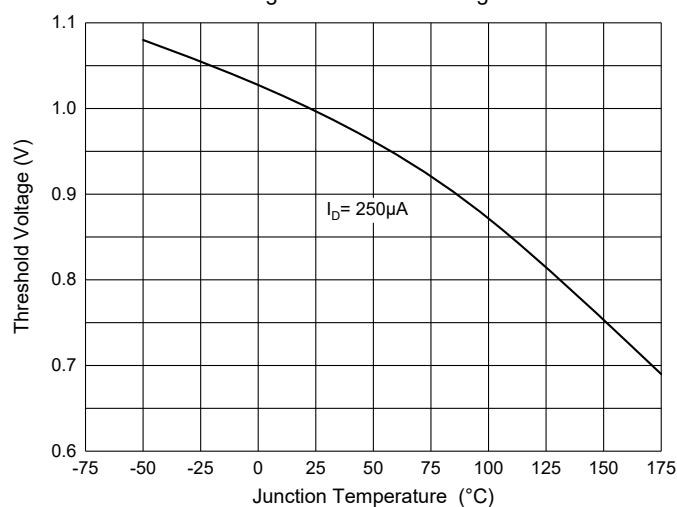


Fig. 4 - Threshold Voltage



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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