FNK06N02C N-Channel Enhancement Mode Power MOSFET

DESCRIPTION

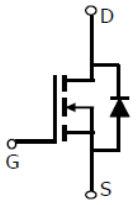
The FNK06N02Cuses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V.

I_D = 50A

$R_{DS(ON)}$< 7.5mΩ @ V_{GS}=4.5V

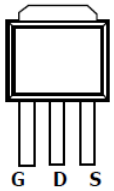
$_{DS(ON)}$<10.0mΩ @ V_{GS}=2.5V

- High Power and current handing capability
- Lead free product is acquired



Schematic diagram

TO-251



Top View
Drain Connected
to Tab

Application

- Battery Switch
- Load switch
- Power management

Package Marking And Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
06N02C	FNK06N02C	TO-251			

Absolute Maximum Ratings (TA=25℃unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current (T_J =150℃)	T_C =25	I_D	50	A
	T_C =70℃		20	
	T_A =25℃		20	
	T_A =70℃		15	
Drain Current-Pulsed (Note 1)		I_{DM}	80	A
Maximum Power Dissipation		P_D	50	W
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55 To 150	℃

Thermal Characteristic

Thermal Resistance,Junction-to-Ambient (Note 2)	$R_{\theta JA}$	40	℃/W

Electrical Characteristics (T_A=25℃unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-250μA	20		-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±12V,V_{DS}=0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	0.5	0.75	1	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=8A	-	7	7.5	mΩ
		V_{GS}=2.5V, I_D=6.5A	-	9	10	mΩ
Forward Transconductance	g_{FS}	V_{DS}=15V, I_D=8A	10	-	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{lss}	V_{DS}=15V,V_{GS}=0V, F=1.0MHz	-	1600	-	PF
Output Capacitance	C_{oss}		-	350	-	PF
Reverse Transfer Capacitance	C_{rss}		-	300	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-15V, ID=1A, V_{GS}=10V,R_{GEN}=6Ω	-	10	-	nS
Turn-on Rise Time	t_r		-	15	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	110	-	nS
Turn-Off Fall Time	t_f			70	-	nS
Total Gate Charge	Q_g	V_{DS}=15V, I_D=8A V_{GS}=10V	-	30	-	nC
Gate-Source Charge	Q_{gs}		-	5.5	-	nC
Gate-Drain Charge	Q_{gd}		-	8	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V,I_S=2.1A	-	-	1.2	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2.Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.