

FNK06N02C N-Channel Enhancement Mode Power MOSFET

DESCRIPTION

The FNK06N02C uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V.

$$I_D = 50A$$

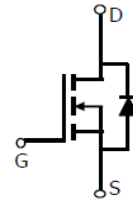
$$R_{DS(ON)} < 7.5m\Omega @ V_{GS}=4.5V$$

$$R_{DS(ON)} < 10.0m\Omega @ V_{GS}=2.5V$$

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

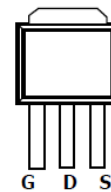
Application

- Battery Switch
- Load switch
- Power management



Schematic diagram

TO-251



Top View
Drain Connected
to Tab

Package Marking And Ordering Information

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

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current ($T_J = 150^\circ C$)	$T_C = 25$	I_D	50	A
	$T_C = 70^\circ C$		20	
	$T_A = 25^\circ C$		20	
	$T_A = 70^\circ C$		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	°C

Thermal Characteristic

Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	40	°C/W
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Electrical Characteristics ($T_A = 25^\circ C$ 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 _{iss}	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 $\leq 300\mu s$, Duty Cycle $\leq 2\%$.