

FNK08N03C N-Channel Enhancement Mode Power MOSFET

DESCRIPTION

The FNK08N03C uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V.

$$I_D = 70A$$

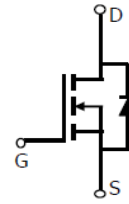
$$R_{DS(ON)} < 9.5m\Omega @ V_{GS}=10V$$

$$R_{DS(ON)} < 12 m\Omega @ V_{GS}=4.5V$$

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

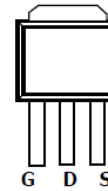
Application

- 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
08N03C	FNK08N03C	TO-251			

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current ($T_J=150^\circ C$)	$T_C = 25$	70	A
	$T_C = 70^\circ C$	35	
	$T_A = 25^\circ C$	30	
	$T_A = 70$	20	
Drain Current-Pulsed (Note 1)	I_{DM}	100	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 (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	30		-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	1	1.8	3	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=8A$	-	6	8.5	m Ω
		$V_{GS}=4.5V, I_D=6.5A$	-	8	12	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=15V, I_D=8A$	10	-	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V,$ $F=1.0MHz$	-	1400	-	PF
Output Capacitance	C_{oss}		-	330	-	PF
Reverse Transfer Capacitance	C_{rss}		-	270	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-15V, I_D=1A,$ $V_{GS}=10V, R_{GEN}=6\Omega$	-	11	-	nS
Turn-on Rise Time	t_r		-	13	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	130	-	nS
Turn-Off Fall Time	t_f			60	-	nS
Total Gate Charge	Q_g	$V_{DS}=15V, I_D=8A$ $V_{GS}=10V$	-	40	-	nC
Gate-Source Charge	Q_{gs}		-	6.5	-	nC
Gate-Drain Charge	Q_{gd}		-	7	-	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 $\leq 2\%$.