NIKO-SEM

N-Channel Enhancement Mode Field Effect Transistor

PG7A10BF

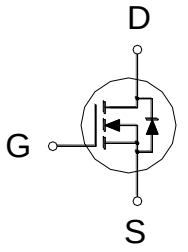
TO-220F

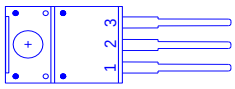
Halogen-Free & Lead-Free

RoHS Compliant

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
100V	7.4mΩ	47A





1. GATE
2. DRAIN
3. SOURCE

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C = 25 °C	I_D	47	A
	T_C = 100 °C		30	
Pulsed Drain Current[1]		I_{DM}	200	
Power Dissipation	T_C = 25 °C	P_D	38	W
	T_C = 100 °C		15	
Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		3.3	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

[1]Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	100			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.4	2	3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 100V, V_{GS} = 0V			1	μA
		V_{DS} = 100V, V_{GS}=0V, T_J=125 °C			100	

Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 14A		5.7	7.4	mΩ
		V_{GS} = 4.5V, I_D = 10A		7.6	9.8	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 14A		60		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 50V, f = 1MHz		3171		pF
Output Capacitance	C_{oss}			286		
Reverse Transfer Capacitance	C_{rss}			19		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		1.6		Ω
Total Gate Charge[2]	Q_g	V_{DS} = 50V, I_D = 14A, V_{GS} = 10V		57		nC
Gate-Source Charge[2]	Q_{gs}			10		
Gate-Drain Charge[2]	Q_{gd}			16		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 50V, $I_D \cong$ 14A, V_{GS} = 10V, R_{GS} = 6Ω		13		nS
Rise Time[2]	t_r			37		
Turn-Off Delay Time[2]	$t_{d(off)}$			71		
Fall Time[2]	t_f			66		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				32	A
Forward Voltage[1]	V_{SD}	I_F = 14A, V_{GS} = 0V			1.2	V
Reverse Recovery Time	t_{rr}	I_F = 14A, dI_F/dt = 100A / μS		39		nS
Reverse Recovery Charge	Q_{rr}			53		nC

[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.
[2]Independent of operating temperature.