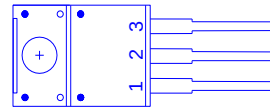
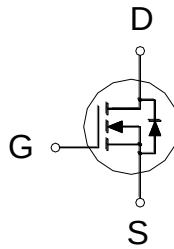




1. GATE
2. DRAIN
3. SOURCE

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
100V	37m Ω	19A

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^{\circ}\text{C}$ 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	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	19	A
	$T_C = 100\text{ }^{\circ}\text{C}$		12	
Pulsed Drain Current ¹		I_{DM}	75	
Avalanche Current		I_{AS}	15.3	
Avalanche Energy ²		E_{AS}	117	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	31	W
	$T_C = 100\text{ }^{\circ}\text{C}$		12.5	
Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^{\circ}\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		4	$^{\circ}\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	

¹Pulse width limited by maximum junction temperature.

²Starting $T_J = 25\text{ }^{\circ}\text{C}$, $L = 1\text{mH}$, $V_{DD} = 50\text{V}$

ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ }^{\circ}\text{C}$, Unless Otherwise Noted)

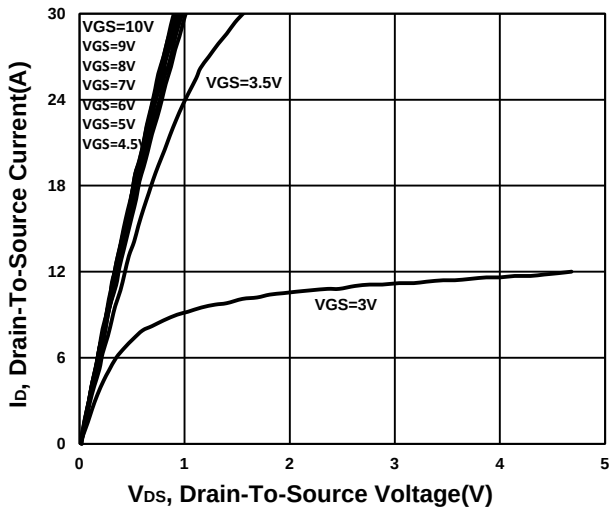
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.8	3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 80V, V_{GS} = 0V$			1	μA
		$V_{DS}=80V, V_{GS}=0V, T_J=125\text{ }^{\circ}C$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 10A$		30	48	$m\Omega$
		$V_{GS} = 10V, I_D = 10A$		27	37	$m\Omega$

NIKO-SEM**N-Channel Enhancement Mode
Field Effect Transistor****P3710BTF****TO-220F****Halogen-Free & Lead-Free**

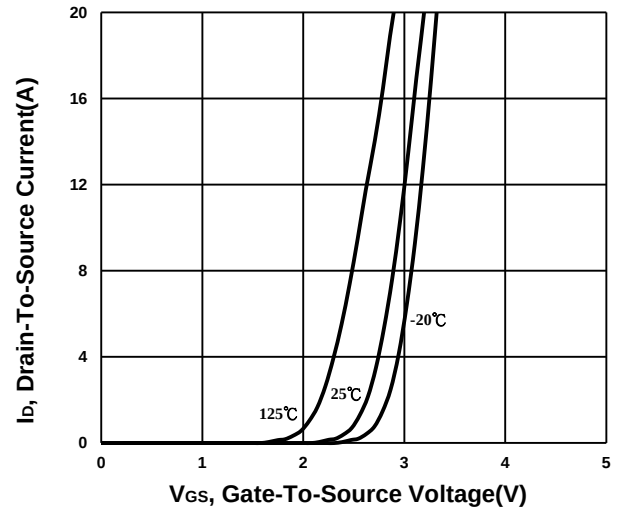
Forward Transconductance ¹	g_{fs}	$V_{DS} = 10V, I_D = 10A$		35		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		1070		pF
Output Capacitance	C_{oss}			146		
Reverse Transfer Capacitance	C_{rss}			59		
Total Gate Charge ²	Q_g	$V_{DS} = 50V, I_D = 10A$ $V_{GS} = 10V$		24		nC
Gate-Source Charge ²	Q_{gs}			3.7		
Gate-Drain Charge ²	Q_{gd}			8.8		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = 50V$ $I_D \cong 10A, V_{GS} = 10V, R_{GS} = 6\Omega$		30		nS
Rise Time ²	t_r			21		
Turn-Off Delay Time ²	$t_{d(off)}$			45		
Fall Time ²	t_f			21		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25\text{ }^{\circ}C$)						
Continuous Current	I_S				19	A
Forward Voltage ¹	V_{SD}	$I_F = 10A, V_{GS} = 0V$			1.2	V
Reverse Recovery Time	t_{rr}	$I_F = 10A, di_F/dt = 100A / \mu S$		39		nS
Reverse Recovery Charge	Q_{rr}			55		nC

¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.²Independent of operating temperature.

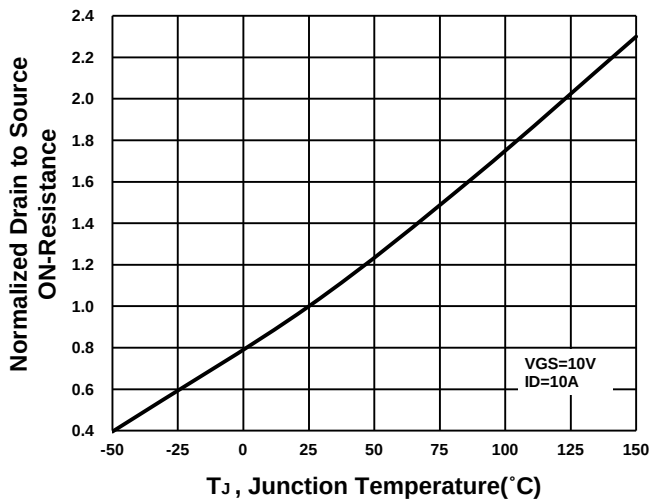
Output Characteristics



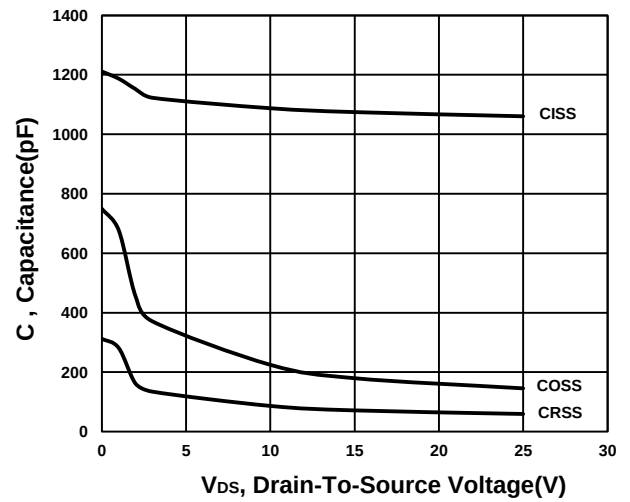
Transfer Characteristics



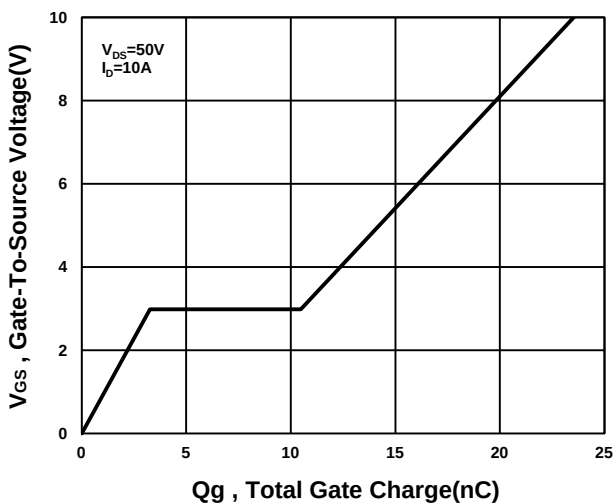
On-Resistance VS Temperature



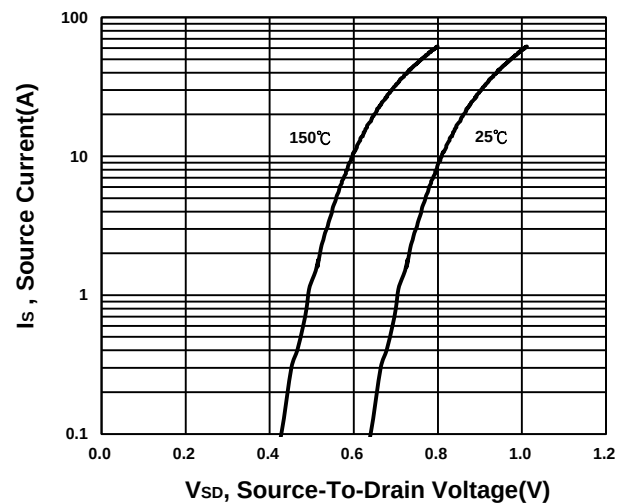
Capacitance Characteristic



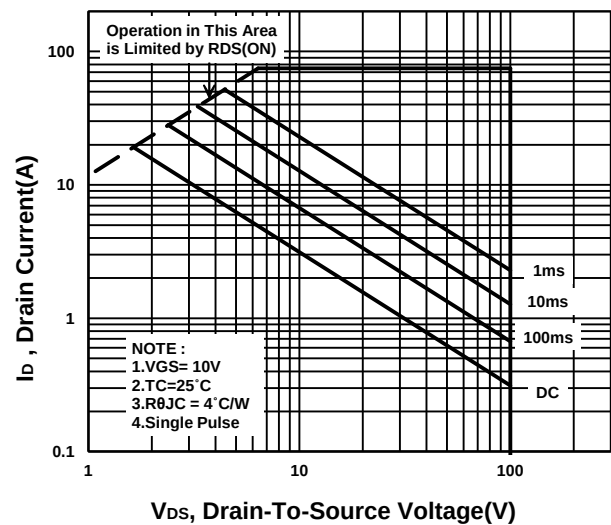
Gate charge Characteristics



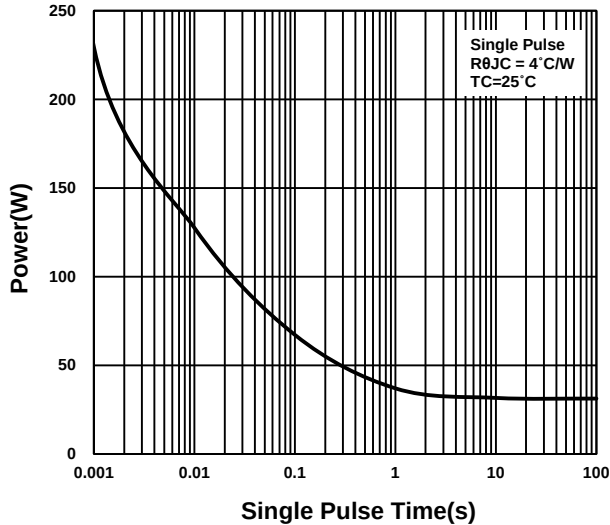
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

