NIKO-SEM

N-Channel Enhancement Mode Field Effect Transistor

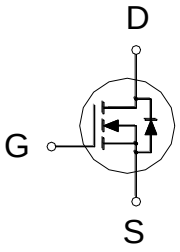
PA910BD

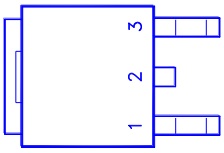
TO-252

Halogen-Free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
100V	190mΩ	8.1A





1. GATE
2. DRAIN
3. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current[2]	T_C = 25 °C	I_D	8.1	A
	T_C = 100 °C		5.7	
Pulsed Drain Current[1]		I_{DM}	12	
Avalanche Current		I_{As}	2.8	
Avalanche Energy	L = 1mH	E_{AS}	4	mJ
Power Dissipation	T_C = 25 °C	P_D	30	W
	T_C = 100 °C		15	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 175	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		5	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

[1]Pulse width limited by maximum junction temperature.
[2]Package limitation current is 5.3A.

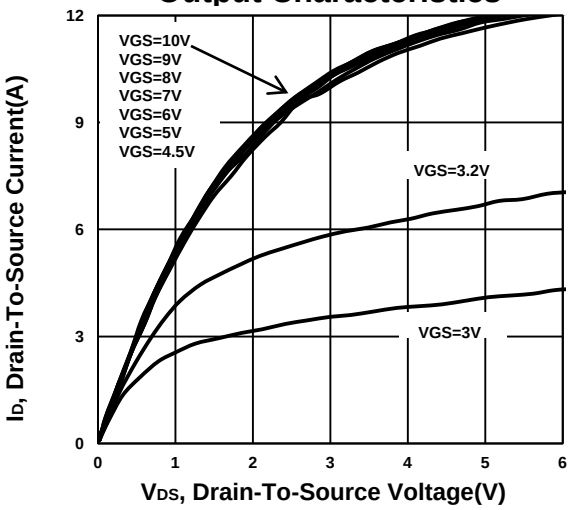
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

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	1.3	1.9	2.3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±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 = 100 °C			10	

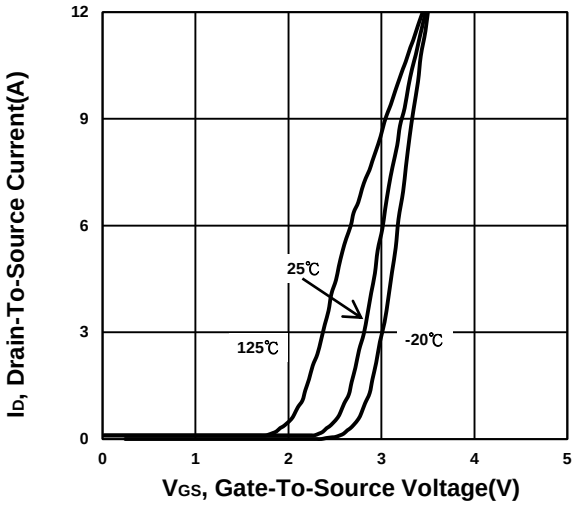
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 3A		143	190	mΩ
		V_{GS} = 4.5V, I_D = 3A		153	205	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 3A		13		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		306		pF
Output Capacitance	C_{oss}			35		
Reverse Transfer Capacitance	C_{rss}			21		
Gate Resistance	Rg	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		2.2		Ω
Total Gate Charge[2]	Q_g	V_{DS} = 50V, V_{GS} = 10V, I_D = 3A		8.6		nC
Gate-Source Charge[2]	Q_{gs}			1		
Gate-Drain Charge[2]	Q_{gd}			3.6		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 50V, $I_D \cong$ 3A, V_{GS} = 10V, R_{GS} = 6Ω		10		nS
Rise Time[2]	t_r			20		
Turn-Off Delay Time[2]	$t_{d(off)}$			75		
Fall Time[2]	t_f			22		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current[3]	I_S				7.4	A
Forward Voltage[1]	V_{SD}	I_F = 3A, V_{GS} = 0V			1.4	V
Reverse Recovery Time	t_{rr}	I_F = 3A, dI/dt=100A/μs		19		nS
Reverse Recovery Charge	Q_{rr}			10		nC

[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.
[2]Independent of operating temperature.
[3]Package limitation current is 5.3A.

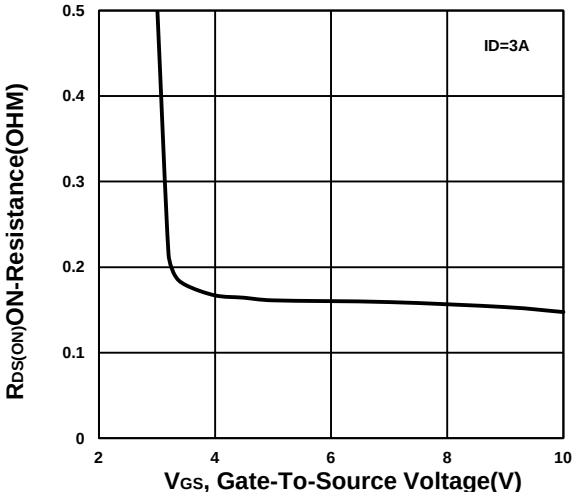
Output Characteristics



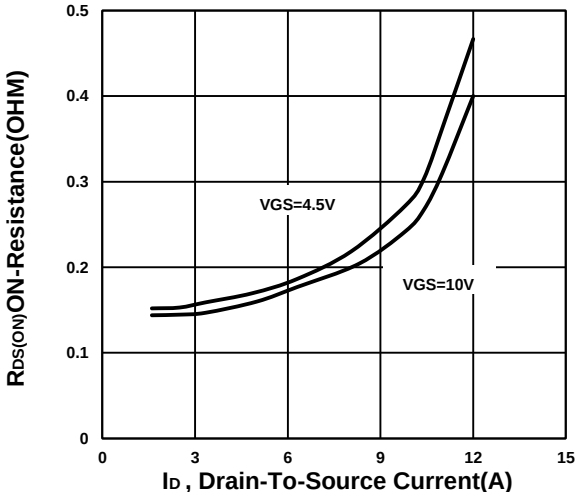
Transfer Characteristics



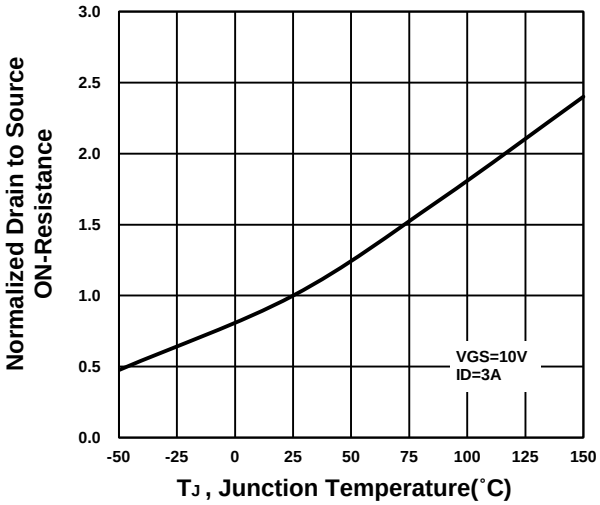
On-Resistance VS Gate-To-Source



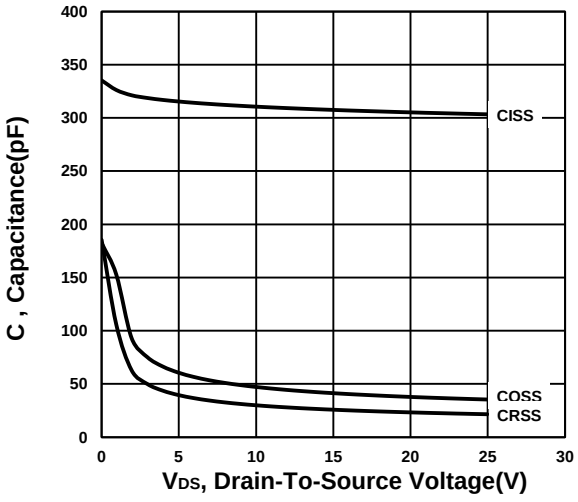
On-Resistance VS Drain Current



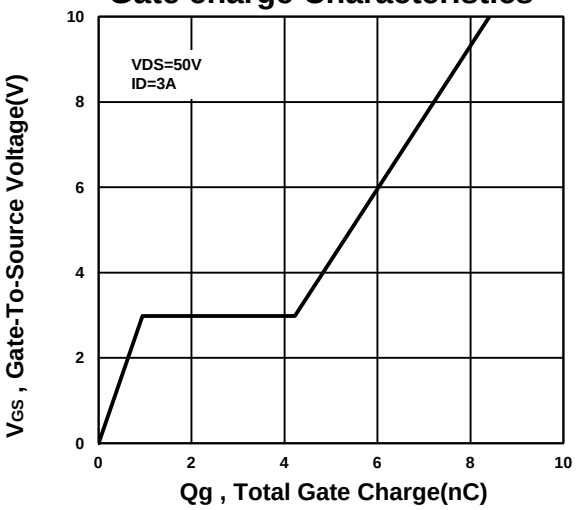
On-Resistance VS Temperature



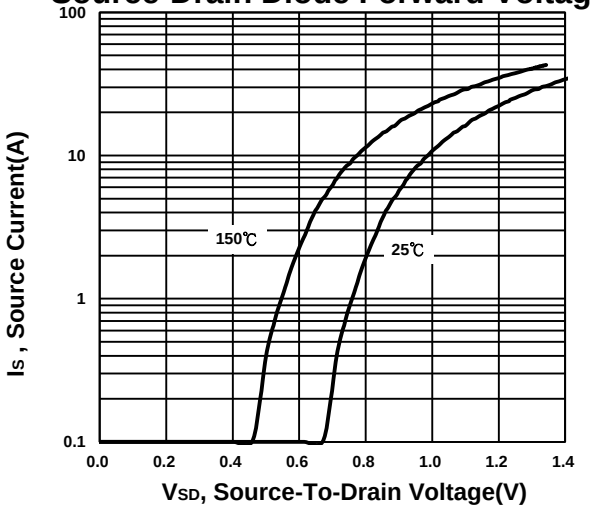
Capacitance Characteristic



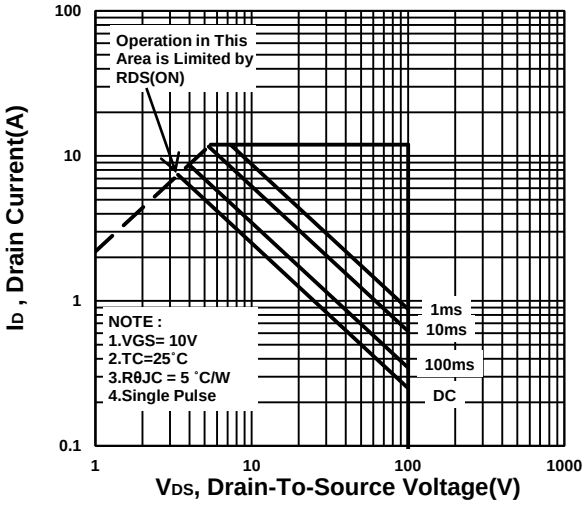
Gate charge Characteristics



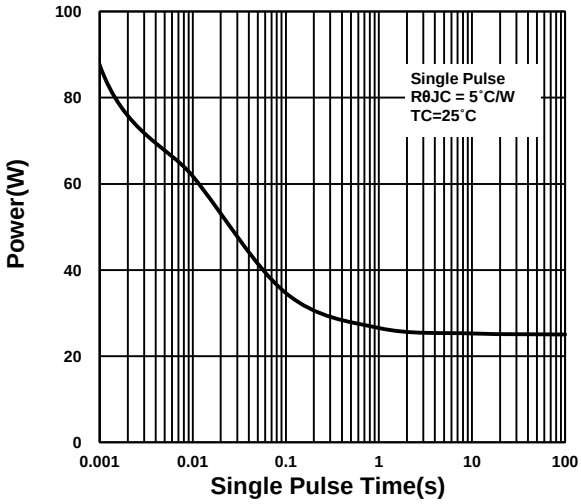
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve