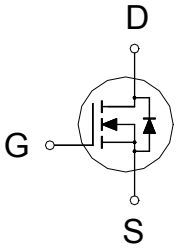
NIKO-SEM

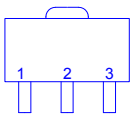
N-Channel Enhancement Mode Field Effect Transistor

PA910BC
SOT-89
Halogen-Free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
100V	190mΩ	2.9A





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	T_A = 25 °C	I_D	2.9	A
	T_A = 70 °C		2.3	
Pulsed Drain Current[1]		I_{DM}	8	
Power Dissipation[3]	T_A = 25 °C	P_D	3.9	W
	T_A = 70°C		2.5	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE		SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient[2]	t ≦10s	$R_{\theta JA}$		32	°C/W
Junction-to-Ambient[2]	Steady-State	$R_{\theta JA}$		60	
Junction-to-Case		$R_{\theta Jc}$		7.8	

[1]Pulse width limited by maximum junction temperature.

[2]The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

[3]The Power dissipation is based on $R_{\theta JA}$ t ≦10s value.

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

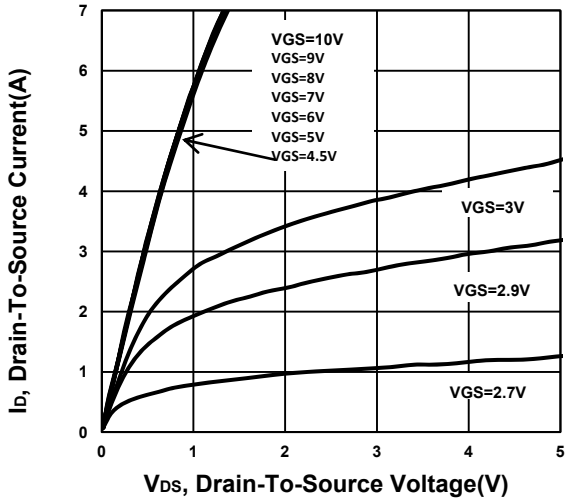
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	100			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.3	1.9	2.3	

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 = 1.6A		148	190	mΩ
		V_{GS} = 4.5V, I_D = 1.6A		159	205	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 1.6A		7		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		301		pF
Output Capacitance	C_{oss}			29		
Reverse Transfer Capacitance	C_{rss}			19		
Gate Resistance	Rg	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		2.3		Ω
Total Gate Charge[2]	Q_g	V_{DS} = 50V , V_{GS} =10V, I_D = 1.6A		8.1		nC
Gate-Source Charge[2]	Q_{gs}			0.9		
Gate-Drain Charge[2]	Q_{gd}			3.1		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 50V, $I_D \cong$ 1.6A, V_{GEN} = 10V, R_{GS} = 6Ω		6		nS
Rise Time[2]	t_r			23		
Turn-Off Delay Time[2]	$t_{d(off)}$			15		
Fall Time[2]	t_f			22		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				0.9	A
Forward Voltage[1]	V_{SD}	I_F = 1.6A, V_{GS} = 0V			1.4	V
Reverse Recovery Time	t_{rr}	I_F = 1.6A, dI_F/dt = 100A / μS		17.8		nS
Reverse Recovery Charge	Qrr			8.8		nC

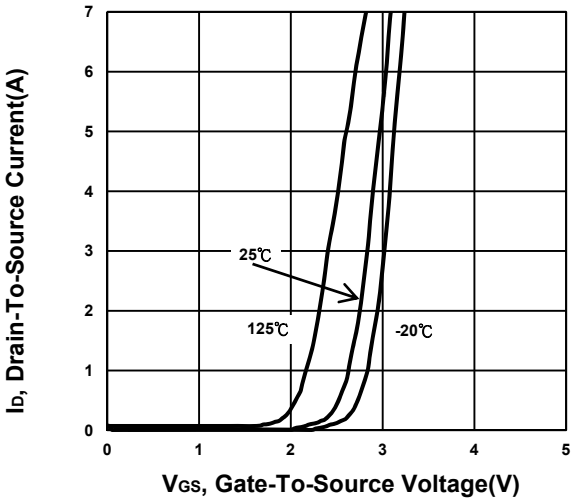
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

[2]Independent of operating temperature

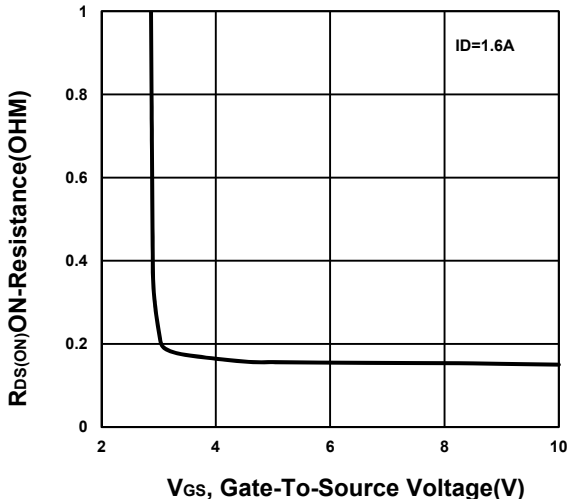
Output Characteristics



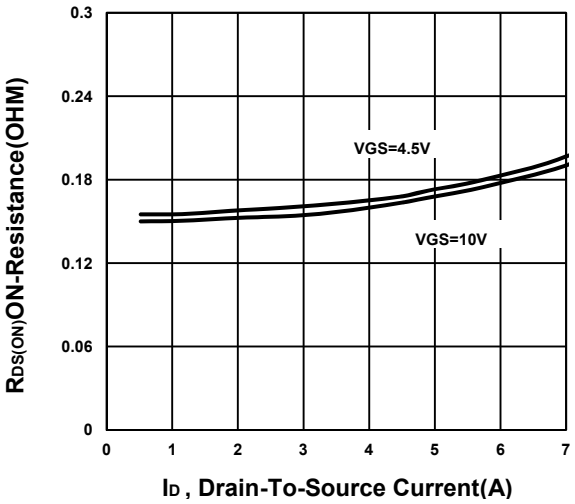
Transfer Characteristics



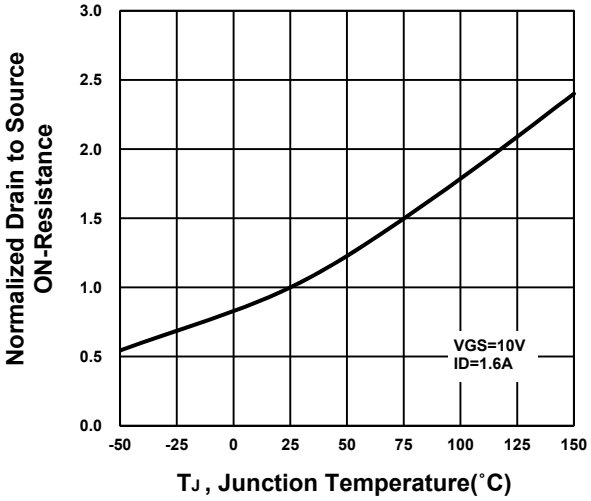
On-Resistance VS Gate-To-Source



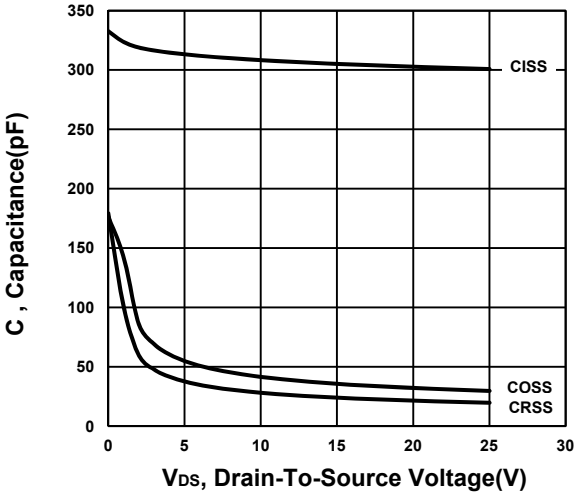
On-Resistance VS Drain Current



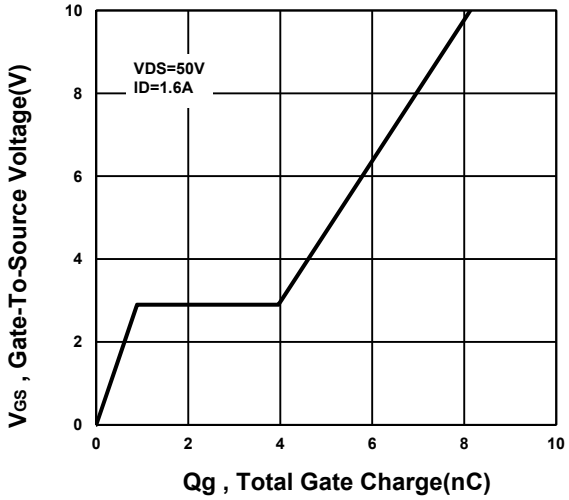
On-Resistance VS Temperature



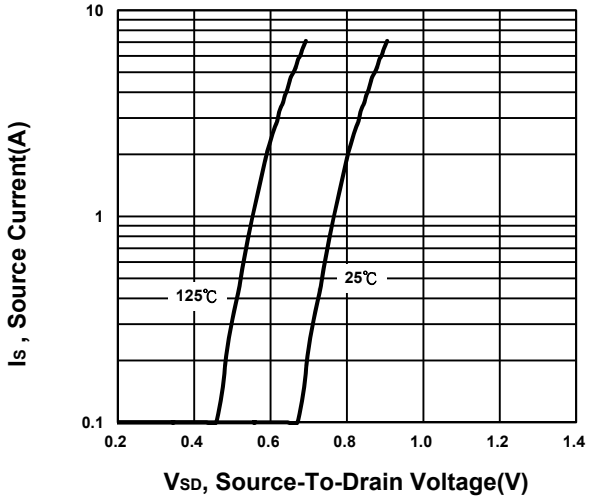
Capacitance Characteristic



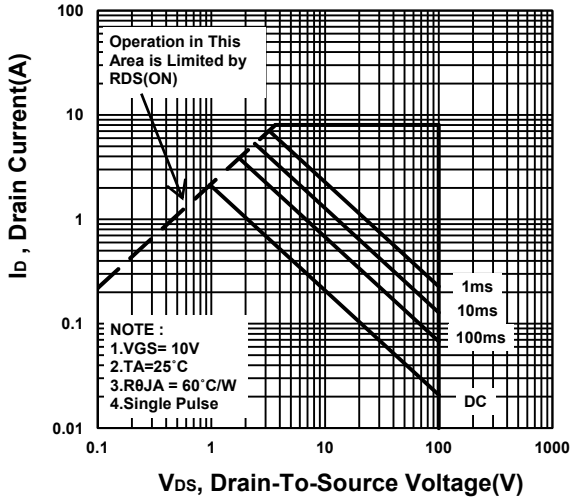
Gate charge Characteristics



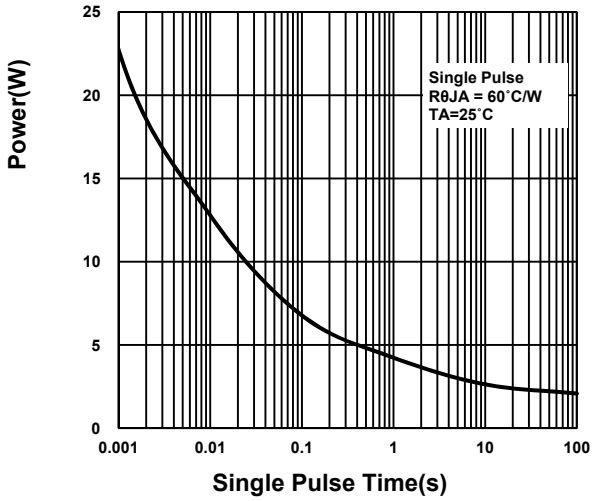
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve