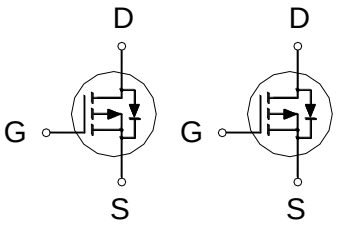
NIKO-SEM

Dual P-Channel Enhancement Mode Field Effect Transistor

P2003KV
SOP-8
Halogen-Free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-30V	22mΩ	-8A





G : GATE
D : DRAIN
S : SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current	T_A = 25 °C	I_D	-8	A
	T_A = 70 °C		-6	
Pulsed Drain Current[1]		I_{DM}	-40	
Avalanche Current		I_{AS}	-30	
Avalanche Energy	L = 0.1mH	E_{AS}	45	mJ
Power Dissipation	T_A = 25 °C	P_D	2	W
	T_A = 70 °C		1.28	
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	$R_{\theta JA}$		62.5	°C / W

[1]Pulse width limited by maximum junction temperature.

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

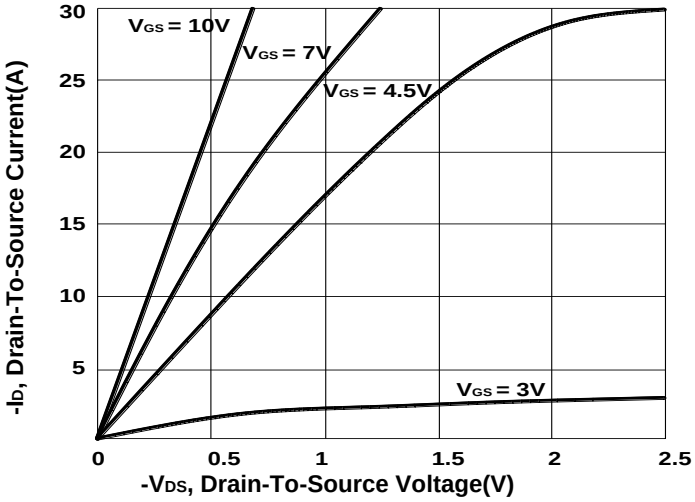
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1	-1.5	-3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±25V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -24V, V_{GS} = 0V			-1	μA
		V_{DS} = -20V, V_{GS} = 0V, T_J = 125 °C			-10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -4.5V, I_D = -7A		29	34	mΩ
		V_{GS} = -10V, I_D = -9A		20	22	
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -9A		20		S

DYNAMIC							
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15V, f = 1MHz		1480		pF
Output Capacitance	C_{oss}			334		
Reverse Transfer Capacitance	C_{rss}			231		
Gate Resistance	Rg	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		2.9		Ω
Total Gate Charge[2]	Q_g V_{GS}= -10V	V_{DS} = 0.5$V_{(BR)DSS}$, V_{GS} = -10V, I_D = -9A		30		nC
	Q_g V_{GS}= -4.5V			15		
Gate-Source Charge[2]	Q_{gs}			5		
Gate-Drain Charge[2]	Q_{gd}			6		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = -15V, I_D ≅ -9A, V_{GS} = -10V, R_{GS} = 6Ω		13		nS
Rise Time[2]	t_r			8		
Turn-Off Delay Time[2]	$t_{d(off)}$			16		
Fall Time[2]	t_f			12		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_A = 25 °C)						
Continuous Current	I_S				-2	A
Forward Voltage[1]	V_{SD}	I_F = -9A, V_{GS} = 0V			-1	V
Reverse Recovery Time	t_{rr}	I_F= -9A, dI/dt=100A/μs		40		nS
Reverse Recovery Charge	Q_{rr}			26		nC

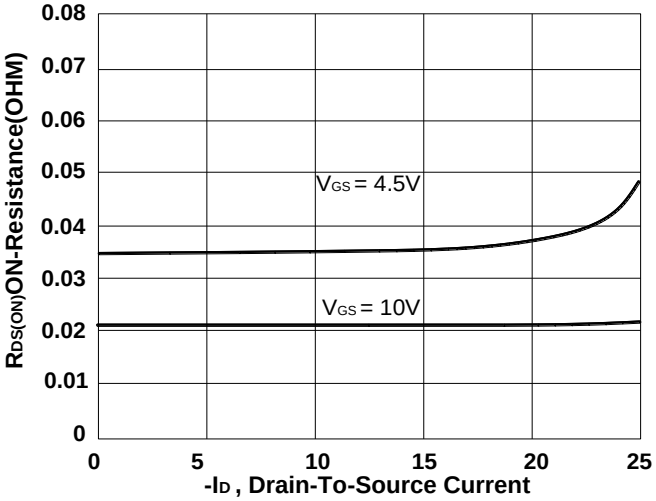
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.
[2]Independent of operating temperature.

REMARK: THE PRODUCT MARKED WITH "P2003KV", DATE CODE or LOT #

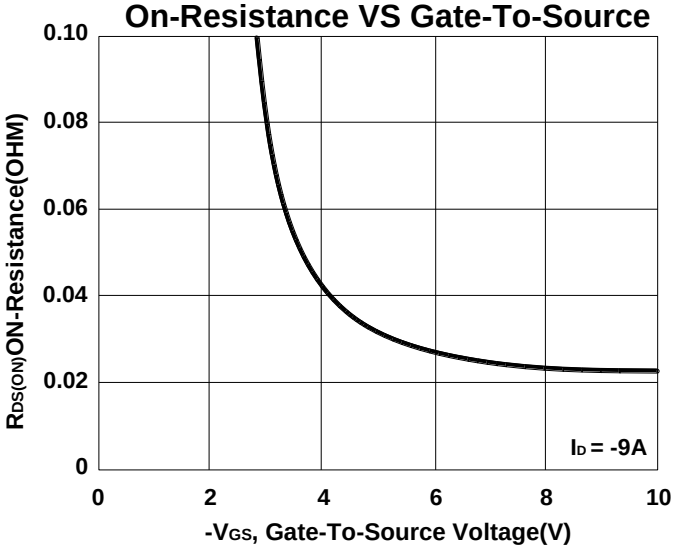
Output Characteristics



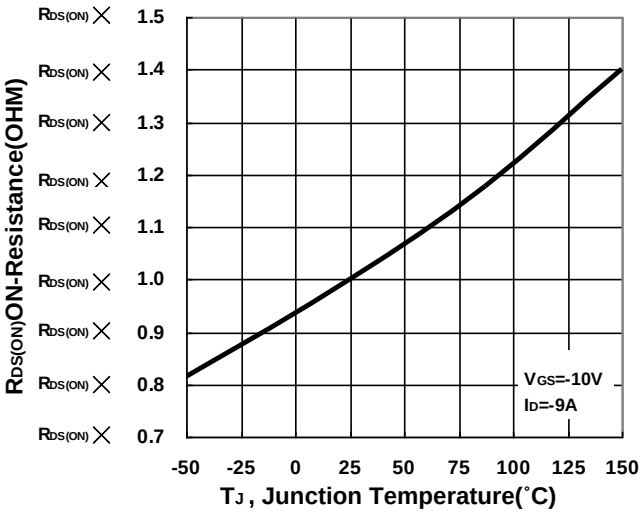
On-Resistance VS Drain Current



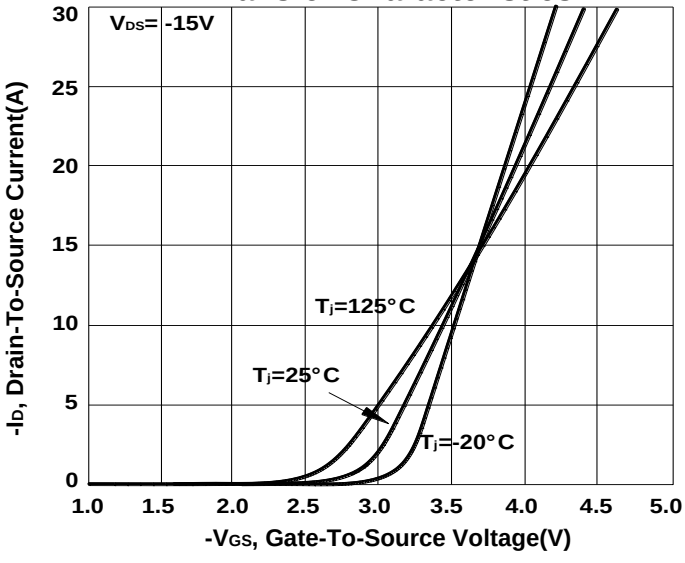
On-Resistance VS Gate-To-Source



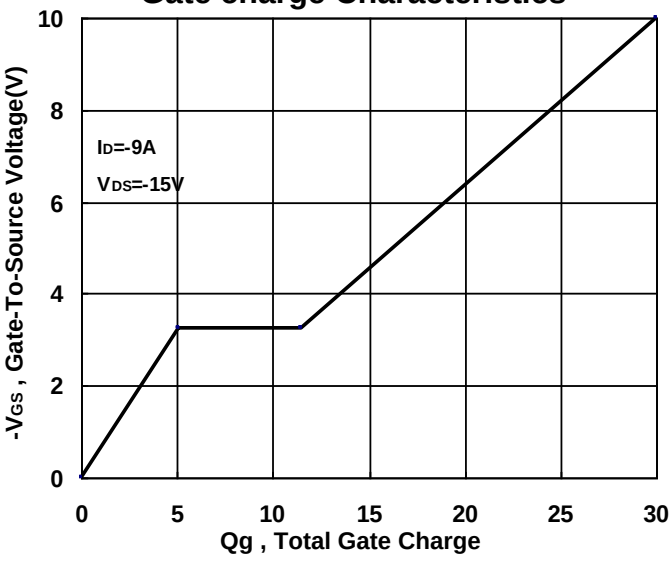
On-Resistance VS Temperature



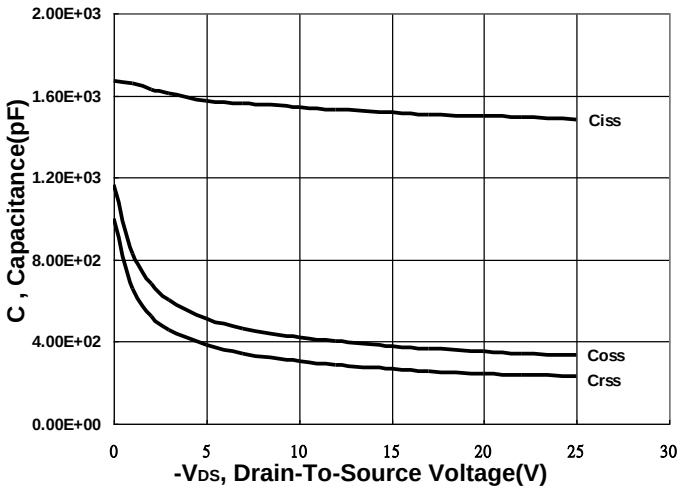
Transfer Characteristics



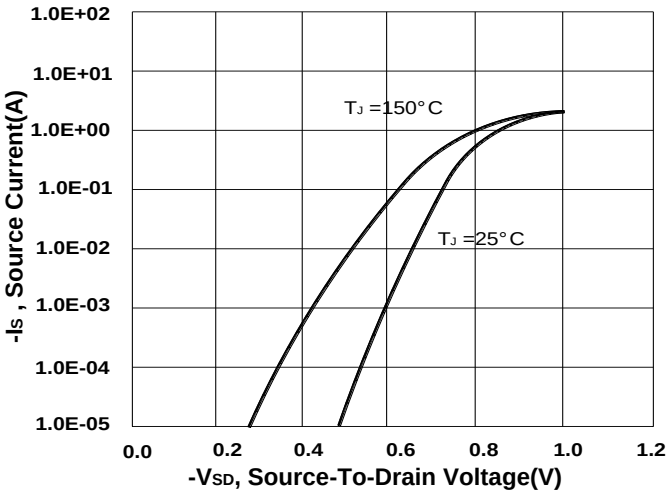
Gate charge Characteristics



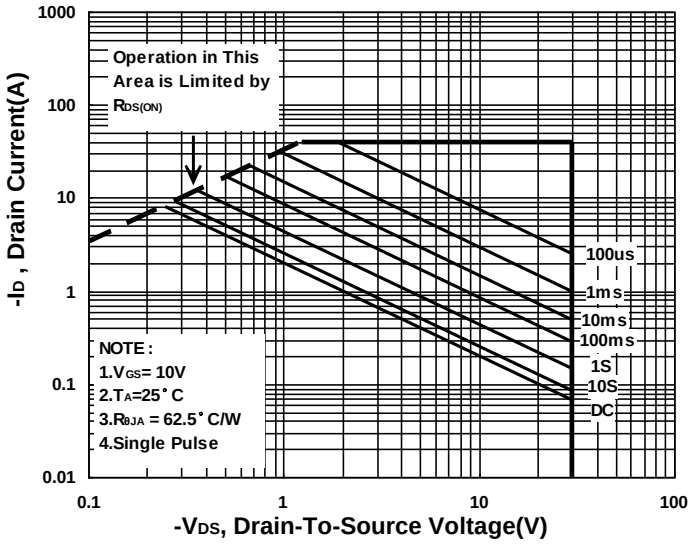
Capacitance Characteristic



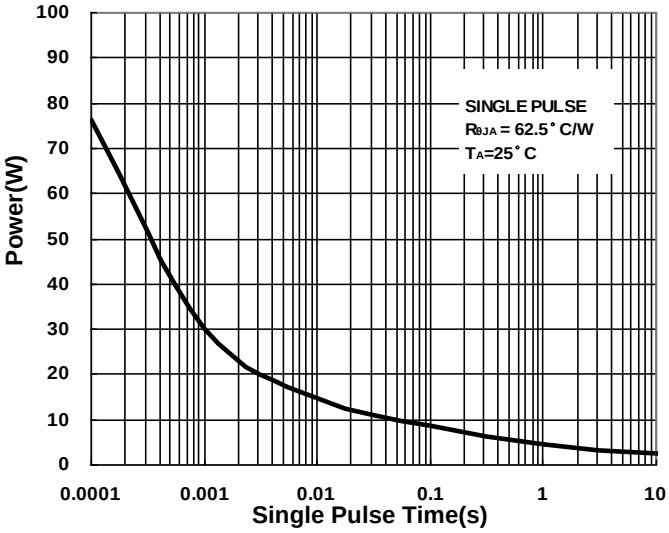
Body Diode Forward Voltage VS Source current



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

