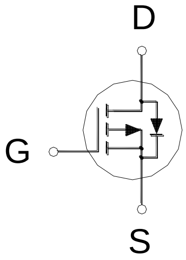
NIKO-SEM

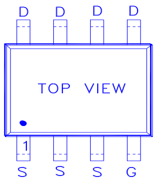
P-Channel Logic Level Enhancement Mode Field Effect Transistor

P9006EVA
SOP-8
Halogen-free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-60V	90mΩ	-3.6A





G : GATE
D : DRAIN
S : SOURCE

100% UIS Tested
100% Rg Tested

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current[3]	T_A = 25 °C	I_D	-3.6	A
	T_A = 70 °C		-2.9	
Pulsed Drain Current[1]		I_{DM}	-20	
Avalanche Current		I_{AS}	-17.2	
Avalanche Energy	L = 0.1mH	E_{AS}	14.7	mJ
Power Dissipation[3]	T_A = 25 °C	P_D	2.4	W
	T_A = 70 °C		1.5	
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	$R_{\theta JA}$		52	°C / W
Junction-to-Ambient[2]	Steady-State	$R_{\theta JA}$		86	

[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.

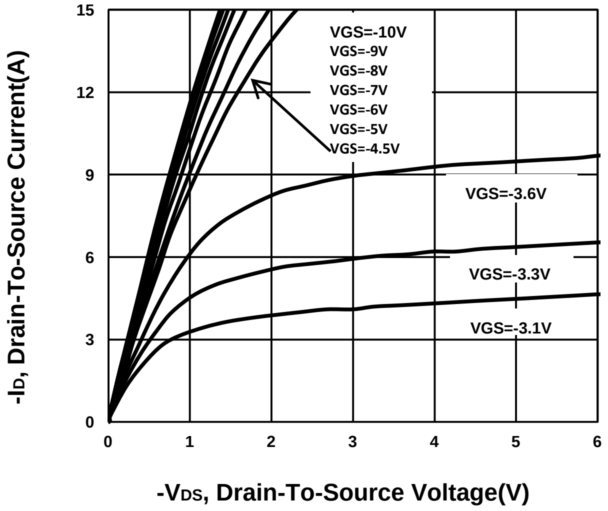
[3] The Power dissipation is based on $R_{\theta JA}$ t ≦10s value.

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

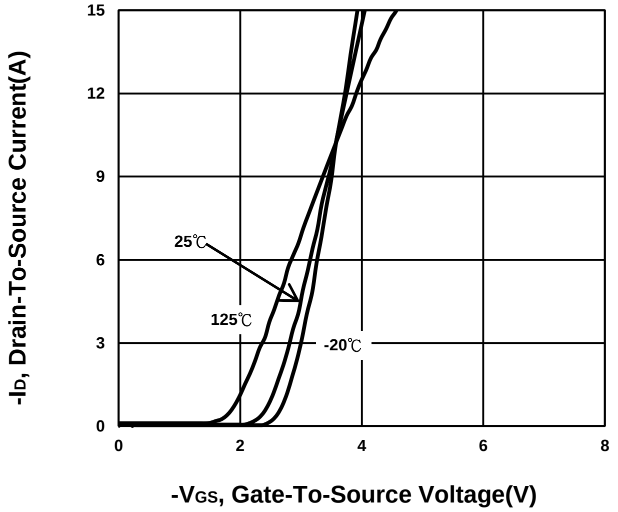
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS MIN	TYP	MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-60			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1.3	-1.8	-2.3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±25V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -48V, V_{GS} = 0V			-1	μA
		V_{DS} = -40V, V_{GS} = 0V, T_J = 55 °C			-10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -10V, I_D = -3.6A		80	90	mΩ
		V_{GS} = -4.5V, I_D = -3.6A		111	135	
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -3.6A		7		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -25V, f = 1MHz		539		pF
Output Capacitance	C_{oss}			60		
Reverse Transfer Capacitance	C_{rss}			41		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		9.1		Ω
Total Gate Charge[2]	$Q_{g(VGS=-10V)}$	V_{DS} = -30V , I_D = -3.6A		11.6		nC
	$Q_{g(VGS=-4.5V)}$			6.3		
Gate-Source Charge[2]	Q_{gs}			1.5		
Gate-Drain Charge[2]	Q_{gd}			3.4		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = -30V, I_D ≅ -3.6A , V_{GS} = -10V, R_{GEN} = 6Ω		11		nS
Rise Time[2]	t_r			32		
Turn-Off Delay Time[2]	$t_{d(off)}$			50		
Fall Time[2]	t_f			58		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				-2.4	A
Forward Voltage[1]	V_{SD}	I_F = -3.6A, V_{GS} = 0V			-1	V
Reverse Recovery Time	t_{rr}	I_F=-3.6A, dI/dt=100A/μs		17		nS
Reverse Recovery Charge	Q_{rr}			14		nC

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

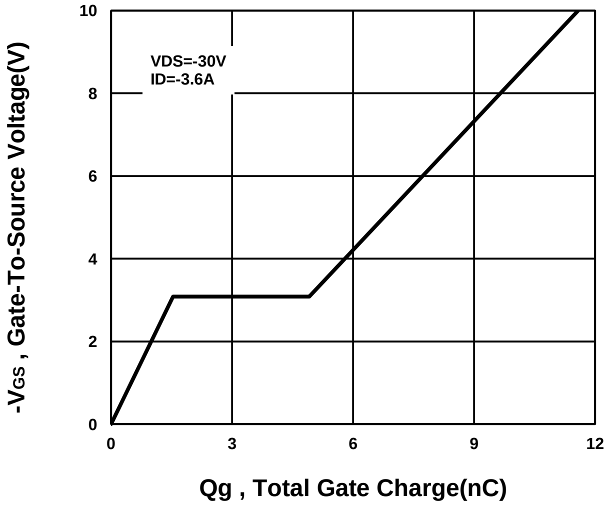
Output Characteristics



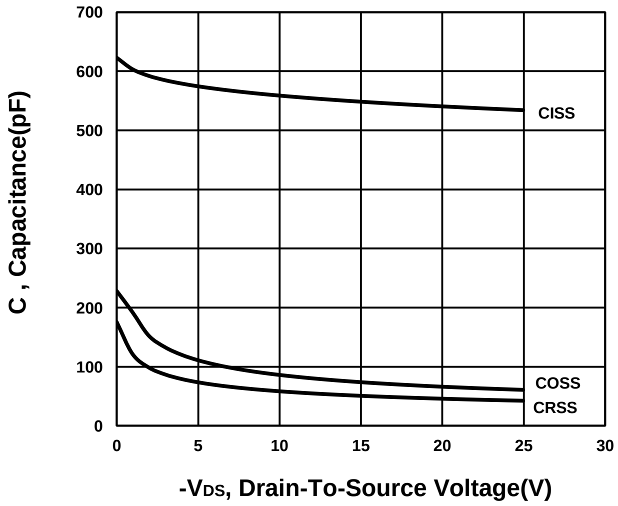
Transfer Characteristics



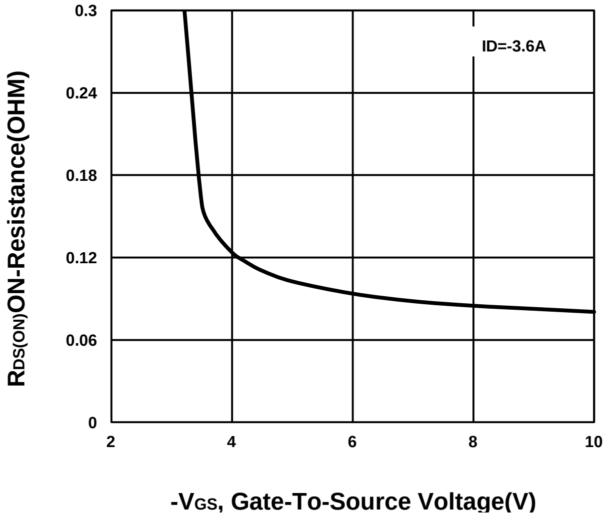
Gate charge Characteristics



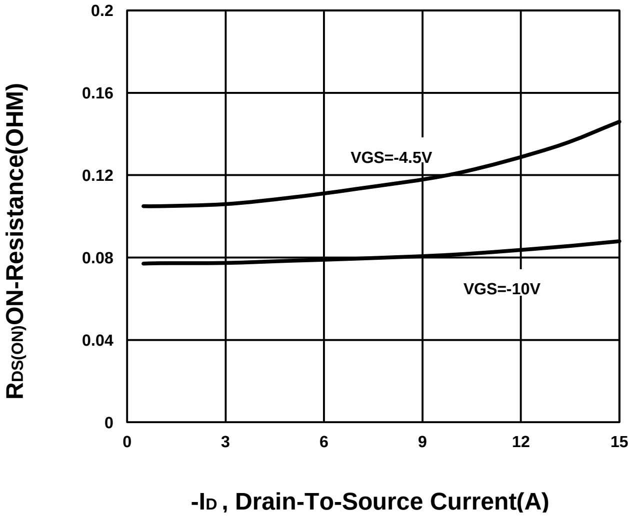
Capacitance Characteristic



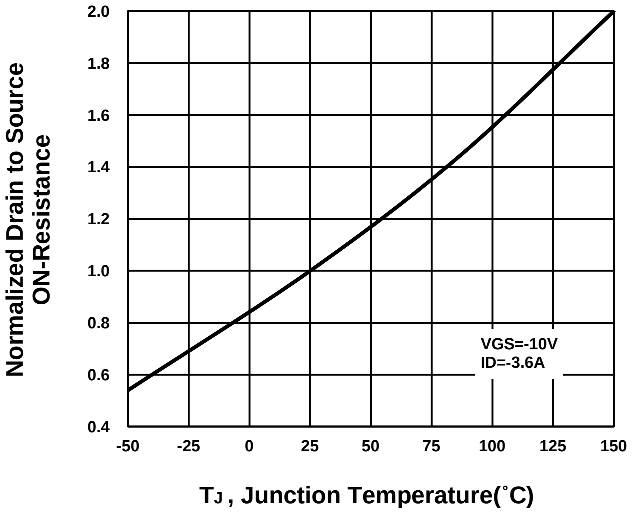
On-Resistance VS Gate-To-Source



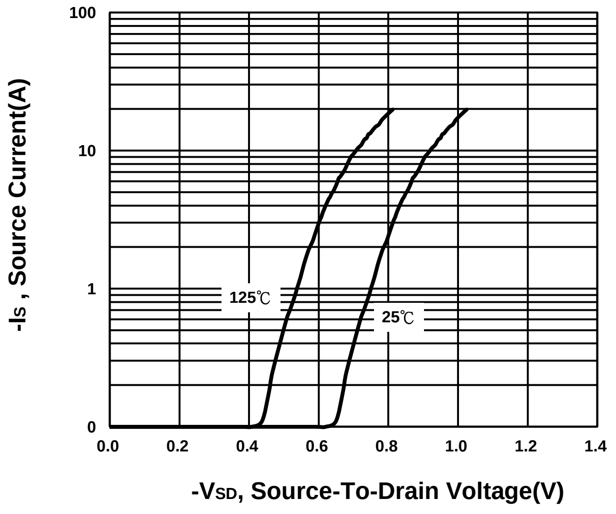
On-Resistance VS Drain Current



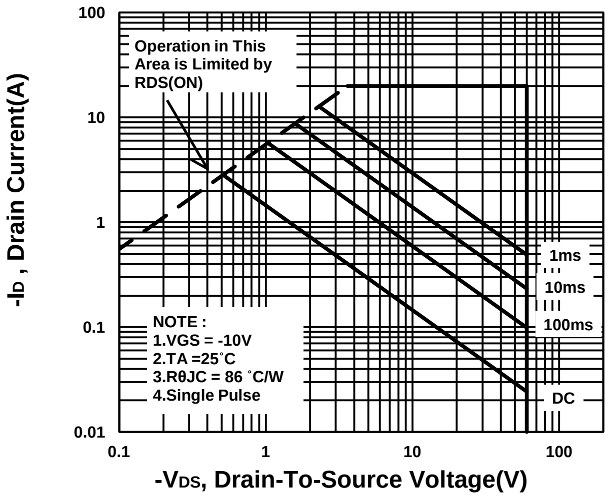
On-Resistance VS Temperature



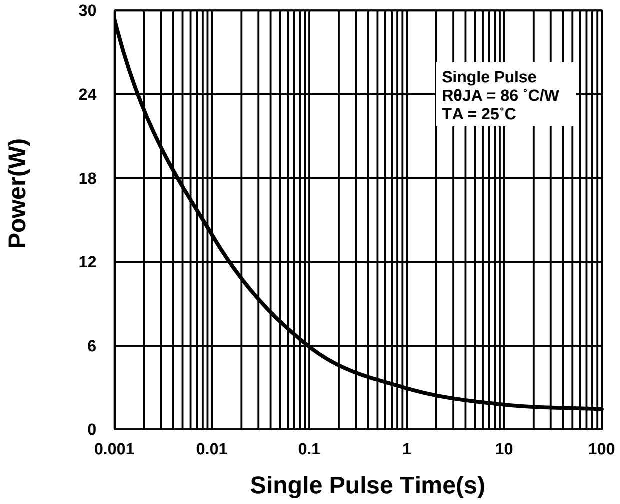
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve