NIKO-SEM

N-Channel Enhancement Mode Field Effect Transistor

PP1C06AKB

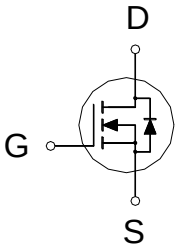
PDFN 5x6S

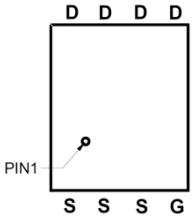
Halogen-Free & Lead-Free

RoHS Compliant

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
60V	1.2mΩ	234A





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}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C = 25 °C	I_D	234	A
	T_C = 100 °C		148	
Pulsed Drain Current[1]		I_{DM}	378	
Continuous Drain Current	T_A = 25 °C	I_D	44	
	T_A = 70 °C		35	
Avalanche Current		I_{AS}	92	
Avalanche Energy	L = 0.1mH	E_{AS}	423	mJ
Power Dissipation	T_C = 25 °C	P_D	125	W
	T_C = 100 °C		50	
Power Dissipation[3]	T_A = 25 °C	P_D	4.5	W
	T_A = 70 °C		2.9	
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	$R_{\theta JA}$		28	°C / W
Junction-to-Ambient[2]	Steady-State	$R_{\theta JA}$		50	
Junction-to-Case	Steady-State	$R_{\theta JC}$		1	

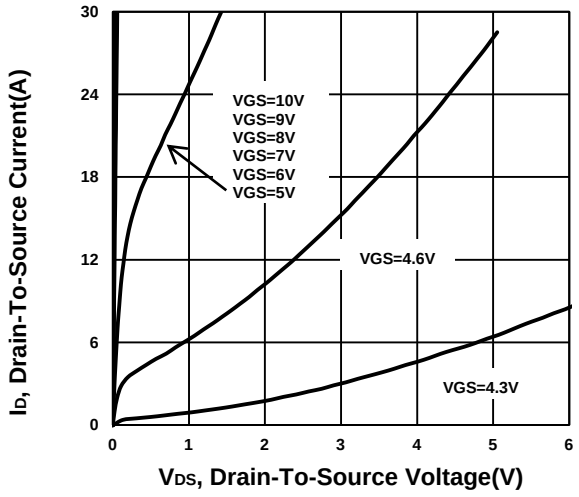
[1]Pulse width limited by maximum junction temperature.
[2]The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
[3]The Power dissipation is based on $R_{\theta JA}$ t ≦10s value.

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

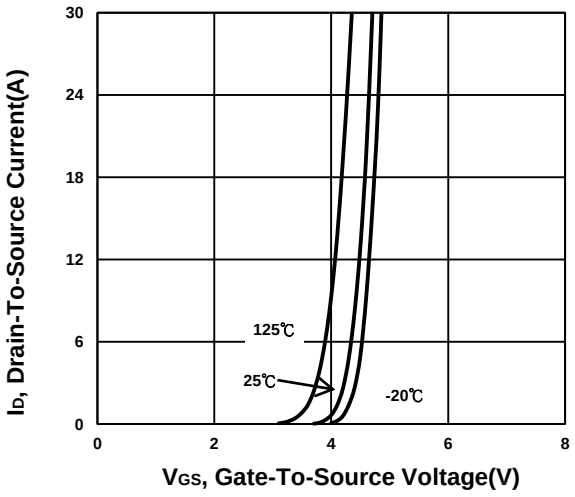
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	60			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2	2.8	4	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 60V, V_{GS} = 0V			1	μA
		V_{DS} = 60V, V_{GS} = 0V, T_J = 55 ° C			10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 20A		0.83	1.2	mΩ
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 20A		98		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 30V, f = 600KHz		7478		pF
Output Capacitance	C_{oss}			1945		
Reverse Transfer Capacitance	C_{rss}			53		
Gate Resistance	Rg	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		1.8		Ω
Total Gate Charge[2]	Q_g	V_{GS} = 10V, V_{DS} = 30V,I_D = 20A		138		nC
Gate-Source Charge[2]	Q_{gs}			34		
Gate-Drain Charge[2]	Q_{gd}			38		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 30V, I_D ≅ 20A, V_{GS} = 10V, R_{GEN} =6Ω		36		nS
Rise Time[2]	t_r			105		
Turn-Off Delay Time[2]	$t_{d(off)}$			130		
Fall Time[2]	t_f			116		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				104	A
Forward Voltage[1]	V_{SD}	I_F =20A , V_{GS} = 0V			1.2	V
Reverse Recovery Time	t_{rr}	I_F = 20A , dI_F/dt= 100A/μs		67		nS
Reverse Recovery Charge	Q_{rr}			106		nC

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

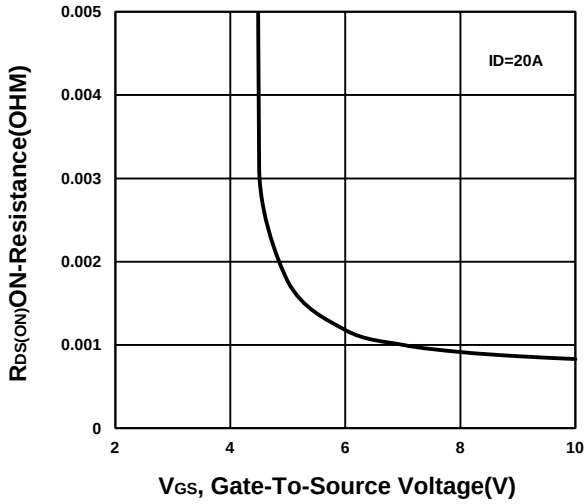
Output Characteristics



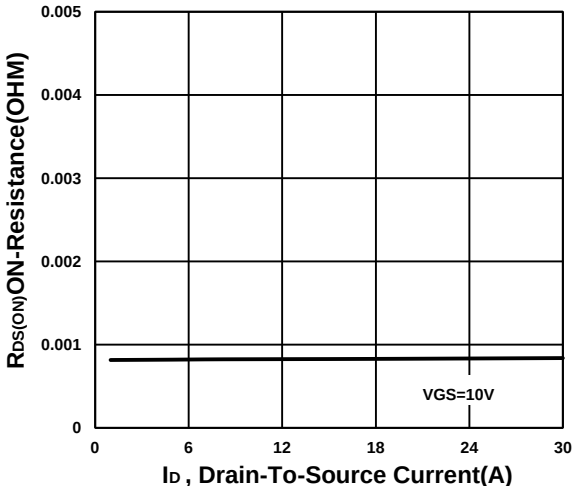
Transfer Characteristics



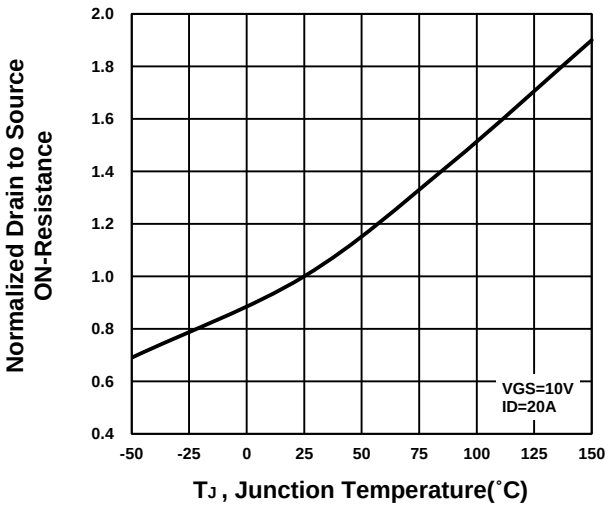
On-Resistance VS Gate-To-Source Voltage



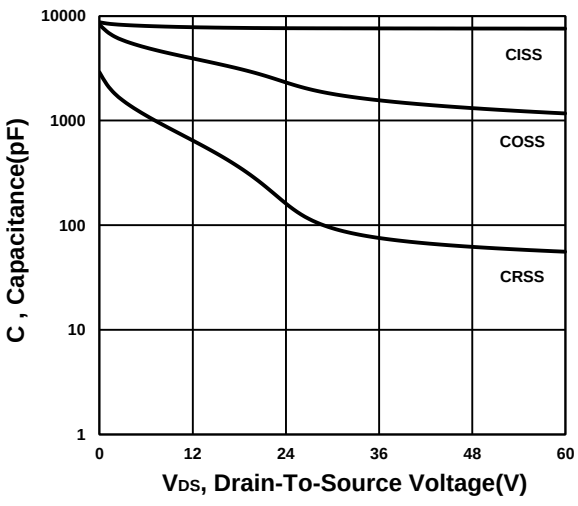
On-Resistance VS Drain Current



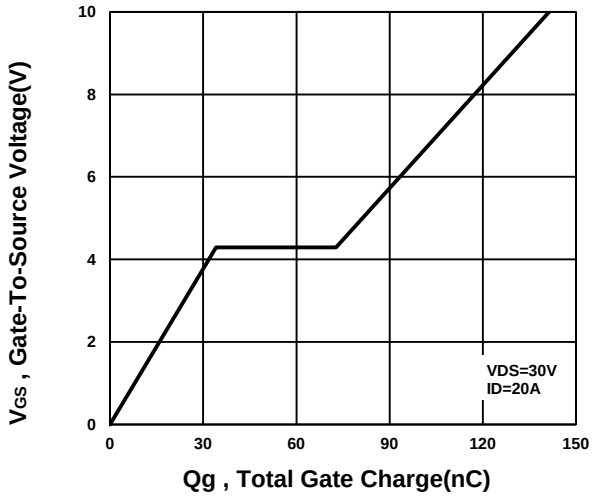
On-Resistance VS Temperature



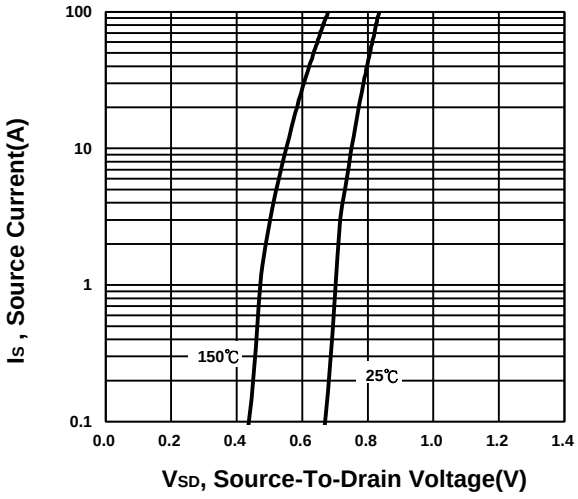
Capacitance Characteristic



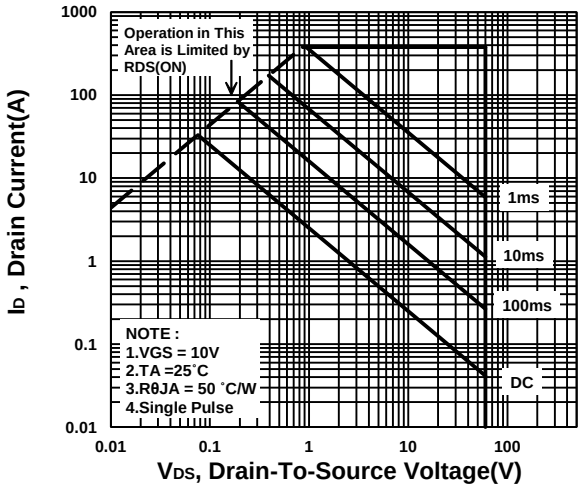
Gate charge Characteristics



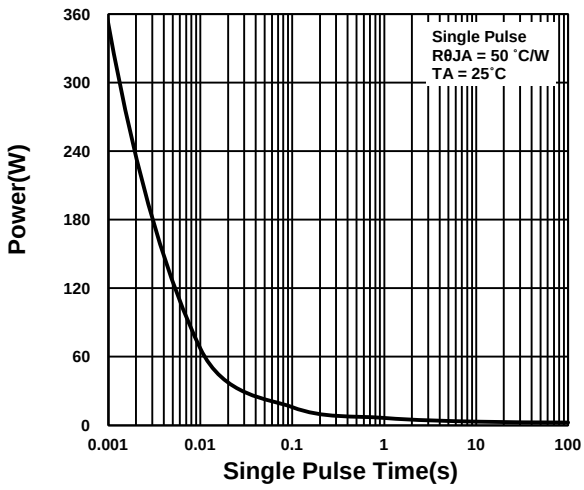
Source-Drain Diode Forward Voltage



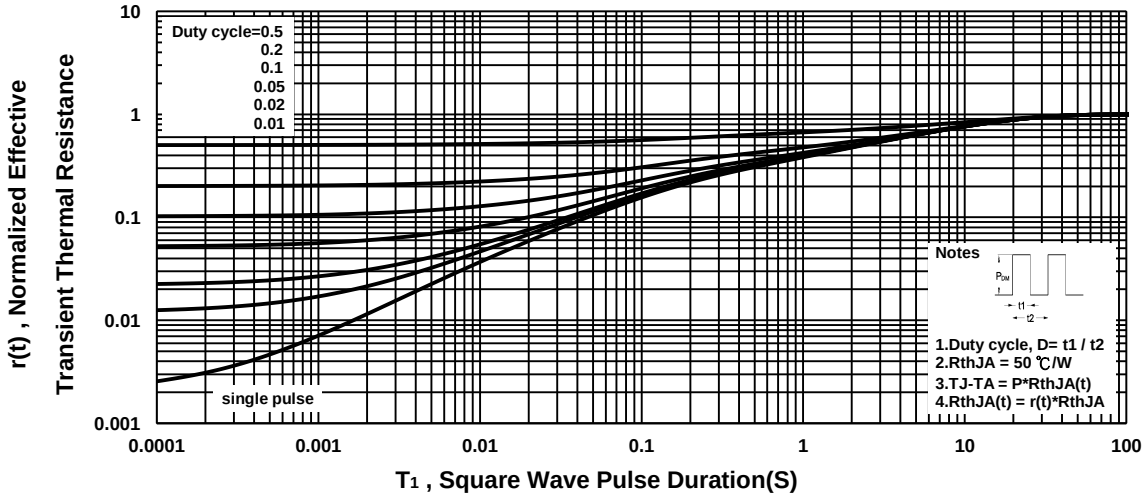
Safe Operating Area



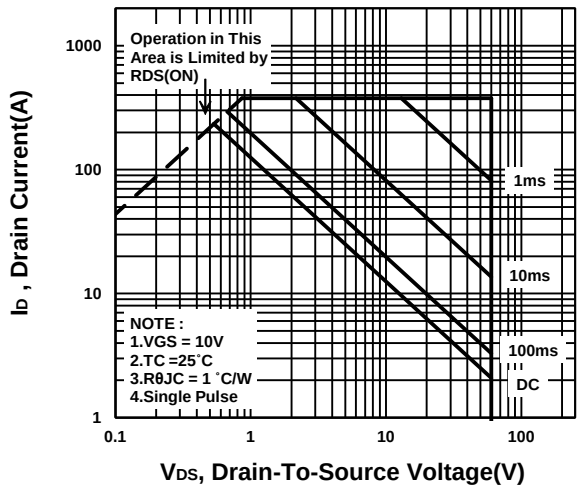
Single Pulse Maximum Power Dissipation



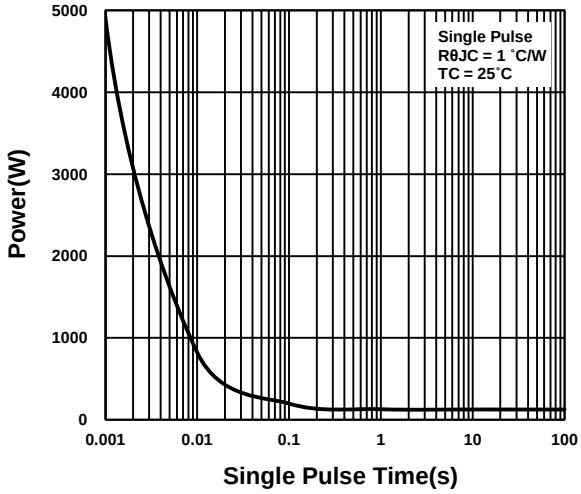
Transient Thermal Response Curve



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve