NIKO-SEM

N-Channel Enhancement Mode Field Effect Transistor

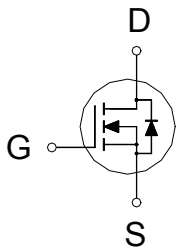
P1025HDB

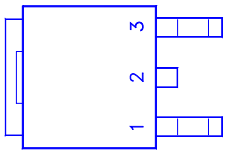
TO-252

Halogen-Free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
250V	460mΩ	10A





RoHS Compliant

1: GATE
2: DRAIN
3: SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	250	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current[2]	T_C = 25 ° C	I_D	10	A
	T_C = 100 ° C		6.3	
Pulsed Drain Current[1]		I_{DM}	26	
Avalanche Current		I_{AS}	5.3	
Avalanche Energy	L = 1mH	E_{AS}	14	mJ
Power Dissipation	T_C = 25 ° C	P_D	52	W
	T_C = 100 ° C		20	
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
Junction-to-Case	$R_{\theta JC}$		2.4	

[1]Pulse width limited by maximum junction temperature.
[2]This characteristics assumes the die are assembled in TO-220 packages.

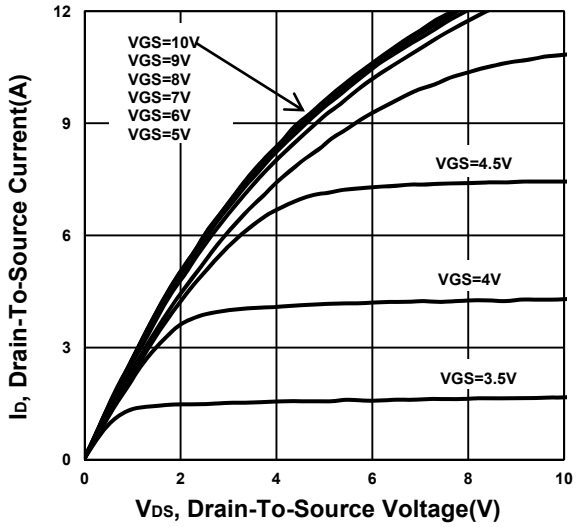
ELECTRICAL CHARACTERISTICS (T_J = 25 ° C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS MIN	LIMITS TYP	LIMITS MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	250			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	2	3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 250V, V_{GS} = 0V			1	μA
		V_{DS} = 200V, V_{GS} = 0V, T_J = 125 ° C			10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 5A		491	590	mΩ
		V_{GS} =10V, I_D = 5A		381	460	

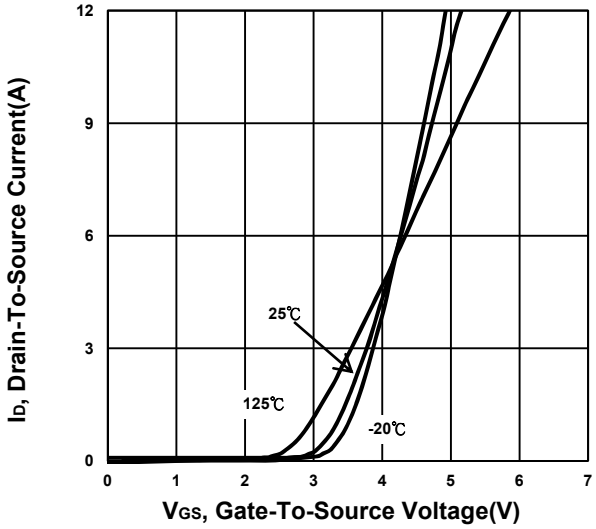
Forward Transconductance[1]	g_{fs}	V_{DS} = 10V, I_D = 5A		7		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		372		pF
Output Capacitance	C_{oss}			64		
Reverse Transfer Capacitance	C_{rss}			10.9		
Total Gate Charge[2]	Q_g	V_{GS} = 10V , V_{DS} = 200V I_D =10A		13		nC
Gate-Source Charge[2]	Q_{gs}			1.7		
Gate-Drain Charge[2]	Q_{gd}			6.1		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 125V , $I_D \cong$ 10A, V_{GS} = 10V, R_{GEN} =6Ω		10		nS
Rise Time[2]	t_r			18		
Turn-Off Delay Time[2]	$t_{d(off)}$			29		
Fall Time[2]	t_f			22		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 ° C)						
Continuous Current	I_S				10	A
Forward Voltage[1]	V_{SD}	I_F = 10A, V_{GS} = 0V			1	V
Diode Reverse Recovery Time	t_{rr}	I_F= 10A, dI/dt=100A/μs		134		nS
Diode Reverse Recovery Charge	Q_{rr}			511		nC

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

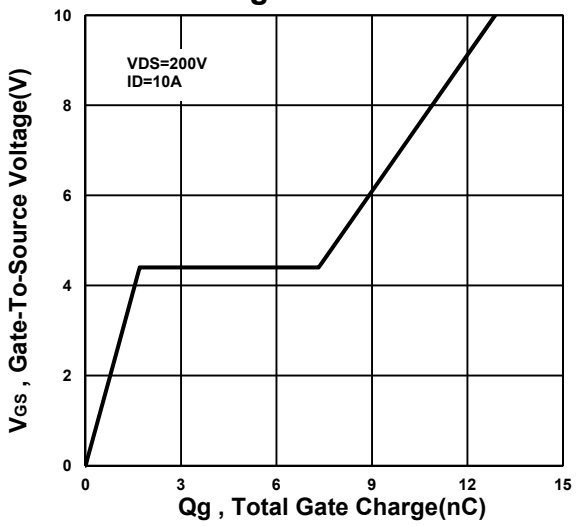
Output Characteristics



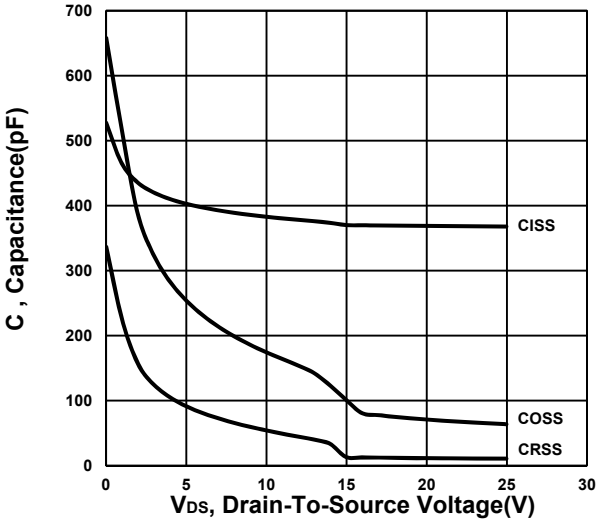
Transfer Characteristics



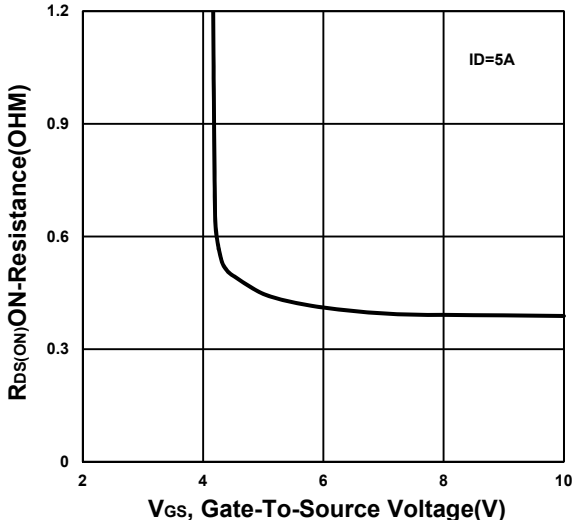
Gate charge Characteristics



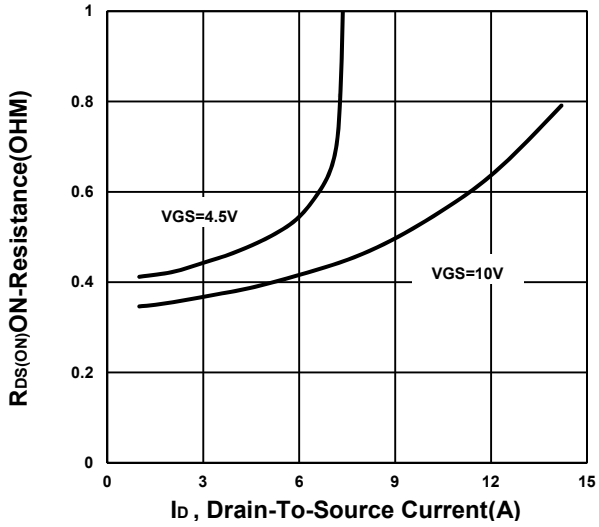
Capacitance Characteristic



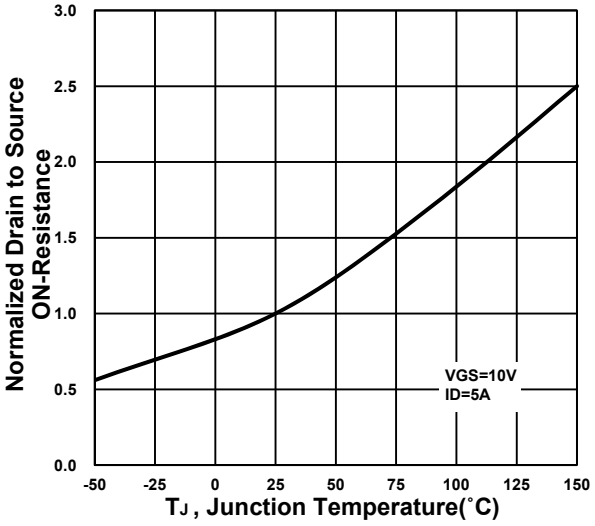
On-Resistance VS Gate-To-Source



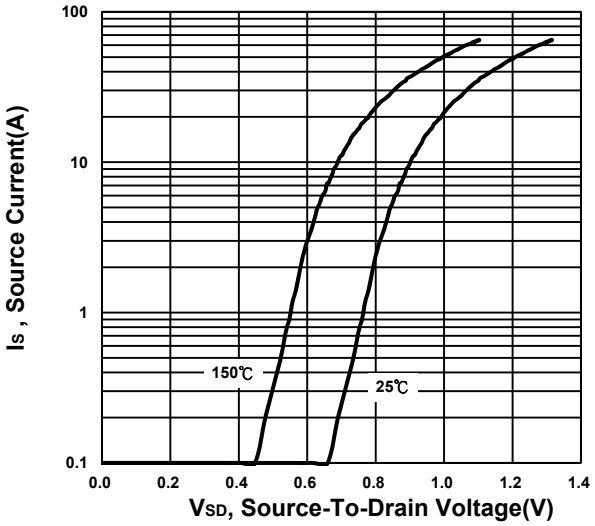
On-Resistance VS Drain Current



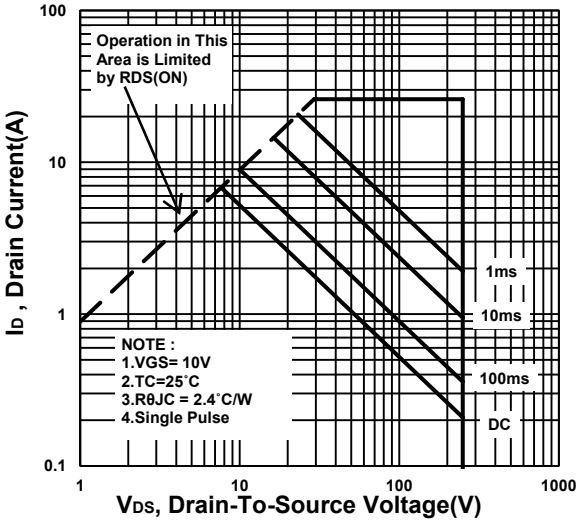
On-Resistance VS Temperature



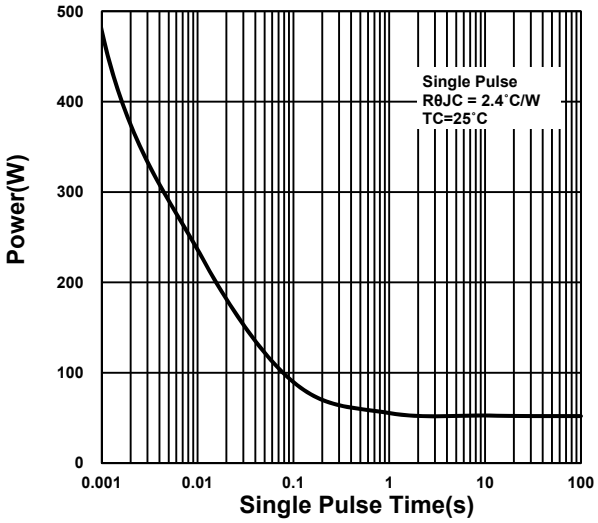
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve