NIKO-SEM

Dual N-Channel Enhancement Mode Field Effect Transistor

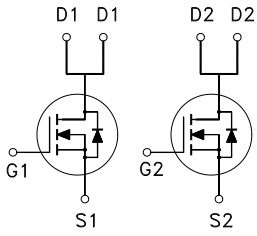
P9008HV

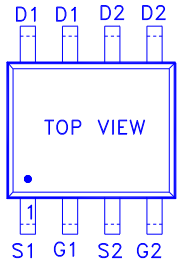
SOP-8

Halogen-Free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
80	90mΩ	5A





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}	80	V
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current	T_A = 25 °C	I_D	5	A
	T_A = 70 °C		4	
Pulsed Drain Current[1]		I_{DM}	25	
Avalanche Current		I_{AS}	22	
Avalanche Energy	L = 0.1mH	E_{AS}	25	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
Junction-to-Lead	$R_{\theta JL}$		35	°C / W

[1]Pulse width limited by maximum junction temperature.

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

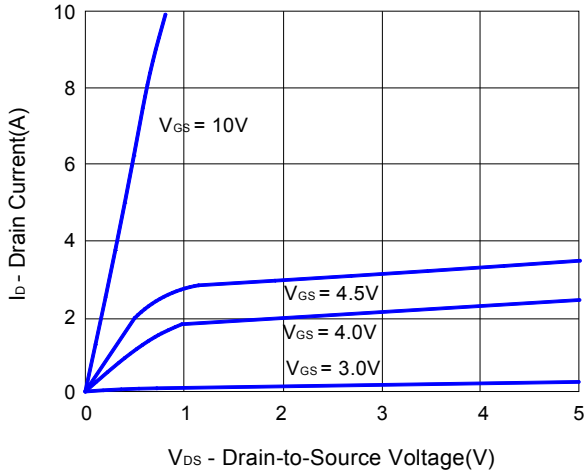
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	80			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2	2.5	3.5	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±25V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 64V, V_{GS} = 0V			1	μA
		V_{DS} = 60V, V_{GS} = 0V, T_J = 70 °C			10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 5V, V_{GS} = 10V	25			A

Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 3A		80	90	mΩ
Forward Transconductance[1]	g_{fs}	V_{DS} = 10V, I_D = 4A		7.5		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		964		pF
Output Capacitance	C_{oss}			86		
Reverse Transfer Capacitance	C_{rss}			42		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		1.54		Ω
Total Gate Charge[2]	Q_g	V_{DS} = 0.5$V_{(BR)DSS}$, V_{GS} = 10V, I_D = 4A		17		nC
Gate-Source Charge[2]	Q_{gs}			4		
Gate-Drain Charge[2]	Q_{gd}			5		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 0.5$V_{(BR)DSS}$, R_L = 40Ω $I_D \cong$ 4A, V_{GS} = 10V, R_G = 3.3 Ω		6.0		nS
Rise Time[2]	t_r			3.8		
Turn-Off Delay Time[2]	$t_{d(off)}$			21		
Fall Time[2]	t_f			5.0		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS						
Continuous Current	I_S				4	A
Pulsed Current[3]	I_{SM}				25	
Forward Voltage[1]	V_{SD}	I_F = 3A, V_{GS} = 0V		1	1.3	V
Reverse Recovery Time	t_{rr}	I_F =3A, dI_F/dt = 100A / μS		30		nS
Reverse Recovery Charge	Q_{rr}			40		nC

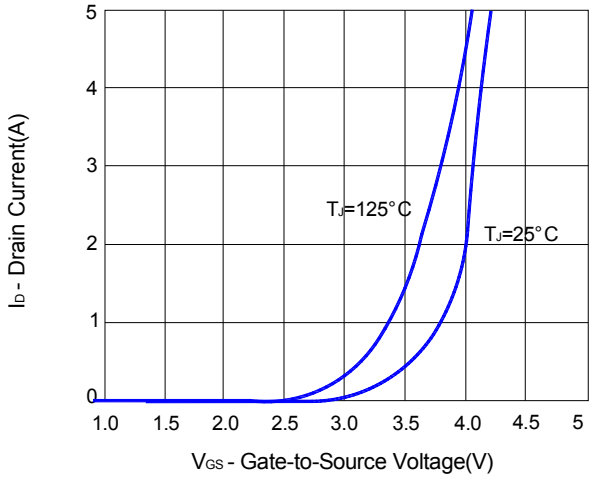
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.
[2]Independent of operating temperature.
[3]Pulse width limited by maximum junction temperature.

REMARK: THE PRODUCT MARKED WITH "P9008HV", DATE CODE or LOT #

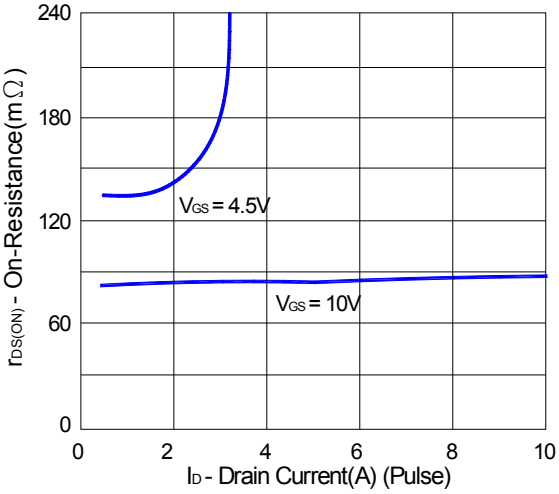
Output Characteristics



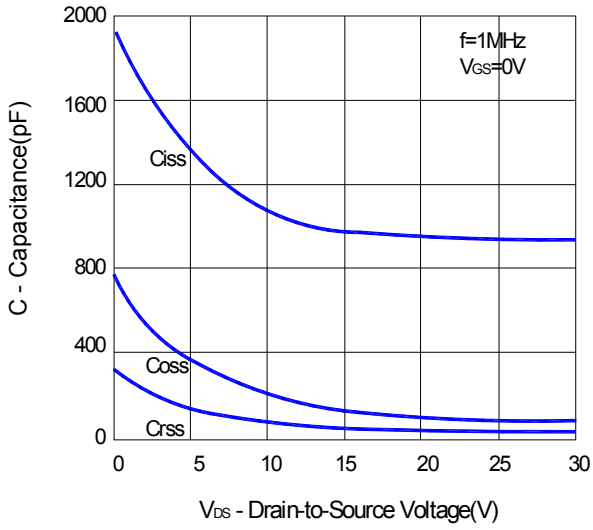
Transfer Characteristics



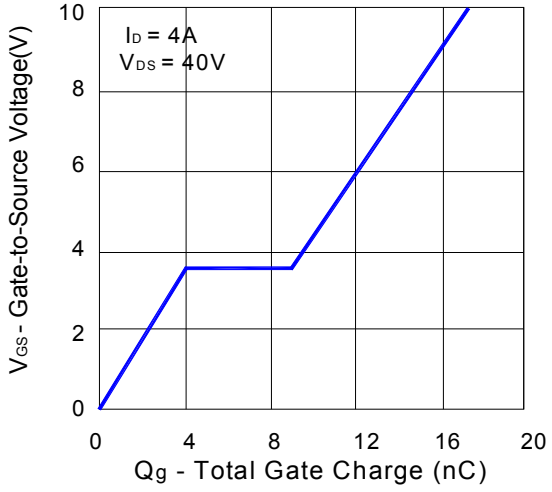
On-Resistance vs.Drain Current



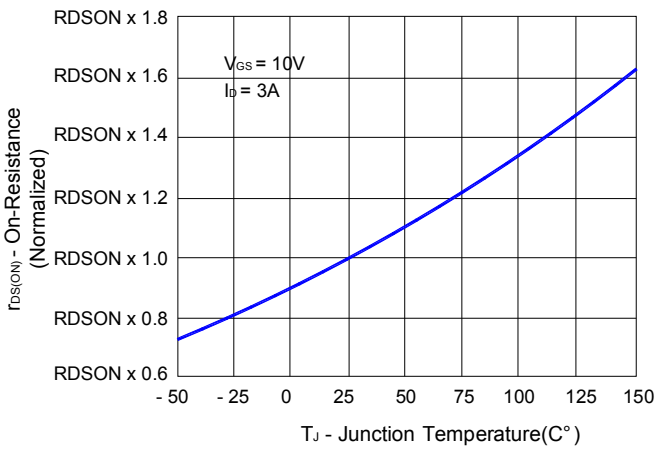
Capacitance



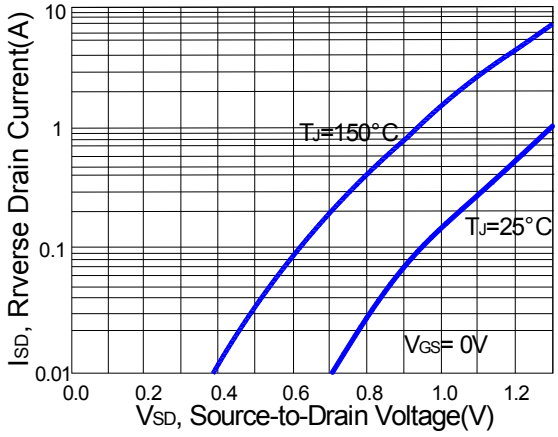
Gate Charge



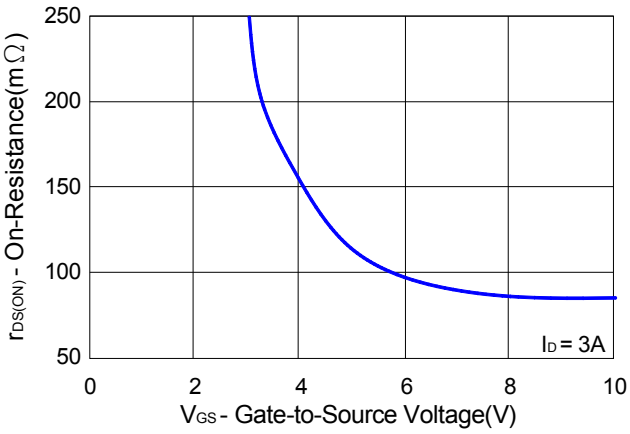
On-Resistance vs. Junction Temperature

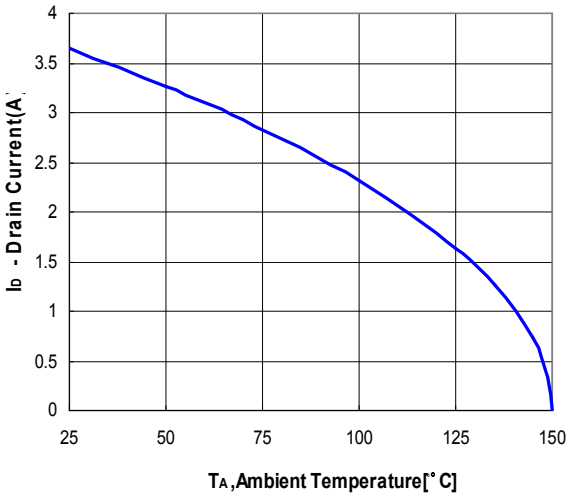


Typical Source-Drain Diode Forward Voltage

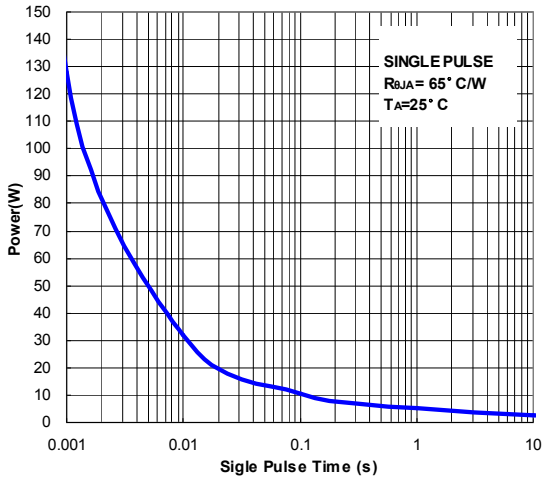


On-Resistance vs.Gate-to-Source Voltage

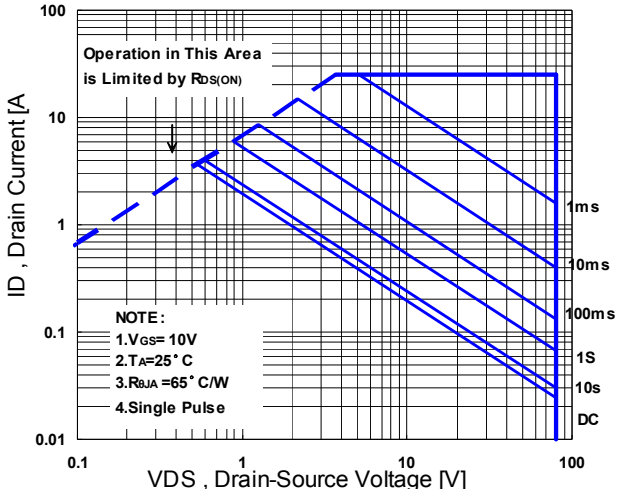


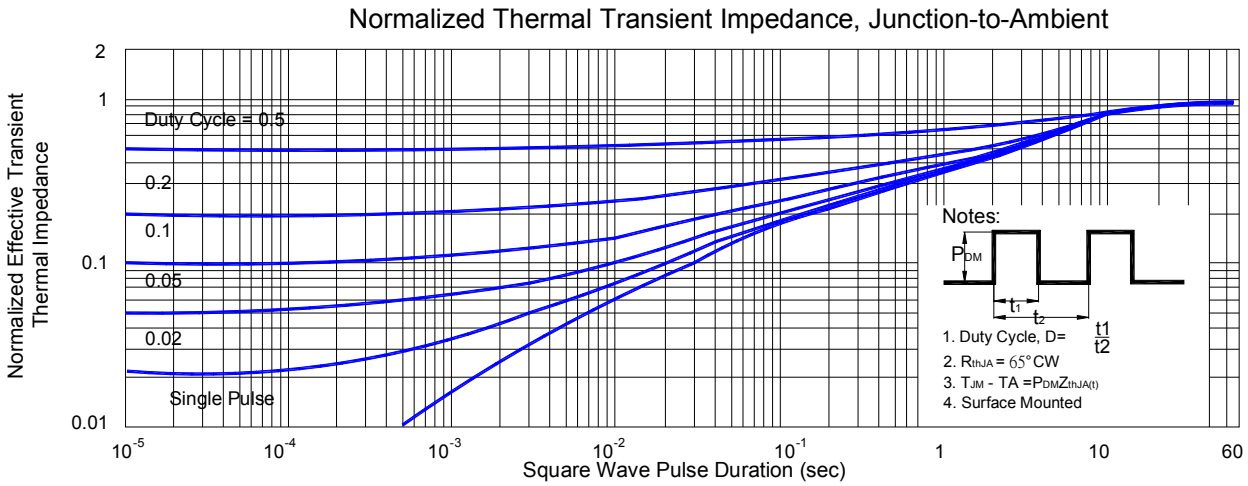


Single Pulse Maximun Power dissipation



Safe Operating Area




Normalized Thermal Transient Impedance, Junction-to-Ambient
Normalized Effective Transient Thermal Impedance
2
1
0.1
0.01
Duty Cycle = 0.5
0.2
0.1
0.05
0.02
Single Pulse
Notes:
PDM
t1
t2
1. Duty Cycle, D= t1/t2
2. RthJA = 65°CW
3. TJM - TA =PDMZthJA(t)
4. Surface Mounted
10-5
10-4
10-3
10-2
10-1
1
10
60
Square Wave Pulse Duration (sec)