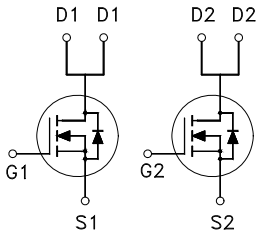
NIKO-SEM

Dual N-Channel Enhancement Mode Field Effect Transistor

P2804HVG
SOP-8
Halogen-Free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40	28mΩ	7A



RoHS Compliant

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}	40	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A = 25 °C	I_D	7	A
	T_A = 70 °C		6	
Pulsed Drain Current[1]		I_{DM}	40	
Power Dissipation	T_A = 25 °C	P_D	2	W
	T_A = 70 °C		1.28	
Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C
Lead Temperature ($^1/_{16}$" from case for 10 sec.)		T_L	275	

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Lead	$R_{\theta JL}$		31	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	°C / W

[1]Pulse width limited by maximum junction temperature.
[2]Duty cycle ≤ 1%

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

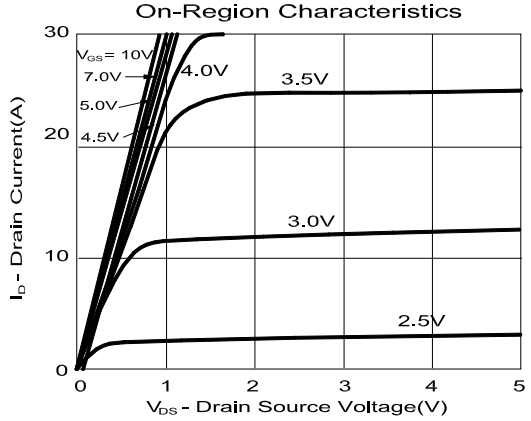
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS MIN	LIMITS TYP	LIMITS MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	2	3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 32V, V_{GS} = 0V			1	μA
		V_{DS} = 30V, V_{GS} = 0V, T_J = 55 °C			10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 5V, V_{GS} = 10V	20			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 5V, I_D = 6A		27	42	mΩ
		V_{GS} = 10V, I_D = 7A		21	28	

Forward Transconductance[1]	g_{fs}	V_{DS} = 10V, I_D = 5A		24		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 20V, f = 1MHz		742		pF
Output Capacitance	C_{oss}			103		
Reverse Transfer Capacitance	C_{rss}			94		
Total Gate Charge[2]	Q_g	V_{DS} = 0.5$V_{(BR)DSS}$, V_{GS} = 10V, I_D = 7A		17.4		nC
Gate-Source Charge[2]	Q_{gs}			4.1		
Gate-Drain Charge[2]	Q_{gd}			4.4		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 20V $I_D \cong$ 1A, V_{GS} = 10V, R_{GEN} = 6Ω		2.2		nS
Rise Time[2]	t_r			7.5		
Turn-Off Delay Time[2]	$t_{d(off)}$			11.8		
Fall Time[2]	t_f			11		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				1.3	A
Forward Voltage[1]	V_{SD}	I_F = Is, V_{GS} = 0V			1	V
Reverse Recovery Time	t_{rr}	I_F = 5A, dI_F/dt = 100A / μS		15.5		nS
Reverse Recovery Charge	Q_{rr}			7.9		

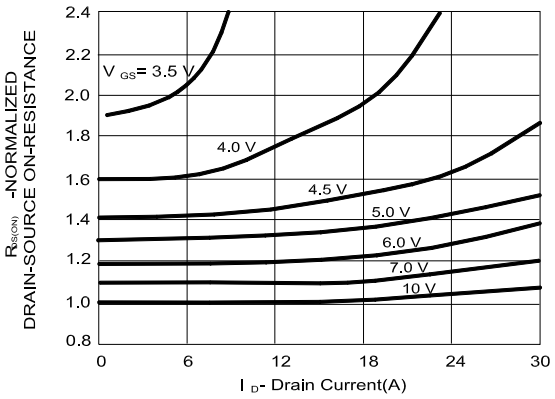
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.
[2]Independent of operating temperature.

TYPICAL PERFORMANCE CHARACTERISTICS

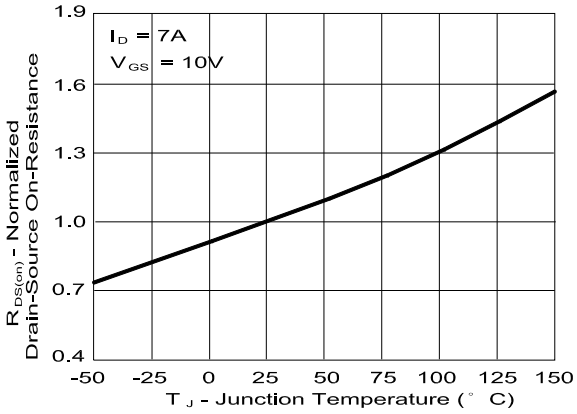
On-Region Characteristics



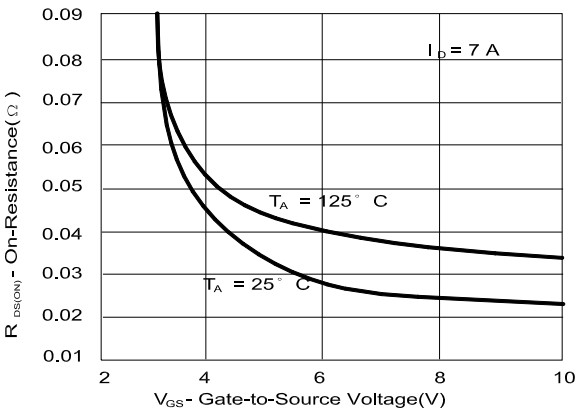
On-Resistance Variation with Drain Current and Gate Voltage



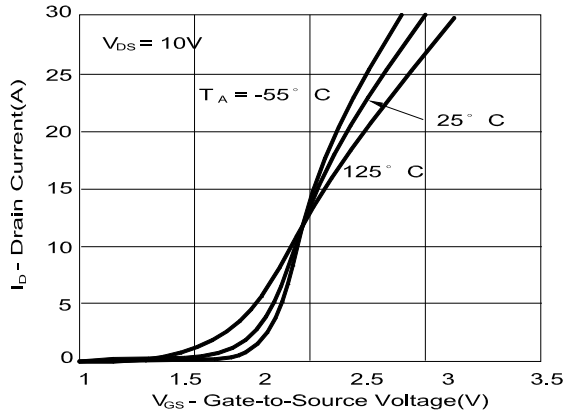
On-Resistance Variation with Temperature



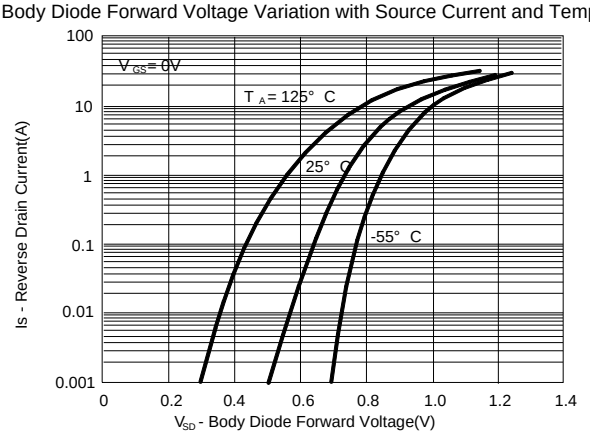
On-Resistance Variation with Gate-to-Source Voltage



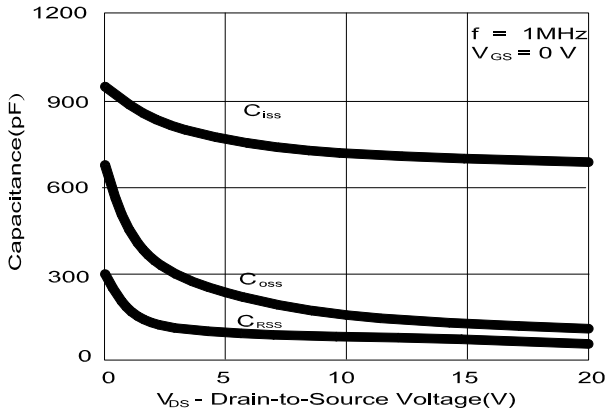
Transfer Characteristics



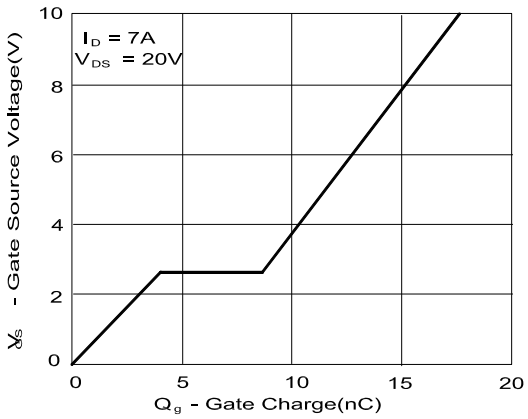
Body Diode Forward Voltage Variation with Source Current and Temperature



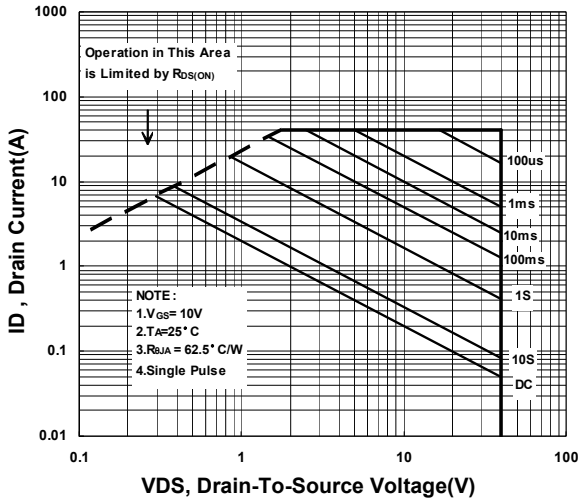
Capacitance Characteristics



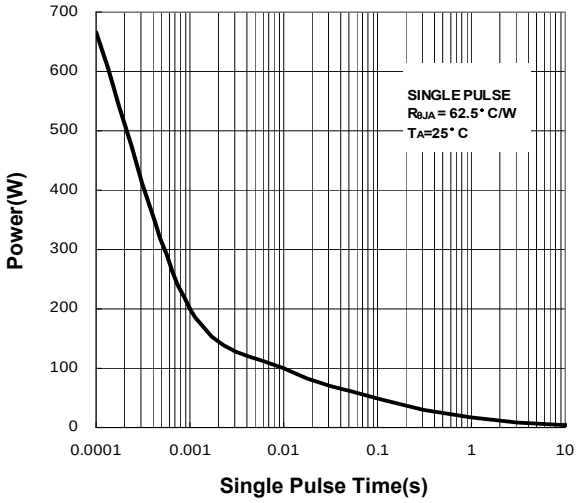
Gate Charge Characteristics



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve