NIKO-SEM

P-Channel Logic Level Enhancement Mode Field Effect Transistor

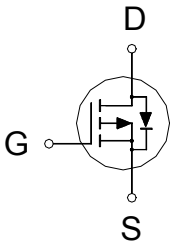
P1003EVG

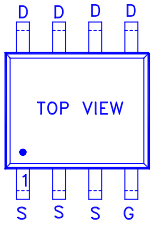
SOP-8

Halogen-Free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-30	10.5mΩ	-13A





4 :GATE
5,6,7,8 :DRAIN
1,2,3 :SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current	T_A = 25 °C	I_D	-13	A
	T_A = 70 °C		-9	
Pulsed Drain Current[1]		I_{DM}	-50	
Avalanche Current		I_{AS}	-49	A
Avalanche Energy	L = 0.1mH	E_{AS}	120	mJ
Power Dissipation	T_A = 25 °C	P_D	2.5	W
	T_A = 70 °C		1.6	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		25	°C / W
Junction-to-Ambient	$R_{\theta JA}$		50	°C / W

[1]Pulse width limited by maximum junction temperature.

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

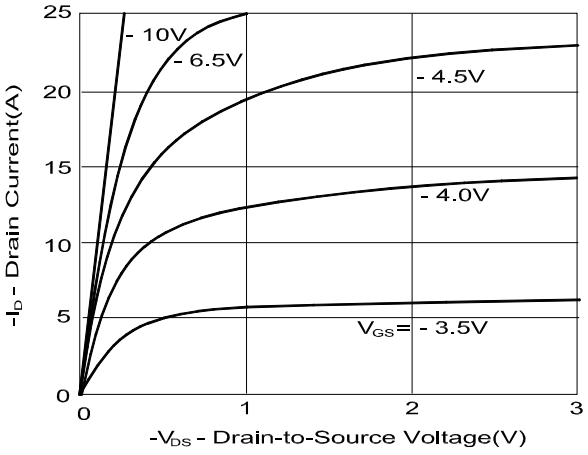
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1	-1.5	-3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±25V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -24V, V_{GS} = 0V			-1	μA
		V_{DS} = -20V, V_{GS} = 0V, T_J = 125 °C			-10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = -5V, V_{GS} = -10V	-50			A

Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -4.5V, I_D = -10A		13	16	mΩ
		V_{GS} = -6.5V, I_D = -13A		10.5	12	
		V_{GS} = -10V, I_D = -13A		9	10.5	
Forward Transconductance[1]	g_{fs}	V_{DS} = -10V, I_D = -13A		29		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15V, f = 1MHz		4200		pF
Output Capacitance	C_{oss}			1218		
Reverse Transfer Capacitance	C_{rss}			504		
Total Gate Charge[2]	Q_g	V_{DS} = 0.5$V_{(BR)DSS}$, V_{GS} = -10V, I_D = -13A		42		nC
Gate-Source Charge[2]	Q_{gs}			12.6		
Gate-Drain Charge[2]	Q_{gd}			15.4		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = -15V, $I_D \cong$ -1A, V_{GS} = -10V, R_{GS} = 6Ω		16.8		nS
Rise Time[2]	t_r			22.4		
Turn-Off Delay Time[2]	$t_{d(off)}$			70		
Fall Time[2]	t_f			140		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_A = 25 °C)						
Continuous Current	I_S				-2.1	A
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V			-1.2	V

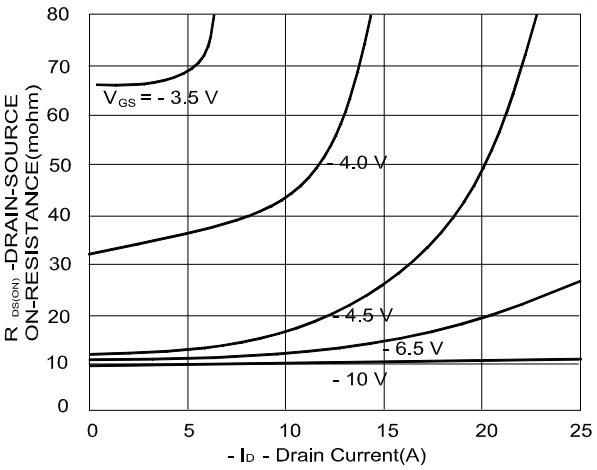
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.
[2]Independent of operating temperature.

REMARK: THE PRODUCT MARKED WITH "P1003EVG", DATE CODE or LOT #

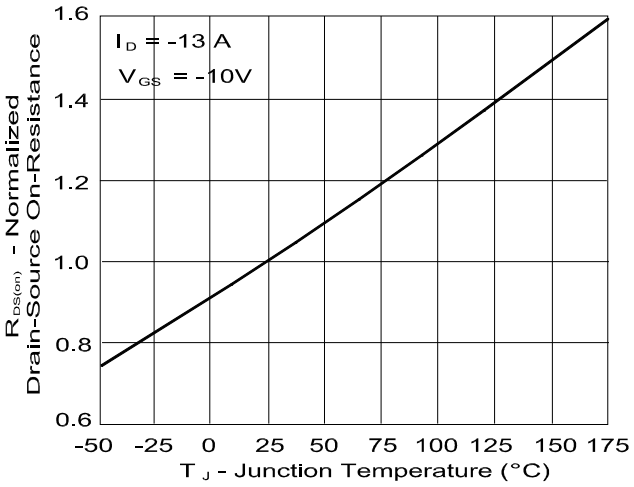
On-Region Characteristics



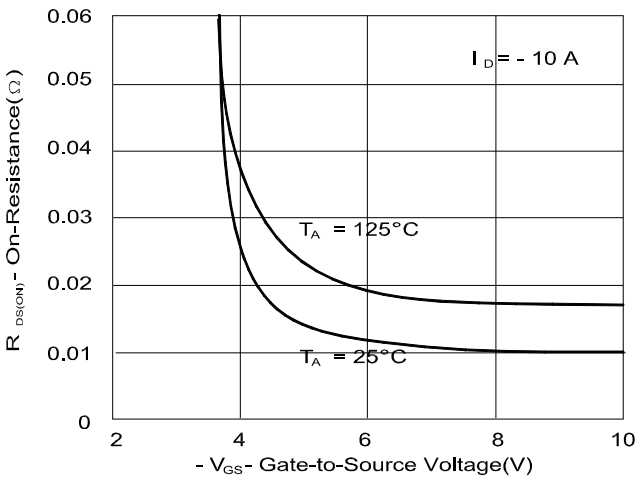
On-Resistance V.S Drain Current and Gate Voltage



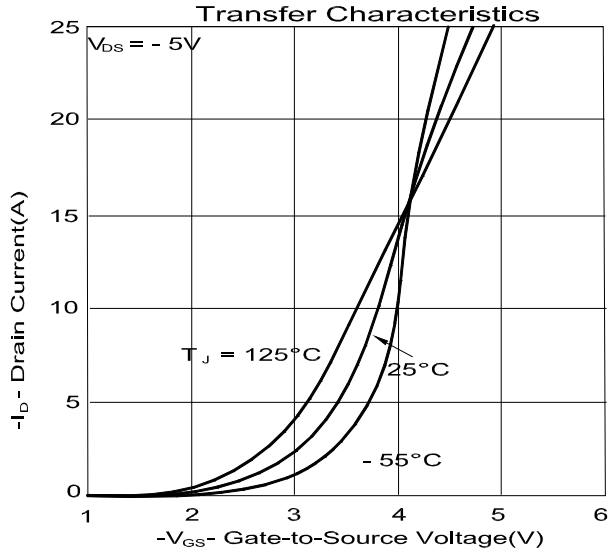
On-Resistance V.S Temperature



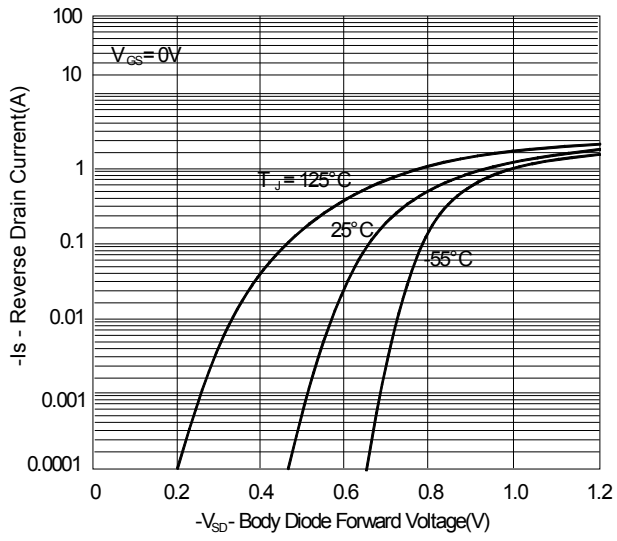
On-Resistance V.S Gate-to-Source Voltage



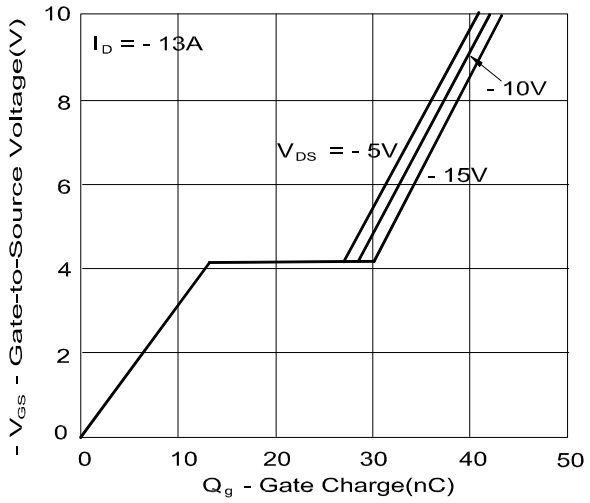
Transfer Characteristics



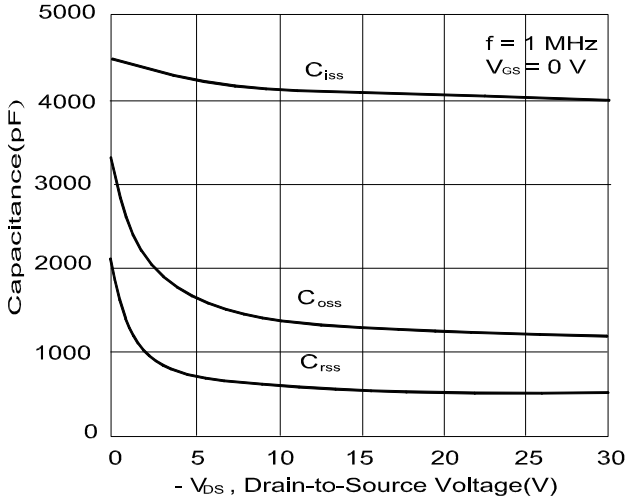
Body Diode Forward Voltage



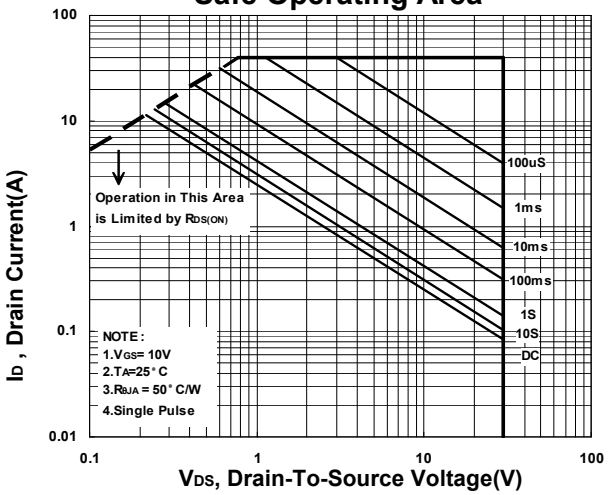
Gate Charge Characteristics



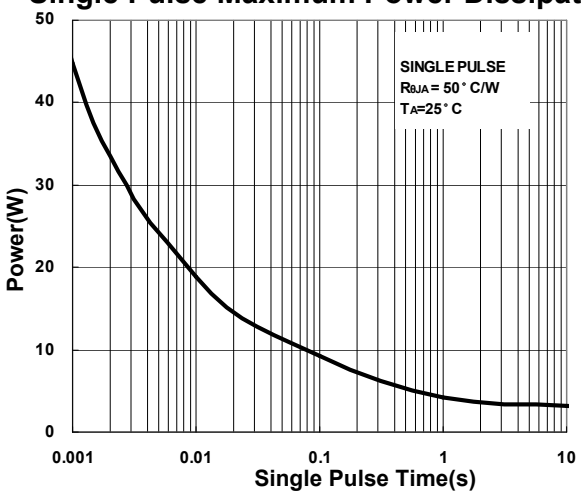
Capacitance Characteristics



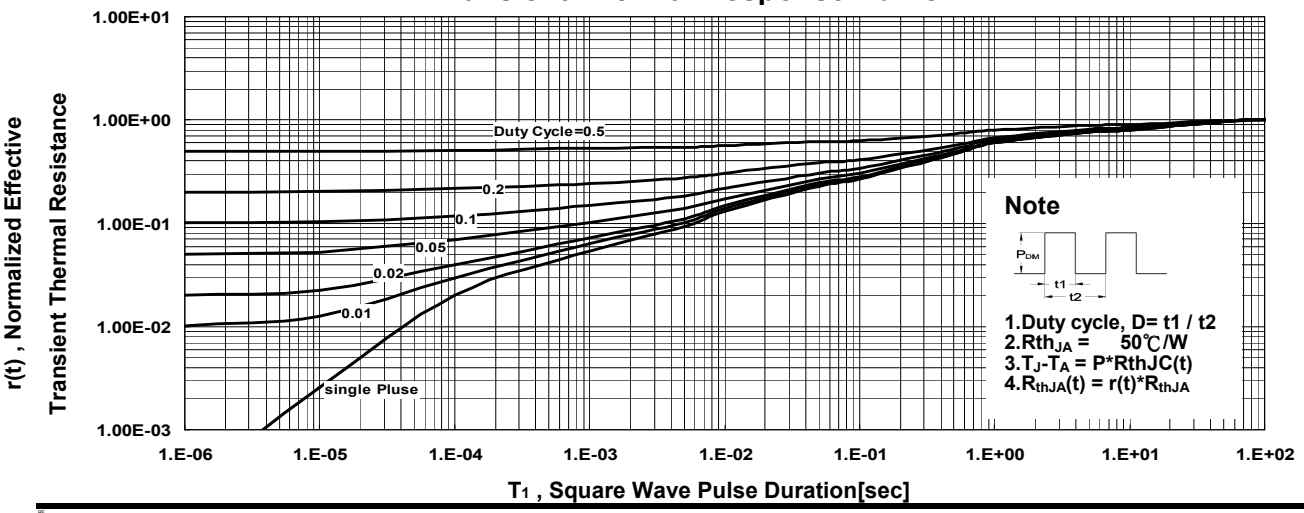
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



SOP-8 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.70	4.90	5.10	H	0.40	0.715	0.83
B	3.70	3.90	4.10	I	0.19	0.22	0.26
C	5.80	6.00	6.20	J	0.25	0.375	0.5
D	0.33	0.445	0.51	K	0°	4°	8°
E		1.27		L			
F	1.20	1.375	1.62	M			
G	0.08	0.175	0.28	N