NIKO-SEM

N-Channel Logic Level Enhancement Mode Field Effect Transistor

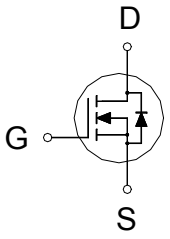
P1203BV

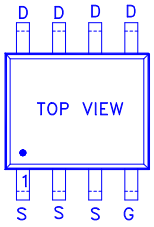
SOP-8

Halogen-Free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	12mΩ	11A





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
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A = 25 °C	I_D	11	A
	T_A = 100 °C		7	
Pulsed Drain Current[1]		I_{DM}	40	
Avalanche Current		I_{AS}	28	
Avalanche Energy	L = 0.1mH	E_{AS}	40	mJ
Power Dissipation	T_A = 25 °C	P_D	2.5	W
	T_A = 100 °C		1	
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	

[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	1.8	3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V			1	μA
		V_{DS} = 20V, V_{GS} = 0V, T_C = 125 °C			10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 10V, V_{GS} = 10V	40			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 11A		14	17.5	mΩ
		V_{GS} = 10V, I_D = 11A		8.5	12	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V I_D = 11A		40		S

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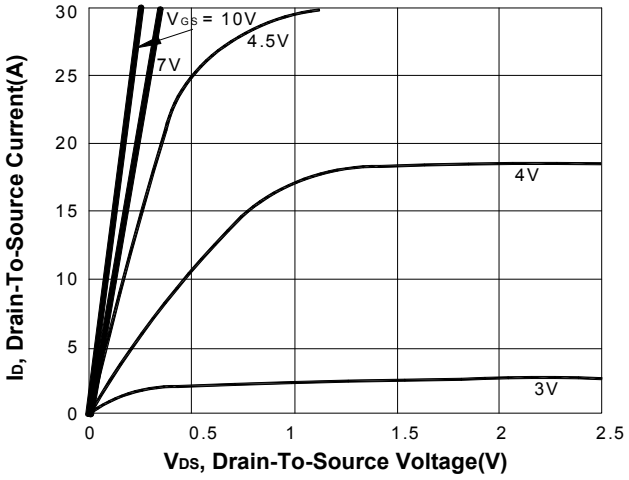
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 12V, f = 1MHz		846		pF
Output Capacitance	C_{oss}			225		
Reverse Transfer Capacitance	C_{rss}			126		
Gate Resistance	R_G	V_{GS} = 0V, f = 1MHz		1.65		Ω
Total Gate Charge[2]	Q_g (V_{GS}=10V)	V_{DS} = 0.5$V_{(BR)DSS}$, I_D = 8.8A		17		nC
	Q_g (V_{GS}=4.5V)			8.1		
Gate-Source Charge[2]	Q_{gs}			2.7		
Gate-Drain Charge[2]	Q_{gd}			4		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 15V, I_D ≅ 12.5A, V_{GS} = 10V,R_{GEN} = 3Ω		9		nS
Rise Time[2]	t_r			40		
Turn-Off Delay Time[2]	$t_{d(off)}$			20		
Fall Time[2]	t_f			6		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_A = 25 °C)						
Continuous Current	I_S				1.9	A
Forward Voltage[1]	V_{SD}	I_F = 25A, V_{GS} = 0V			1.3	V
Reverse Recovery Time	t_{rr}	I_F = 11 A, dI_F/dt = 100A / μS		21		nS
Reverse Recovery Charge	Q_{rr}			10		nC

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

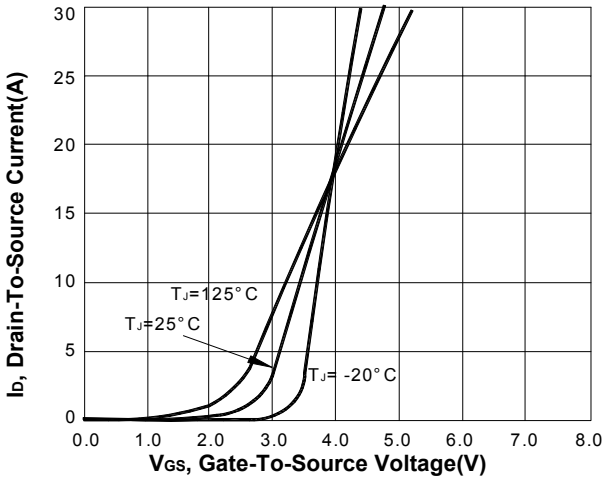
REMARK: THE PRODUCT MARKED WITH "P1203BV", DATE CODE or LOT #

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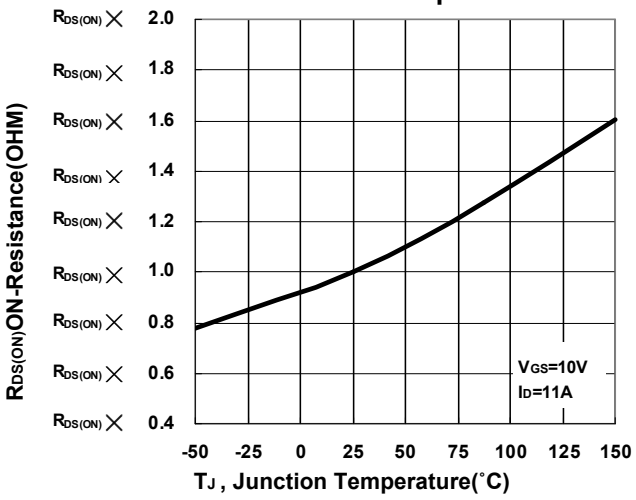
Output Characteristics



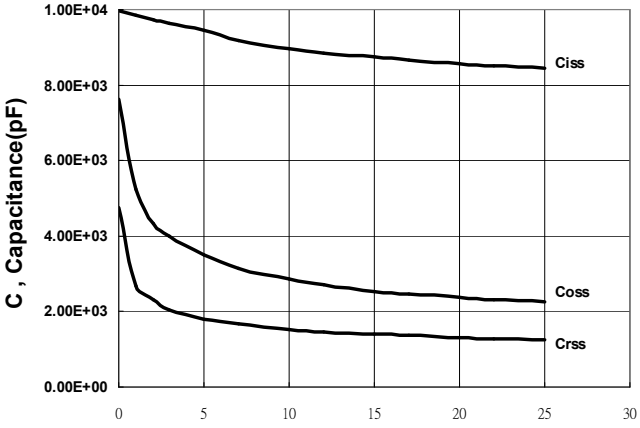
Transfer Characteristics



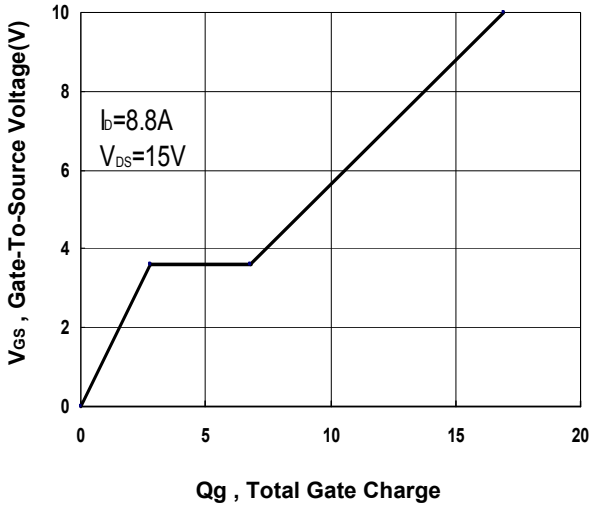
On-Resistance VS Temperature



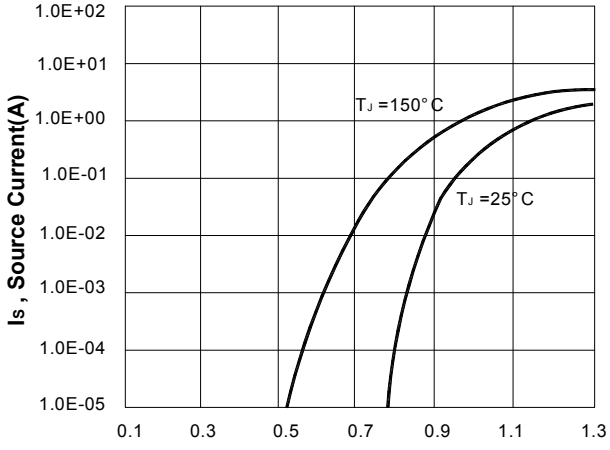
Capacitance Characteristic



Gate charge Characteristics

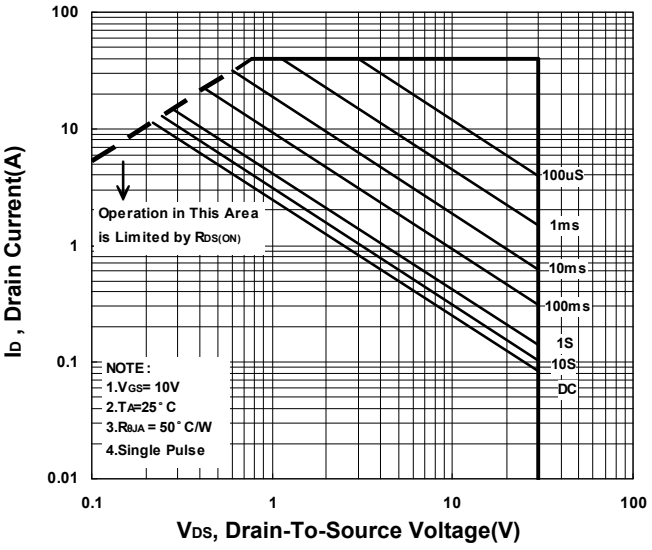


Source-Drain Diode Forward Voltage

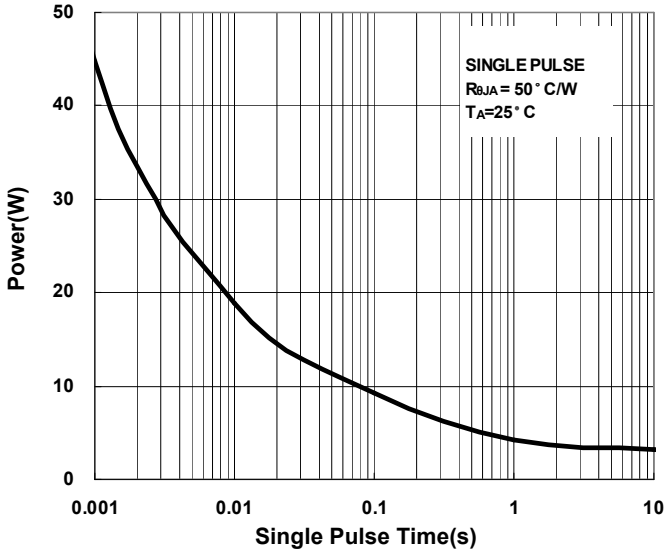


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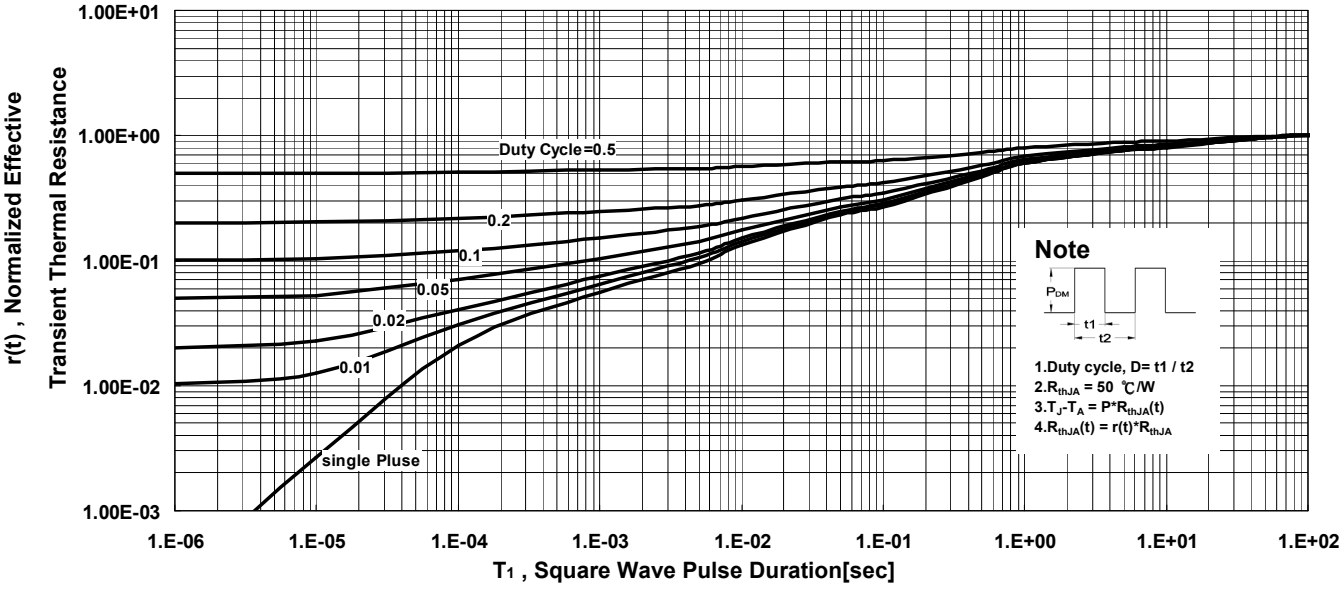
Safe Operating Area



Single Pulse Maximum Power Dissipation



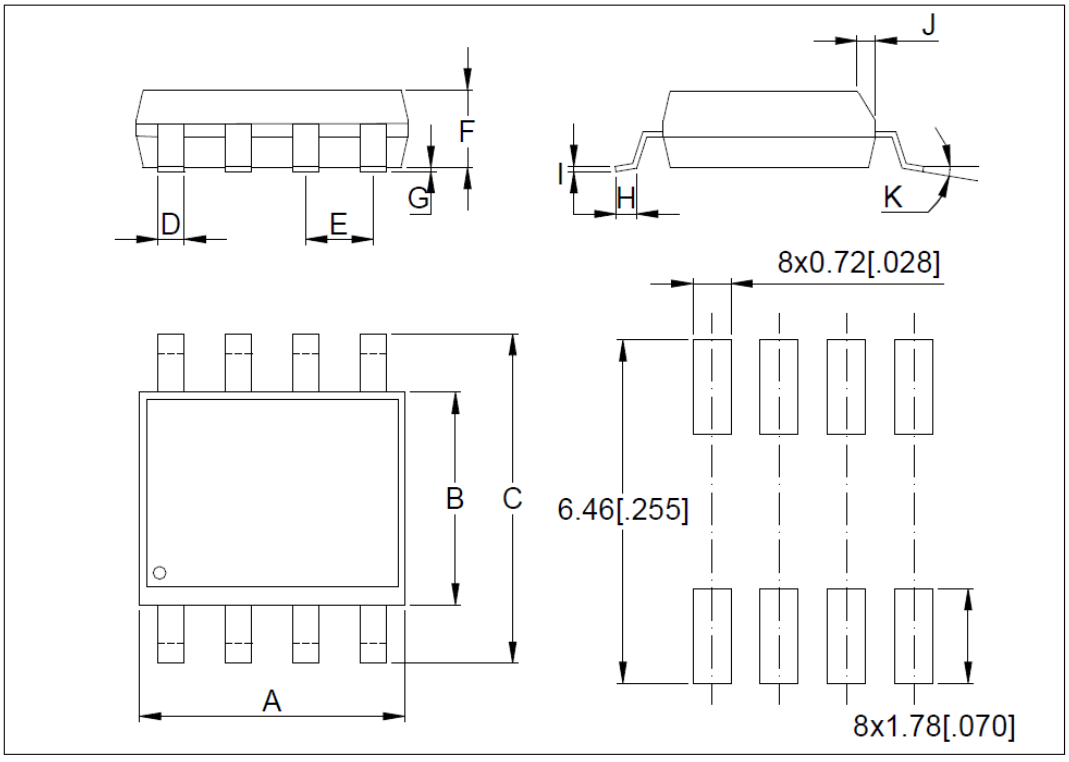
Transient Thermal Response Curve



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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			



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