

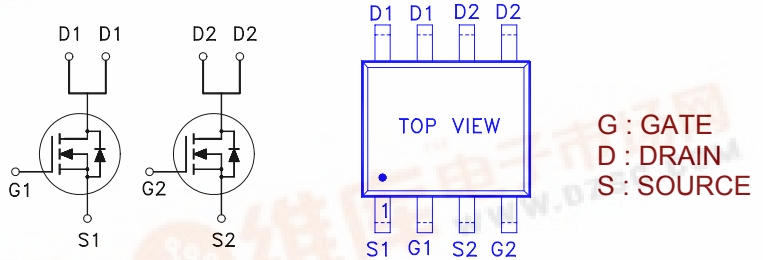
NIKO-SEM

**Dual N-Channel Enhancement Mode
Field Effect Transistor**

P07D03LV
SOP-8

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30	20mΩ	7A



ABSOLUTE MAXIMUM RATINGS ($T_c = 25\text{ }^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	± 30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_c = 25\text{ }^\circ\text{C}$	I_D	7	A
	$T_c = 70\text{ }^\circ\text{C}$		6	
Pulsed Drain Current ¹		I_{DM}	40	
Power Dissipation	$T_c = 25\text{ }^\circ\text{C}$	P_D	2	W
	$T_c = 70\text{ }^\circ\text{C}$		1.3	
Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	$^\circ\text{C}$
Lead Temperature (¹ / ₁₆ " from case for 10 sec.)		T_L	275	

THERMAL RESISTANCE RATINGS

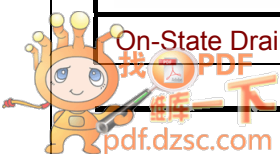
THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		62.5	$^\circ\text{C} / \text{W}$

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

ELECTRICAL CHARACTERISTICS ($T_c = 25\text{ }^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	0.7	1	1.4	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24\text{V}, V_{GS} = 0\text{V}$			1	μA
		$V_{DS} = 20\text{V}, V_{GS} = 0\text{V}, T_j = 55\text{ }^\circ\text{C}$			10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5\text{V}, V_{GS} = 10\text{V}$	25			A

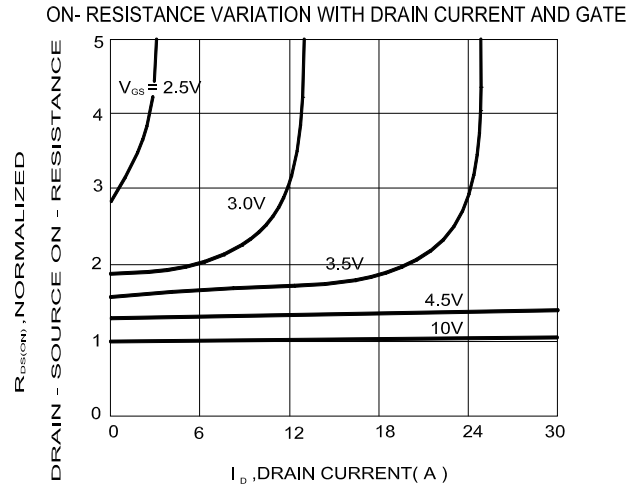
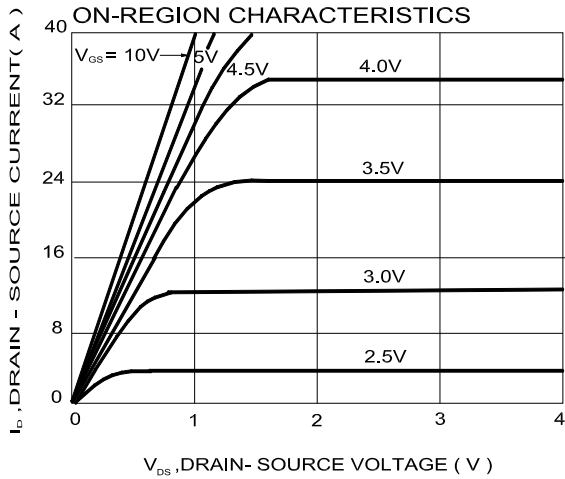


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SOP-8

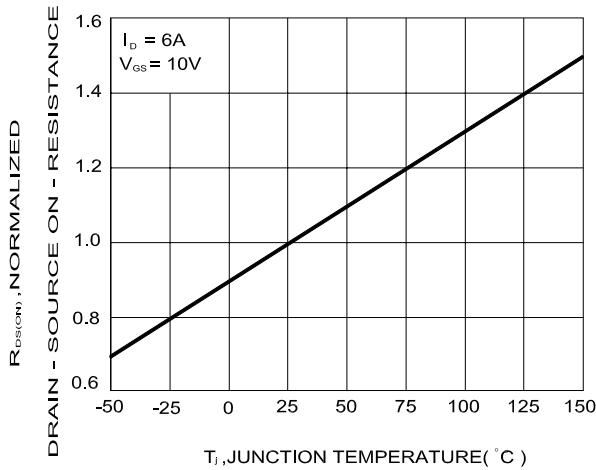
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 2.5V, I_D = 5A$	40	48	m Ω
		$V_{GS} = 4.5V, I_D = 6A$	23	30	
		$V_{GS} = 10V, I_D = 7A$	18	25	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 15V, I_D = 5A$	16		S
DYNAMIC					
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$	830		pF
Output Capacitance	C_{oss}		185		
Reverse Transfer Capacitance	C_{rss}		80		
Total Gate Charge ²	Q_g	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = 5V,$ $I_D = 7A$	9	13	nC
Gate-Source Charge ²	Q_{gs}		2.8		
Gate-Drain Charge ²	Q_{gd}		3.1		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = 15V$ $I_D \cong 1A, V_{GS} = 10V, R_{GEN} = 6\Omega$	5.7		nS
Rise Time ²	t_r		10		
Turn-Off Delay Time ²	$t_{d(off)}$		18		
Fall Time ²	t_f		5		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_C = 25^\circ C$)					
Continuous Current	I_S			3	A
Pulsed Current ³	I_{SM}			6	
Forward Voltage ¹	V_{SD}	$I_F = 1A, V_{GS} = 0V$		1	V
Reverse Recovery Time	t_{rr}	$I_F = 5A, di_F/dt = 100A / \mu S$	15.5		nS
Reverse Recovery Charge	Q_{rr}		7.9		nC

¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.²Independent of operating temperature.³Pulse width limited by maximum junction temperature.**REMARK: THE PRODUCT MARKED WITH "P07D03LV", DATE CODE or LOT #**

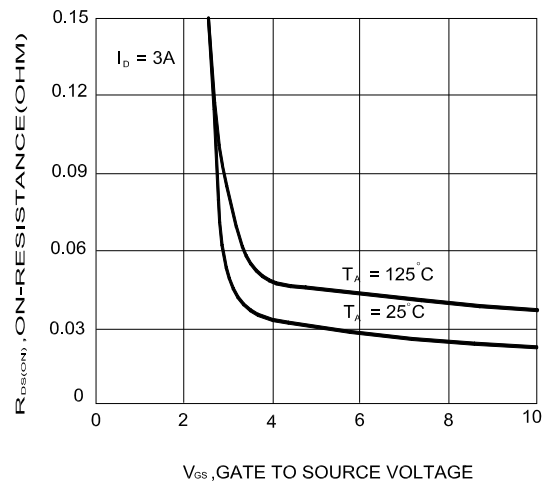
TYPICAL PERFORMANCE CHARACTERISTICS



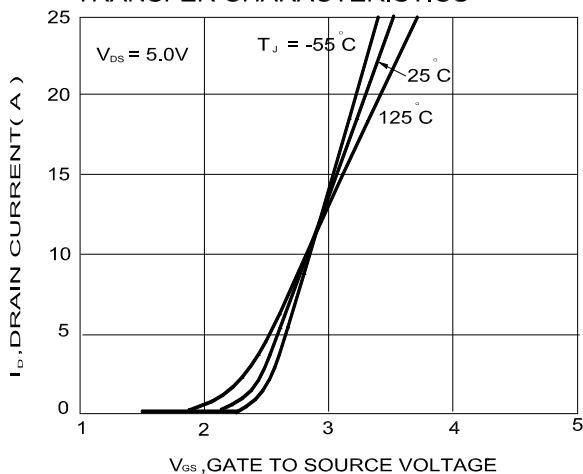
ON-RESISTANCE VARIATION WITH TEMPERATURE



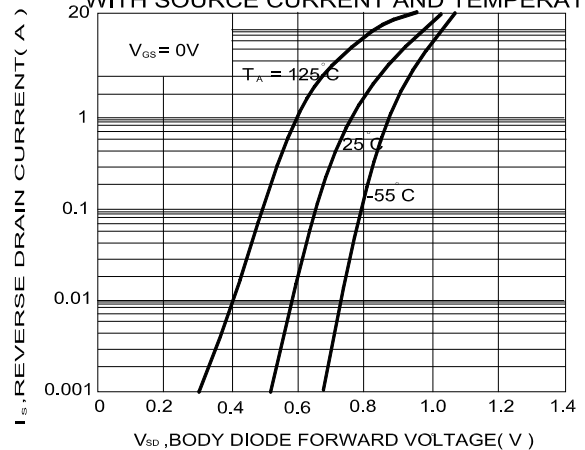
ON-RESISTANCE VARIATION WITH GATE-TO-SOURCE VOLTAGE



TRANSFER CHARACTERISTICS



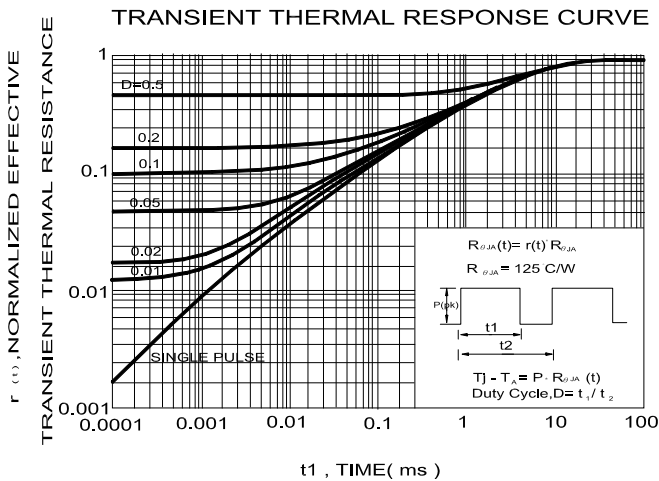
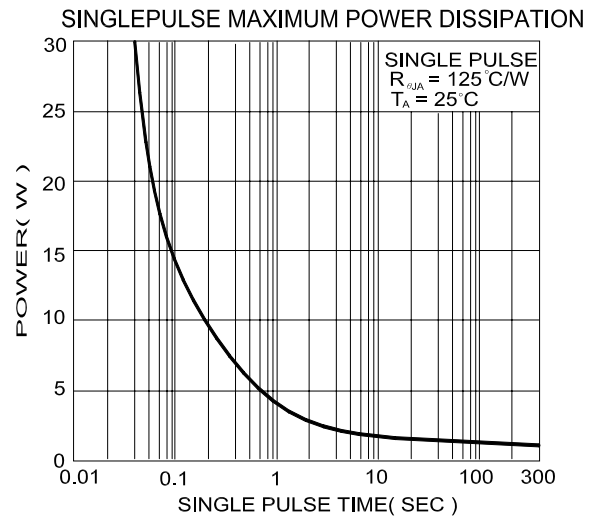
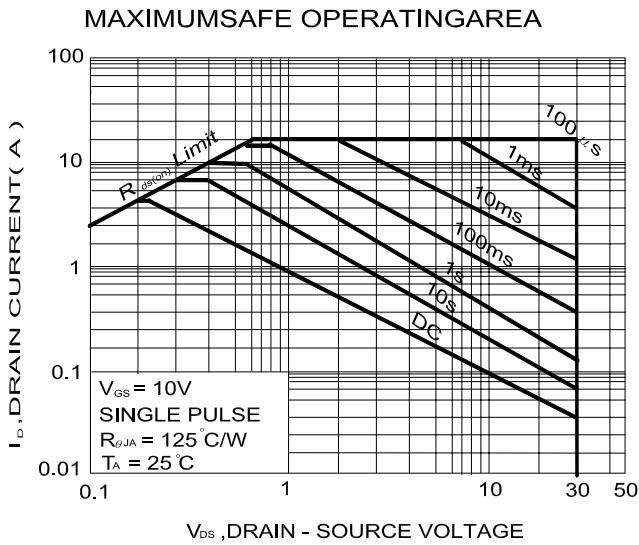
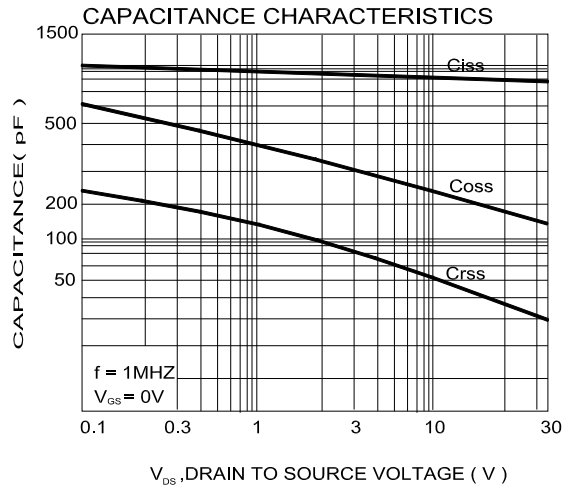
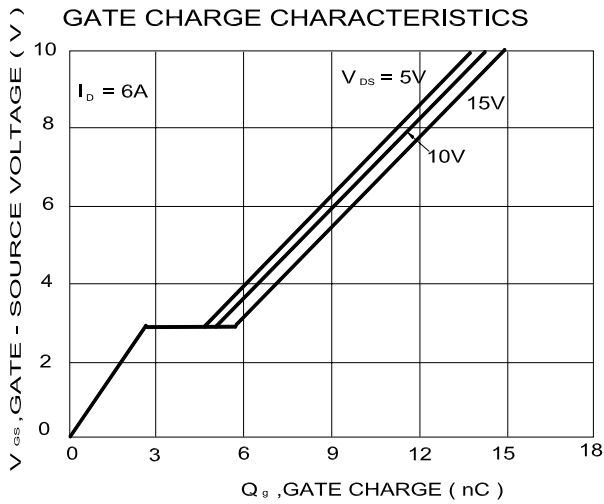
BODY DIODE FORWARD VOLTAGE VARIATION WITH SOURCE CURRENT AND TEMPERATURE



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SOIC-8 (D) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8	4.9	5.0	H	0.5	0.715	0.83
B	3.8	3.9	4.0	I	0.18	0.254	0.25
C	5.8	6.0	6.2	J		0.22	
D	0.38	0.445	0.51	K	0°	4°	8°
E		1.27		L			
F	1.35	1.55	1.75	M			
G	0.1	0.175	0.25	N			

