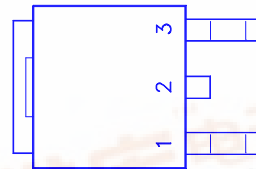
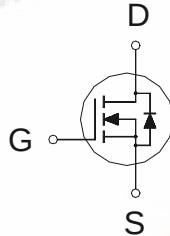


NIKO-SEM

N-Channel Logic Level Enhancement
Mode Field Effect TransistorP50N02LD
TO-252 (D PAK)

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
25	12m Ω	55A



1. GATE
2. DRAIN
3. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	55	A
	$T_C = 100\text{ }^{\circ}\text{C}$		38	
Pulsed Drain Current ¹		I_{DM}	150	
Avalanche Current		I_{AR}	36	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	250	mJ
	$L = 0.05\text{mH}$		8.6	
Repetitive Avalanche Energy ²		E_{AR}	8.6	W
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	80	
	$T_C = 100\text{ }^{\circ}\text{C}$		41	
Operating 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-Case	$R_{\theta JC}$		2.5	$^{\circ}\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		65	
Case-to-Heatsink	$R_{\theta CS}$	0.7		

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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	25			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.8	1.2	2.5	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 250	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			25	μA
		$V_{DS} = 20V, V_{GS} = 0V, T_C = 125^\circ C$			250	

NIKO-SEM**N-Channel Logic Level Enhancement
Mode Field Effect Transistor****P50N02LD**
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On-State Drain Current ¹	I _{D(ON)}	V _{DS} = 10V, V _{GS} = 10V	55			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 7V, I _D = 20A		13	16	mΩ
		V _{GS} = 10V, I _D = 30A		12	15	
Forward Transconductance ¹	g _{fs}	V _{DS} = 15V, I _D = 40A		16		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		1400		pF
Output Capacitance	C _{oss}			380		
Reverse Transfer Capacitance	C _{rss}			200		
Total Gate Charge ²	Q _g	V _{DS} = 0.5V _{(BR)DSS} , V _{GS} = 10V, I _D = 30A		40		nC
Gate-Source Charge ²	Q _{gs}			12		
Gate-Drain Charge ²	Q _{gd}			25		
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = 15V, R _L = 1Ω I _D ≅ 35A, V _{GS} = 10V, R _{GS} = 2.5Ω		9		nS
Rise Time ²	t _r			150		
Turn-Off Delay Time ²	t _{d(off)}			20		
Fall Time ²	t _f			30		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _c = 25 °C)						
Continuous Current	I _S				55	A
Pulsed Current ³	I _{SM}				170	
Forward Voltage ¹	V _{SD}	I _F = I _S , V _{GS} = 0V			1.3	V
Reverse Recovery Time	t _{rr}	I _F = I _S , dI _F /dt = 100A / μS		70		nS
Peak Reverse Recovery Current	I _{RM(REC)}			200		A
Reverse Recovery Charge	Q _{rr}			0.043		μC

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 “P50N02LD”, DATE CODE or LOT #**

TO-252 (DPAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	9.35		10.1	H		0.8	
B	2.2		2.4	I	6.4		6.6
C	0.48		0.6	J	5.2		5.4
D	0.89		1.5	K	0.6		1
E	0.45		0.6	L	0.64		0.9
F	0.03		0.23	M	4.4		4.6
G	6		6.2	N			

