

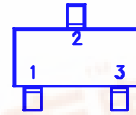
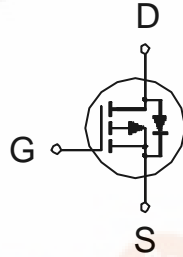
NIKO-SEM

**P-Channel Logic Level Enhancement
Mode Field Effect Transistor (Preliminary)**

**PA102FM
SOT-23**

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-20	118m	-3A



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
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	$T_C = 25\text{ }^\circ\text{C}$	-3
		$T_C = 70\text{ }^\circ\text{C}$	-1.4
Pulsed Drain Current ¹	I_{DM}	-10	A
Power Dissipation	P_D	$T_C = 25\text{ }^\circ\text{C}$	1.25
		$T_C = 70\text{ }^\circ\text{C}$	0.8
Operating Junction & Storage Temperature Range	T_j, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		166	$^\circ\text{C} / \text{W}$

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

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

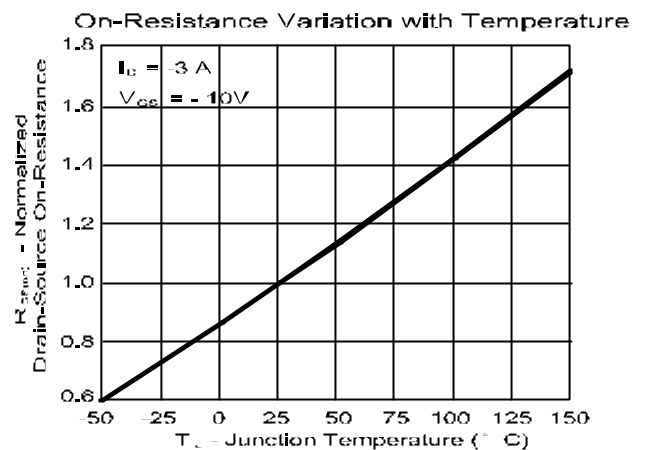
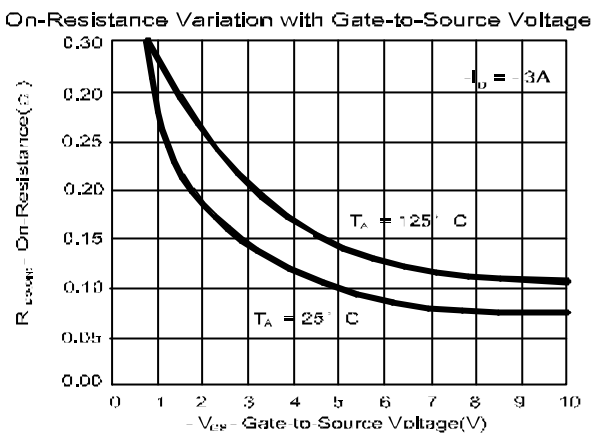
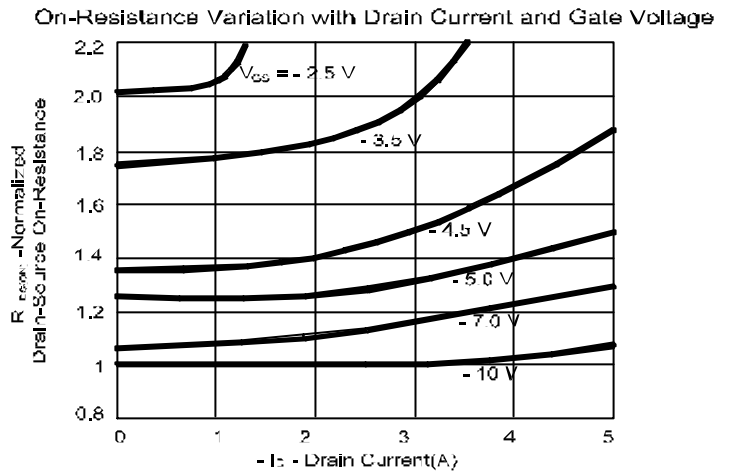
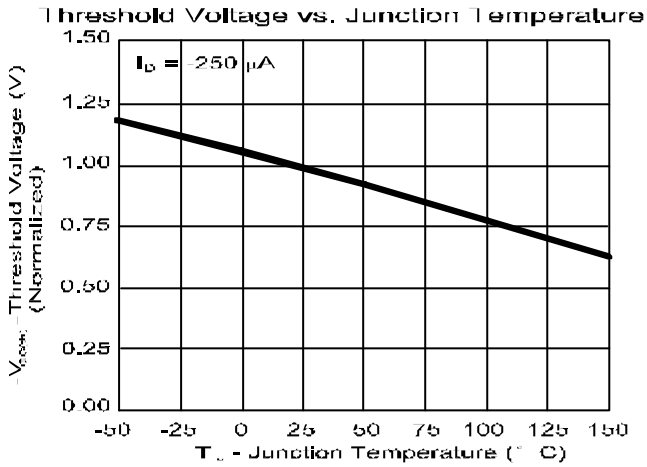
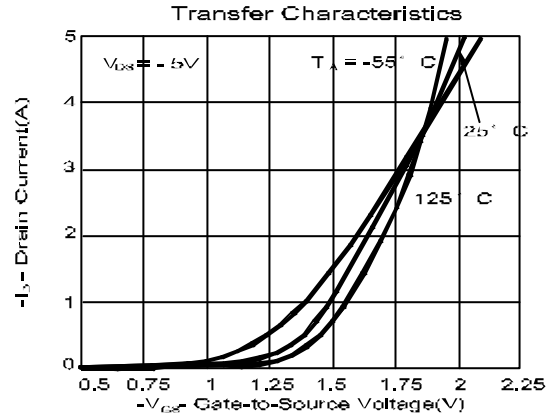
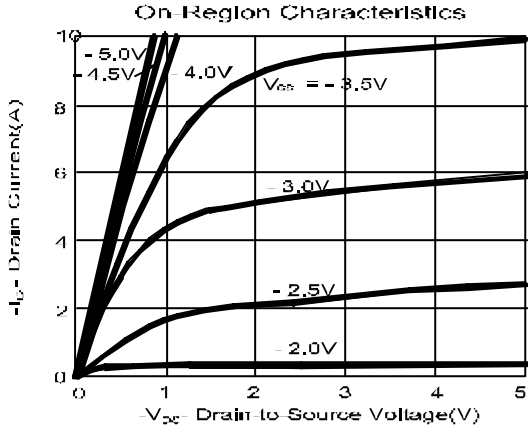
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	-0.45	-0.8	-1.2	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{V}, V_{GS} = \pm 12\text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16\text{V}, V_{GS} = 0\text{V}$			-1	μA
		$V_{DS} = -16\text{V}, V_{GS} = 0\text{V}, T_J = 125\text{ }^\circ\text{C}$			-10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = -5\text{V}, V_{GS} = -4.5\text{V}$	-6			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -2.5\text{V}, I_D = -1\text{A}$		150	215	m
		$V_{GS} = -4.5\text{V}, I_D = -2\text{A}$		98	118	
		$V_{GS} = -10\text{V}, I_D = -2\text{A}$		72	85	

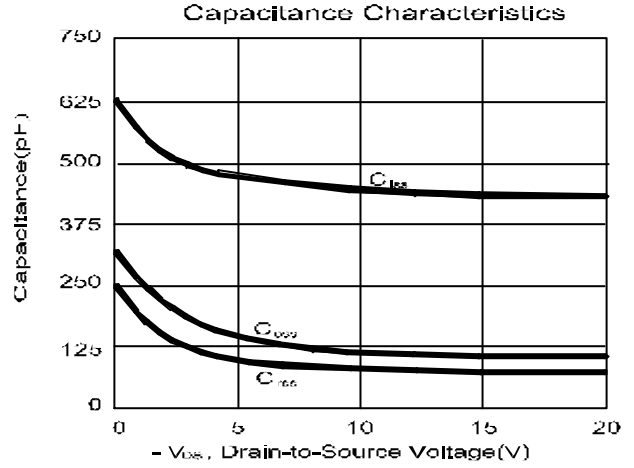
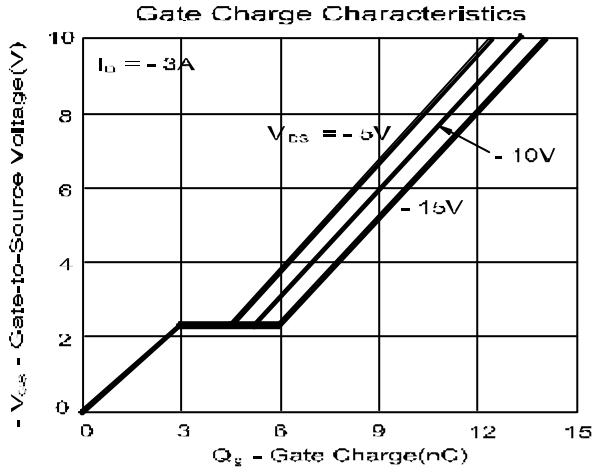


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Mode Field Effect Transistor (Preliminary)****PA102FM
SOT-23**

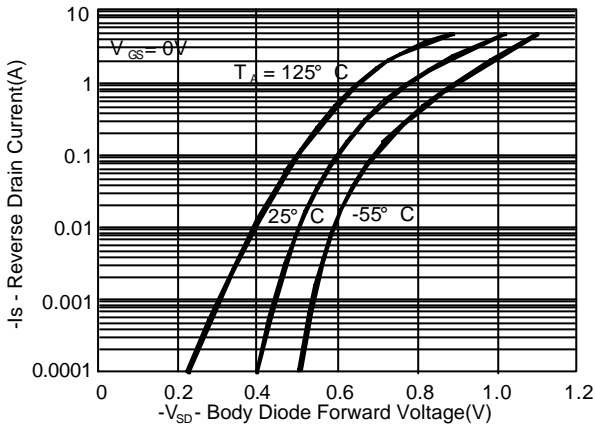
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -2A$		16		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -6V, f = 1MHz$		430		pF
Output Capacitance	C_{oss}			235		
Reverse Transfer Capacitance	C_{rss}			95		
Total Gate Charge ²	Q_g	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = -4.5V,$ $I_D = -2A$		7.6	10	nC
Gate-Source Charge ²	Q_{gs}			3.2		
Gate-Drain Charge ²	Q_{gd}			2		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = -10V$ $I_D \cong -1A, V_{GS} = -4.5V, R_G = 6$		11	22	nS
Rise Time ²	t_r			32	55	
Turn-Off Delay Time ²	$t_{d(off)}$			38	68	
Fall Time ²	t_f			32	55	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_c = 25^\circ C$)						
Continuous Current	I_S				-1.6	A
Pulsed Current ³	I_{SM}				-3	
Forward Voltage ¹	V_{SD}	$I_F = -1A, V_{GS} = 0V$			-1.2	V

¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.²Independent of operating temperature.³Pulse width limited by maximum junction temperature.**REMARK: THE PRODUCT MARKED WITH "21YWW", DATE CODE or LOT #**

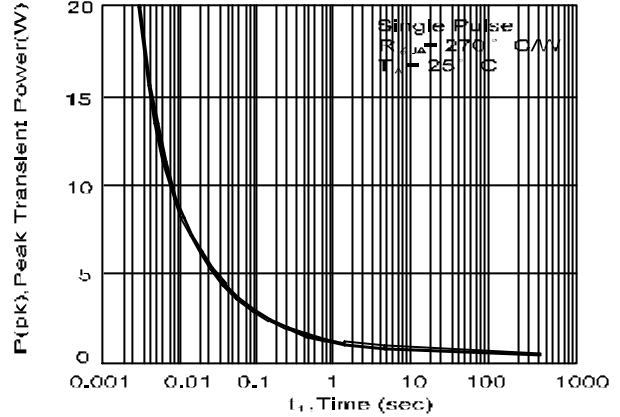




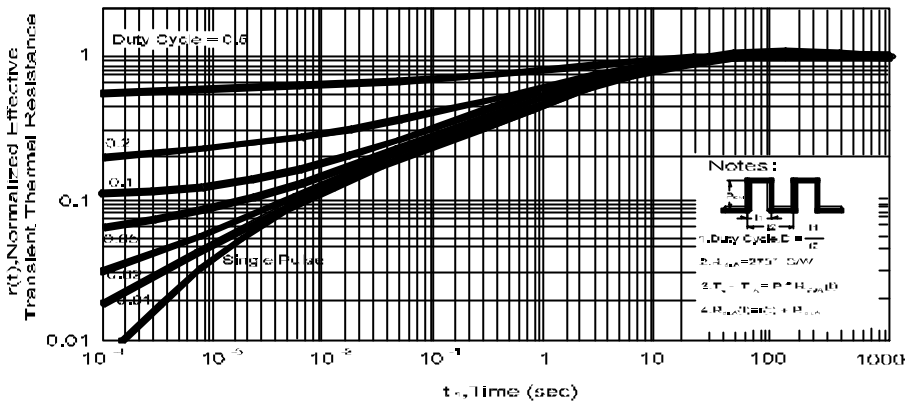
Body Diode Forward Voltage Variation with Source Current and Temperature



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



SOT-23 (M3) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.85		1.15	H	0.1	0.15	0.25
B	2.4		3	I	0.37		
C	1.4	1.6	1.8	J			
D	2.7	2.9	3.1	K			
E	1	1.1	1.3	L			
F	0		0.1	M			
G	0.35		0.5	N			

