UNIKC Semiconductor

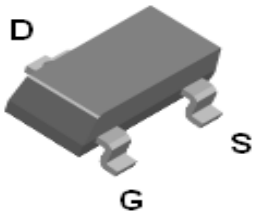
RoHS Compliant

PA102FMA

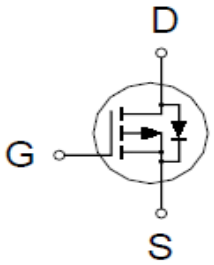
P-Channel Logic Level Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-20V	118mΩ @V_{GS} = 4.5V	-2A



SOT-23(S)



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °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	T_A = 25 °C	I_D	-2	A
	T_A= 70 °C		-1.7	
Pulsed Drain Current[1]		I_{DM}	-9	
Power Dissipation	T_A = 25 °C	P_D	0.9	W
	T_A = 70 °C		0.6	
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient[2]	$R_{\theta JA}$		130	°C / W

[1]Pulse width limited by maximum junction temperature.

[2]The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-0.3	-0.75	-1.2	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±12V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -16V, V_{GS} = 0V			-1	μA
		V_{DS} = -16V, V_{GS} = 0V, T_J = 125 °C			-10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -2.5V, I_D = -1A		124	215	mΩ
		V_{GS} = -4.5V, I_D = -2A		87	118	
		V_{GS} = -10V , I_D = -2A		68	85	
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -2A		7.5		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -10V, f = 1MHz		364		pF
Output Capacitance	C_{oss}			88		
Reverse Transfer Capacitance	C_{rss}			72		
Total Gate Charge[2]	Q_g	V_{DS} = -10V , V_{GS} = -4.5V, I_D = -2A		5		nC
Gate-Source Charge[2]	Q_{gs}			0.7		
Gate-Drain Charge[2]	Q_{gd}			2.1		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = -10V, I_D ≅ -1A, V_{GS} = -4.5V, R_G= 6Ω		24		nS
Rise Time[2]	t_r			24		
Turn-Off Delay Time[2]	$t_{d(off)}$			35		
Fall Time[2]	t_f			17		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				0.75	A
Forward Voltage[1]	V_{SD}	I_F = -2A, V_{GS} = 0V			1.2	V
Reverse Recovery Time	t_{rr}	V_{GS} = 0V, dI_S/dt = 100A / μS		11		nS
Reverse Recovery Charge	Q_{rr}			2.2		nC

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

[2]Independent of operating temperature.

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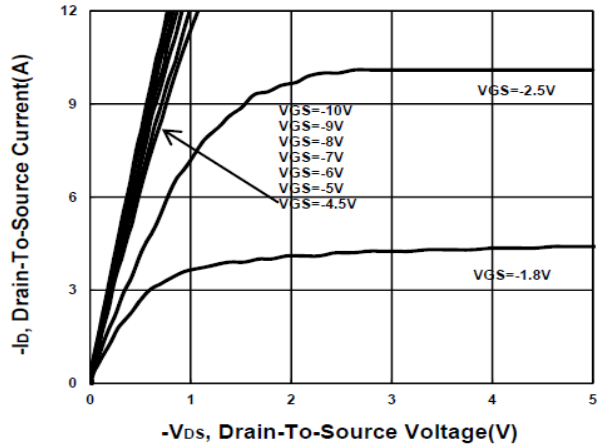
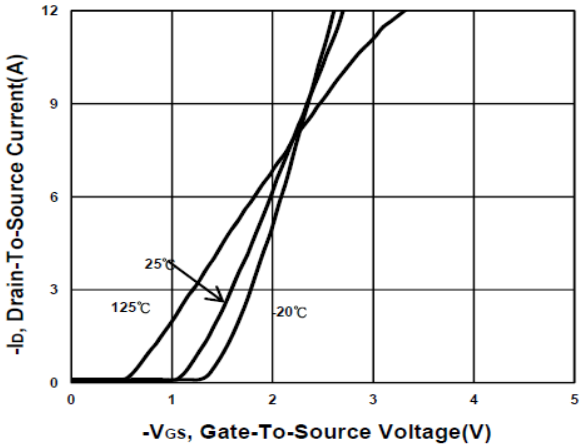
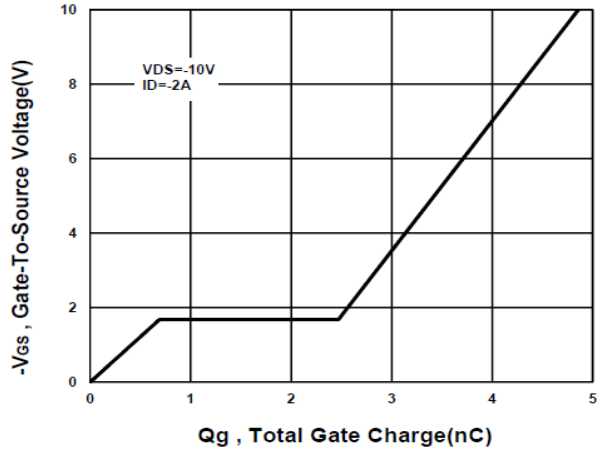
Output Characteristics



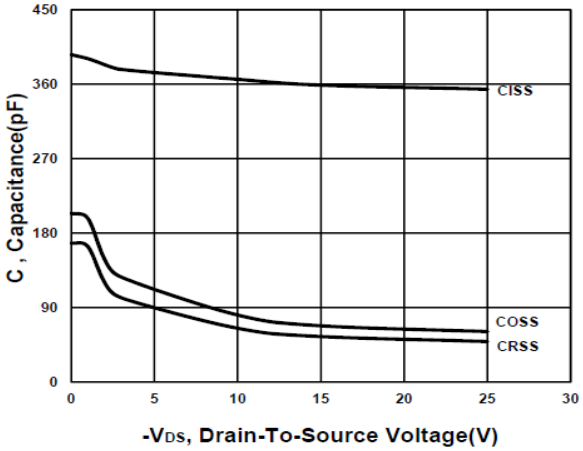
Transfer Characteristics



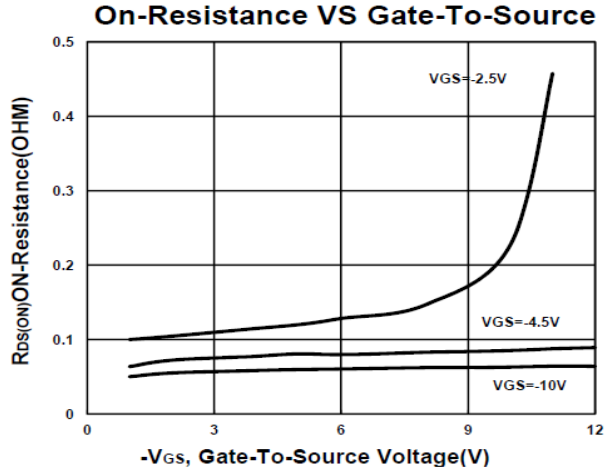
Gate charge Characteristics



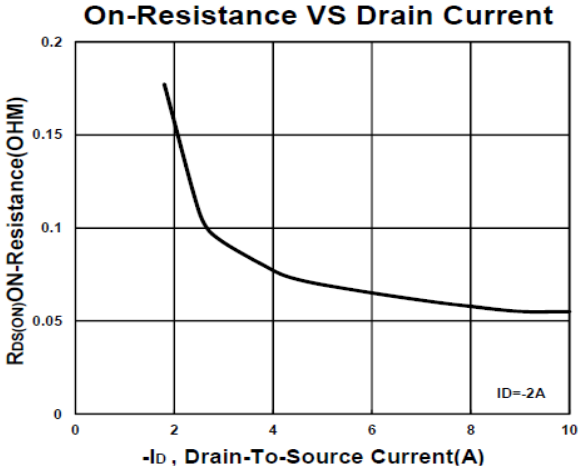
Capacitance Characteristic



On-Resistance VS Gate-To-Source



On-Resistance VS Drain Current



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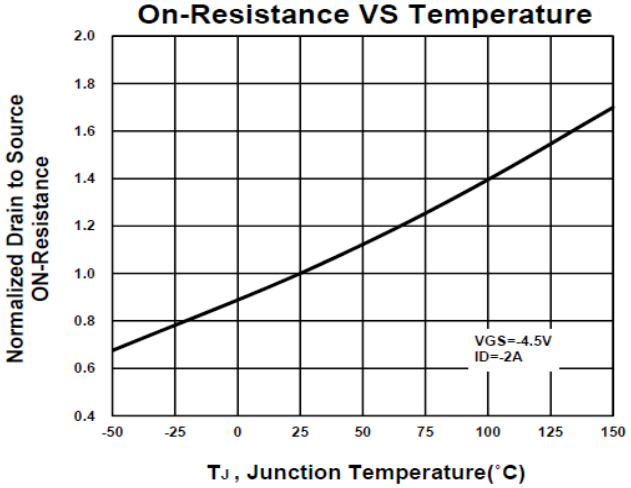
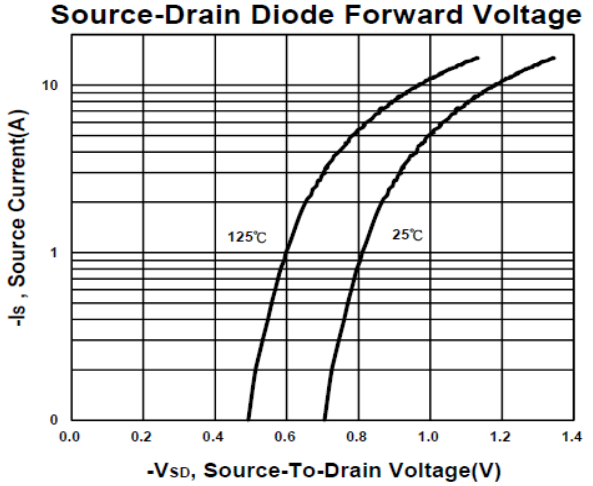
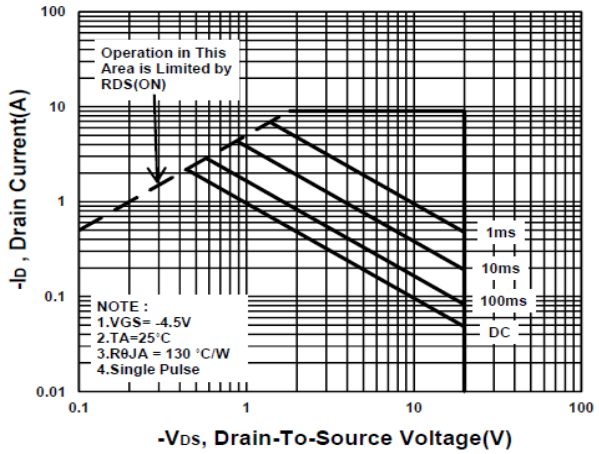
On-Resistance VS Temperature



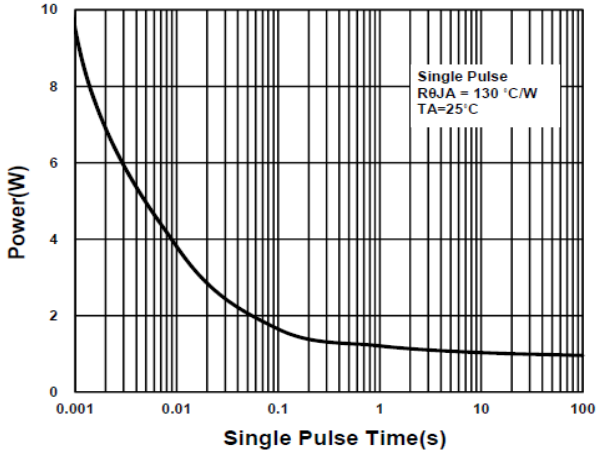
Source-Drain Diode Forward Voltage



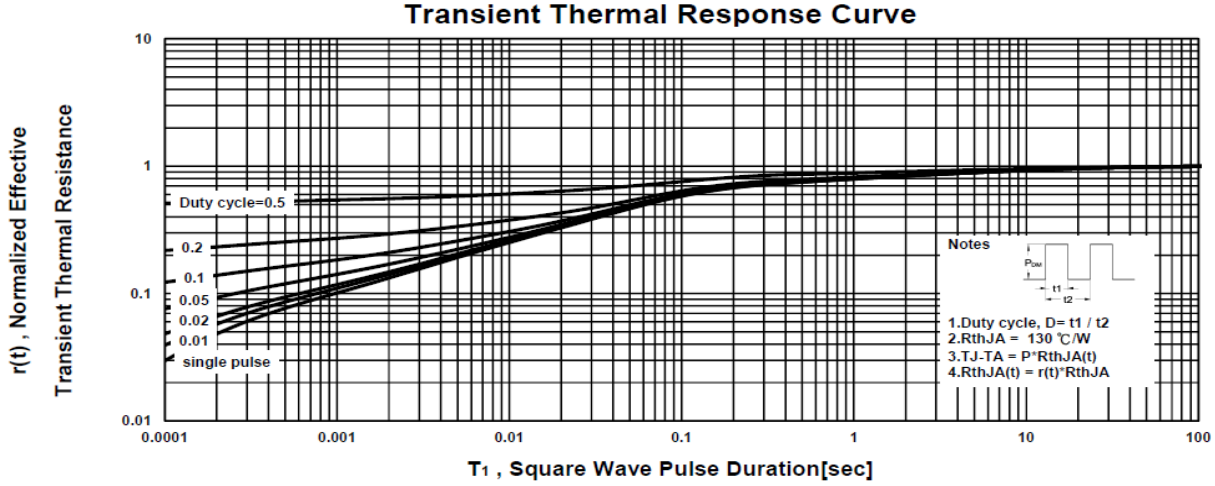
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

SOT-23 (S) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.9		1	H	0.08		0.2
B	2.25		2.85	I	0.15		0.6
C	1.2		1.4				
D	2.8		3.04				
E	0.89		1.2				
F	0		0.1				
G	0.3		0.5