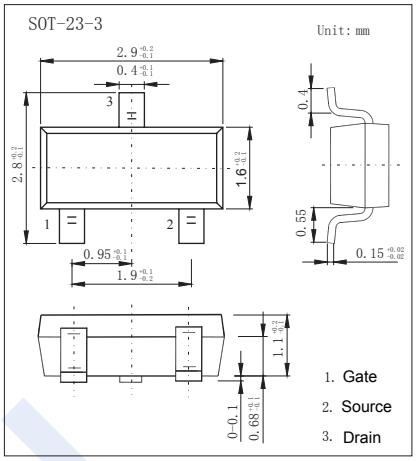
P-Channel Enhancement MOSFET

KX6P02



■ Features

- VDS (V) =-20V
- Low ON-resitance:

  $R_{DS(ON)}$ =88.4mΩ (VGS =-1.5V)

  $R_{DS(ON)}$ = 56mΩ (VGS =-1.8V)

  $R_{DS(ON)}$ =39.7mΩ (VGS =-2.5V)

  $R_{DS(ON)}$ = 29.8mΩ VGS = -4.5 V)

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±8	
Continuous Drain Current *1	I_D	-6.0	A
Pulsed Drain Current *2	I_{DM}	-24	
Power Dissipation *3	P_D	1	W
Power Dissipation t=10s		2	
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

*1 The channel temperature should not exceed 150°C during use.

*2 PW ≦ 10μs,Duty ≦ 1%

*3 Mounted on a FR4 board.

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D= -1mA, V_{GS}=0V	-20			V
	V_{DS}	I_D= -1mA, V_{GS}=5V *1	-15			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V			-1	μA
Gate-Body leakage current	I_{GSS}	V_{DS}= ± 8V, V_{GS}=0V			±1	μA
Gate Threshold Voltage	$V_{GS(off)}$	V_{DS}=-3V I_D=-1mA	-0.3		-1.0	V
Forward transfer admittance	gfs	V_{DS} = -3 V, I_D = -1.0 A *2	4.5	9.1		S
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-3.0A *2		24.9	29..8	mΩ
		V_{GS}=-2.5V, I_D=-2.5A *2		31.1	39.7	
		V_{GS}=-1.8V, I_D=-1.5A *2		38.8	56	
		V_{GS}=-1.5V, I_D=-0.5A *2		47.4	88.4	
Input Capacitance	$C_{i\ ss}$	V_{GS}=0V, V_{DS}=-10V, f=1MHz		840		pF
Output Capacitance	$C_{o\ ss}$			118		
Reverse Transfer Capacitance	C_{rss}			99		
Total Gate Charge	Q_g	V_{GS}=-4.5V, V_{DD}=-10V, I_{DS}=-4A		12.8		nC
Gate Source Charge	Q_{gs}			1.4		
Gate Drain Charge	Q_{gd}			3.0		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=0 to -2.5V, V_{DD}=-10V, I_D=-2.0A,R_{GEN}=4.7Ω		32		ns
Turn-Off DelayTime	$t_{d(off)}$			107		
Diode Forward Voltage	V_{SD}	I_D=6.0 A,V_{GS}=0V		0.87	1.2	V

*1 VDSX mode (the application of a plus voltage between gate and source) may cause decrease in maximur rating of drain-source voltage

*2 Pulse test

■ Marking

Marking	KFH

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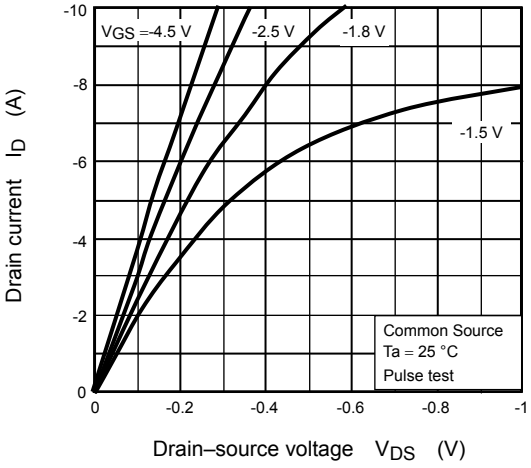
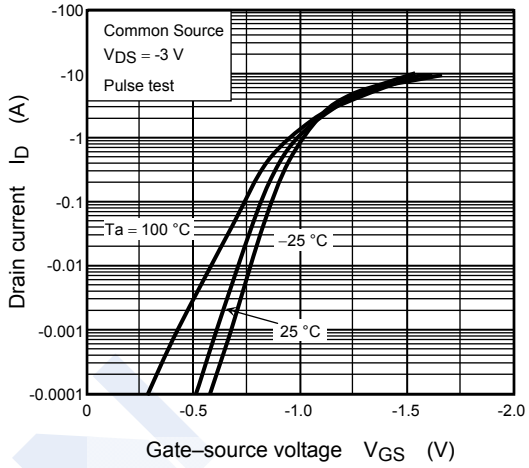
■ Typical Characterisitics

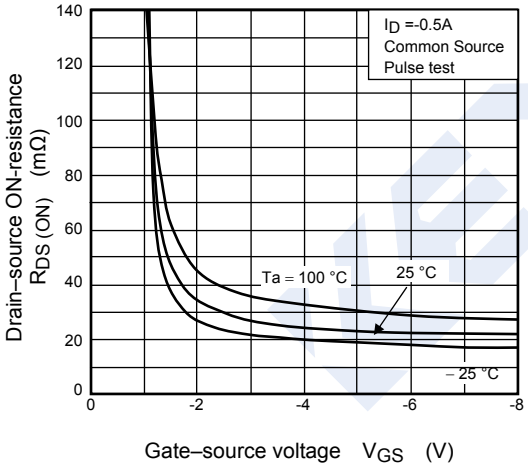
$I_D - V_{DS}$



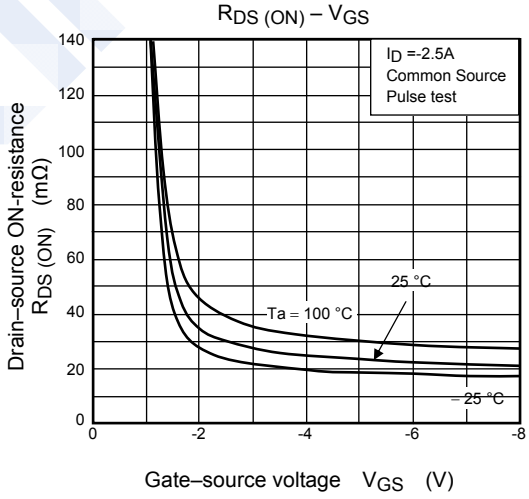
$I_D - V_{GS}$



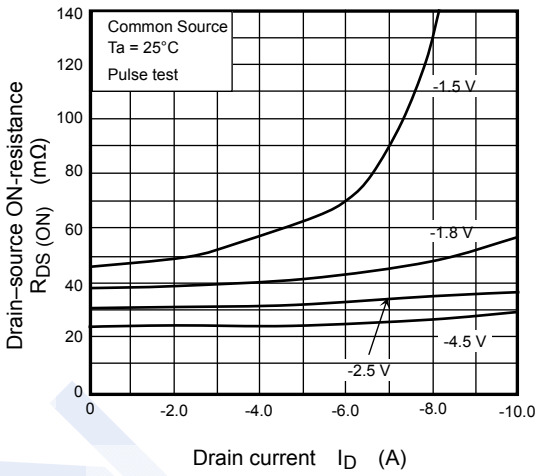
$R_{DS\ (ON)} - V_{GS}$



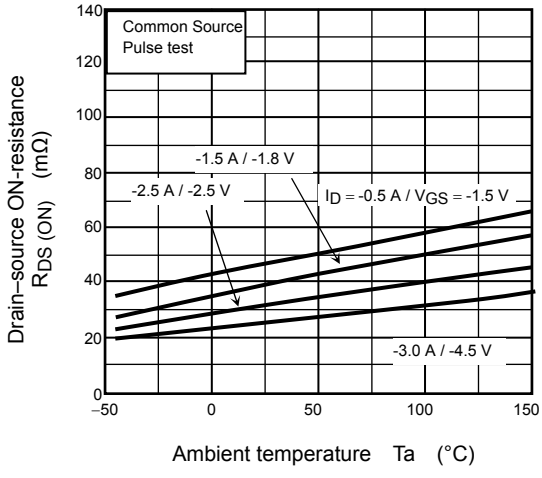
$R_{DS\ (ON)} - V_{GS}$



$R_{DS\ (ON)} - I_D$



$R_{DS\ (ON)} - Ta$



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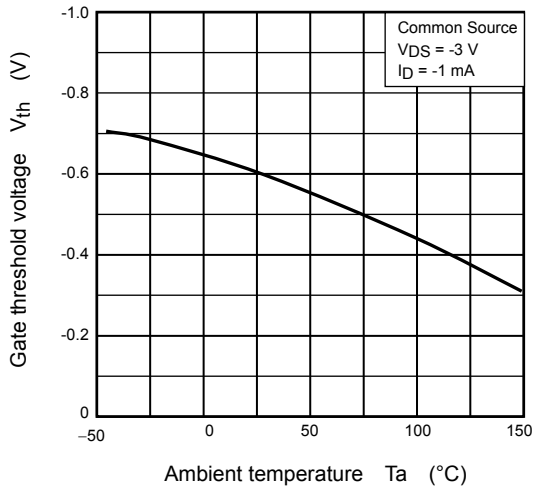
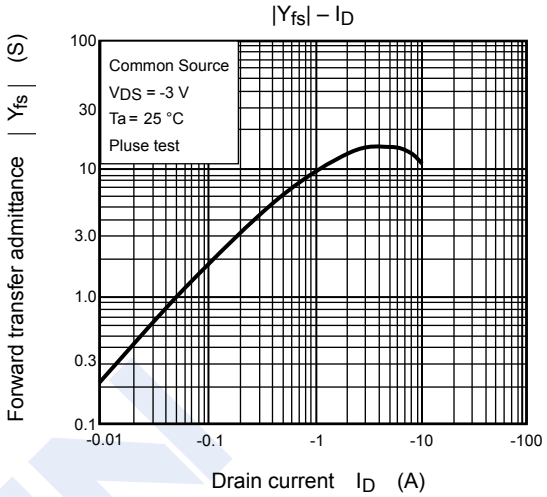
■ Typical Characterisitics

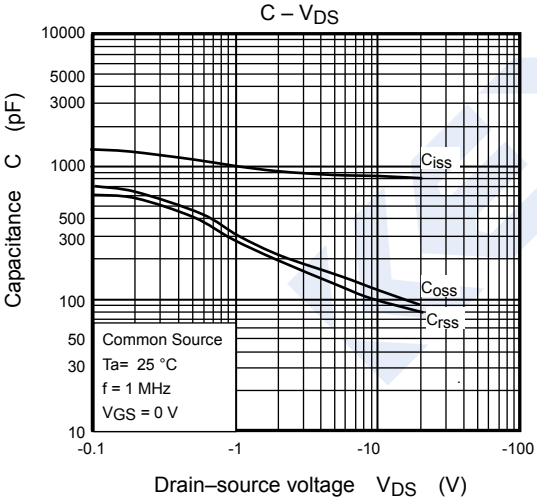
V_{th} – Ta



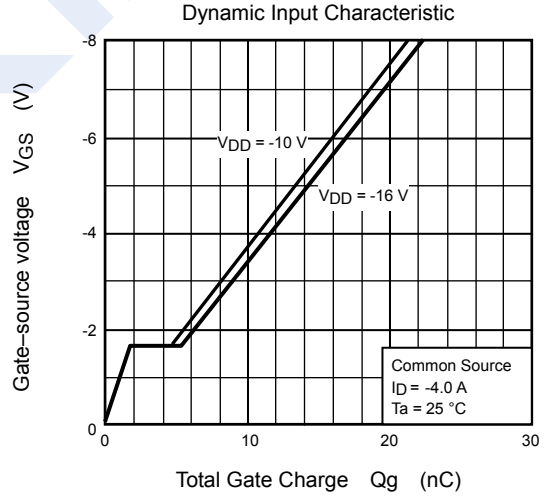
$|Y_{fs}|$ – I_D



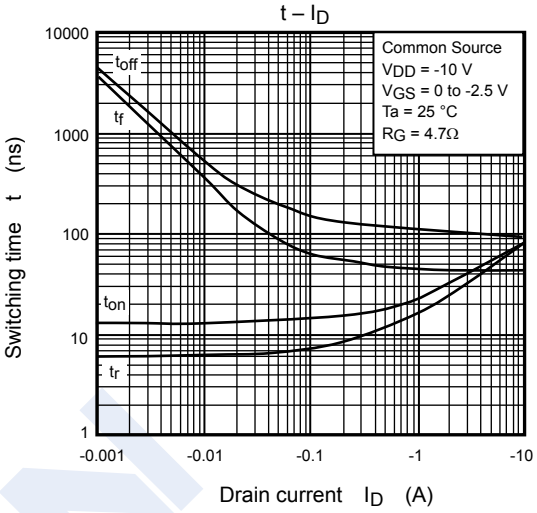
C – V_{DS}



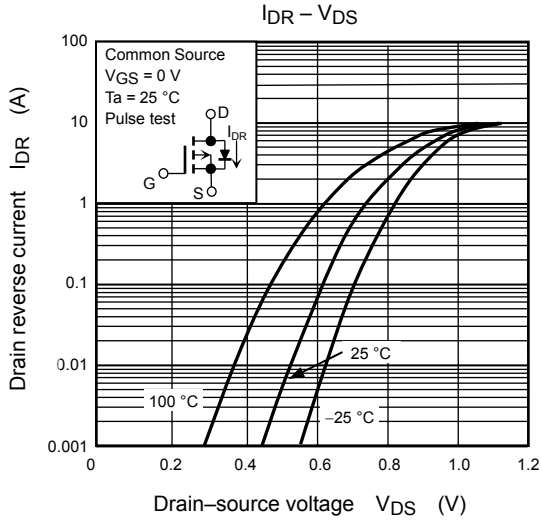
Dynamic Input Characteristic



t – I_D



I_{DR} – V_{DS}



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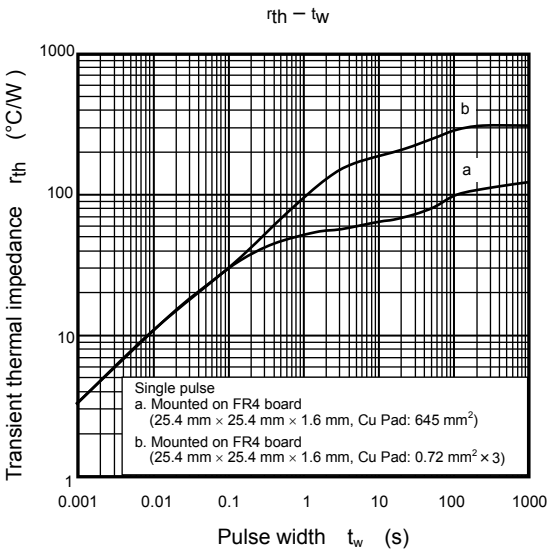
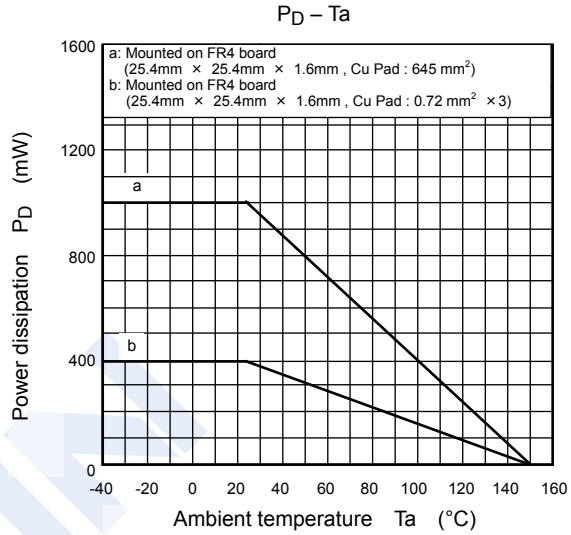
■ Typical Characterisitics

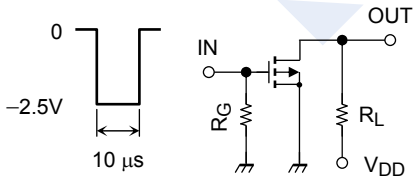




■ Typical Application

Switching Time Test Circuit

(a) Test Circuit



V_{DD} = -10 V
R_G = 4.7 Ω
Duty. ≤ 1%
V_{IN}: t_r, t_f < 5 ns
Common Source
Ta = 25°C

(b) V_{IN}

(c) V_{OUT}