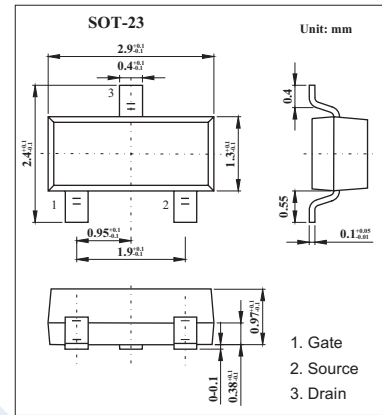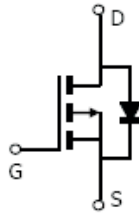# P-Channel Enhancement Mode
Field Effect Transistor
KO3409(AO3409)

Features

● V_{DS} (V) = -30V

● I_D = -2.6 A (V_{GS} = -10V)

● $R_{DS(ON)}$ < 130mΩ (V_{GS} = -10V)

● $R_{DS(ON)}$ < 200mΩ (V_{GS} = -4.5V)

SOT-23   Unit: mm

1. Gate
2. Source
3. Drain

Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	$\pm$20	V
Continuous Drain Current	T_A=25℃	I_D	-2.6	A
	T_A=70℃		-2.2	
Pulsed Drain Current		I_{DM}	-20	
Power Dissipation	T_A=25℃	P_D	1.4	W
	T_A=70℃		1	
Themal Resistance. Junction-to-Ambient		R_{thJA}	100	℃/W
Themal Resistance. Junction-to-Case		R_{thJC}	63	℃/W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	℃

KO3409(AO3409)

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V$_{DSS}$	I$_D$=250μA, V$_{GS}$=0V	-30			V
Zero Gate Voltage Drain Current	I$_{DSS}$	V$_{DS}$=-24V, V$_{GS}$=0V			-1	μA
		V$_{DS}$=-24V, V$_{GS}$=0V ,T$_J$=55℃			-5	
Gate-Body leakage current	I$_{GSS}$	V$_{DS}$=0V, V$_{GS}$=±20V			±100	nA
Gate Threshold Voltage	V$_{GS(th)}$	V$_{DS}$=V$_{GS}$ I$_D$=-250μA	-1	-1.9	-3	V
Static Drain-Source On-Resistance	r$_{DS(ON)}$	V$_{GS}$=-10V, I$_D$=-2.6A		97	130	mΩ
		V$_{GS}$=-10V, I$_D$=-2.6A T$_J$=125℃		135	150	
		V$_{GS}$=-4.5V, I$_D$=-2A		166	200	mΩ
On state drain current	I$_{D(ON)}$	V$_{GS}$=-4.5V, V$_{DS}$=-5V	-5			A
Forward Transconductance	gfs	V$_{DS}$=-5V, I$_D$=-5A	3	3.8		S
Input Capacitance	C$_{iss}$	V$_{GS}$=0V, V$_{DS}$=-15V, f=1MHz		302	370	pF
Output Capacitance	C$_{oss}$			50.3		pF
Reverse Transfer Capacitance	C$_{rss}$			37.8		pF
Gate resistance	R$_g$	V$_{GS}$=0V, V$_{DS}$=0V, f=1MHz		12	18	Ω
Total Gate Charge (10V)	Q$_g$	V$_{GS}$=-4.5V, V$_{DS}$=-15V, I$_D$=-2.6A		6.8	9	nC
Total Gate Charge (4.5V)				2.4		nC
Gate Source Charge	Q$_{gs}$			1.6		nC
Gate Drain Charge	Q$_{gd}$			0.95		nC
Turn-On DelayTime	t$_{D(on)}$	V$_{GS}$=-10V, V$_{DS}$=-15V, R$_L$=5.8Ω ,R$_{GEN}$=3Ω		7.5		ns
Turn-On Rise Time	t$_r$			3.2		ns
Turn-Off DelayTime	t$_{D(off)}$			17		ns
Turn-Off Fall Time	t$_f$			6.8		ns
Body Diode Reverse Recovery Time	t$_{rr}$	I$_F$=-2.6A, dI/dt=100A/μs		16.8	22	ns
Body Diode Reverse Recovery Charge	Q$_{rr}$	I$_F$=-2.6A, dI/dt=100A/μs		10		nC
Maximum Body-Diode Continuous Current	I$_s$				-2	A
Diode Forward Voltage	V$_{SD}$	I$_s$=-1A,V$_{GS}$=0V		-0.82	-1	V

* Repetitive rating, pulse width limited by junction temperature.