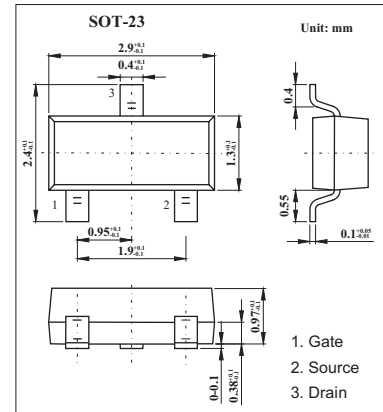
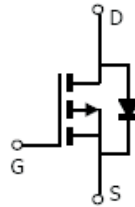


## P-Channel Enhancement Mode Field Effect Transistor KO3401

### ■ Features

- $V_{DS} (V) = -30V$
- $I_D = -4.2 A$  ( $V_{GS} = -10V$ )
- $R_{DS(ON)} < 50m\Omega$  ( $V_{GS} = -10V$ )
- $R_{DS(ON)} < 65m\Omega$  ( $V_{GS} = -4.5V$ )
- $R_{DS(ON)} < 120m\Omega$  ( $V_{GS} = -2.5V$ )



### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current *1 $T_A=25^\circ C$	$I_D$	-4.2	A
Current *1 $T_A=70^\circ C$		-3.5	
Pulsed Drain Current *2		$I_{DM}$	
Power Dissipation *1 $T_A=25^\circ C$	$P_D$	1.4	W
$T_A=70^\circ C$		1	
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^\circ C$

\*1The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz.

Copper, in a still air environment with  $T_A = 25^\circ C$

\*2 Repetitive rating, pulse width limited by junction temperature.

### ■ Thermal Characteristics

Parameter		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient*1	$t \leq 10s$	$R_{\theta JA}$	65	90	$^\circ C/W$
Maximum Junction-to-Ambient *1	Steady-State		85	125	$^\circ C/W$
Maximum Junction-to-Lead *2	Steady-State	$R_{\theta JL}$	43	60	$^\circ C/W$

\*1The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz.

Copper, in a still air environment with  $T_A = 25^\circ C$

\*2 . The  $R_{\theta JA}$  is the sum of the thermal impedance from junction to lead  $R_{\theta JL}$  and lead to ambient.

## KO3401

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	I <sub>D</sub> =250 μA, V <sub>GS</sub> =0V	-30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V			-1	μA
		V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			-5	
Gate-Body leakage current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =-250 μA	-0.7	-1	-1.3	V
On state drain current	I <sub>D(ON)</sub>	V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-5V	-25			A
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =4.2A		42	50	mΩ
		V <sub>GS</sub> =-10V, I <sub>D</sub> =4.2A T <sub>J</sub> =125°C			75	
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-4A		53	65	mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-1A		80	120	mΩ
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =-5V, I <sub>D</sub> =-5A	7	11		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-1A, V <sub>GS</sub> =0V		-0.75	-1	V
Maximum Body-Diode Continuous Current	I <sub>S</sub>				-2.2	A
Pulsed Body-Diode Current *	I <sub>SM</sub>				-30	A
Reverse Transfer Capacitance	C <sub>iss</sub>			954		pF
Gate resistance	C <sub>oss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-15V, f=1MHz		115		pF
Input Capacitance	C <sub>rss</sub>			77		pF
Output Capacitance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		6		Ω
Total Gate Charge	Q <sub>g</sub>			9.4		nC
Gate Source Charge	Q <sub>gs</sub>	V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-15V, I <sub>D</sub> =-4A		2		nC
Gate Drain Charge	Q <sub>gd</sub>			3		nC
Turn-On Rise Time	t <sub>D(on)</sub>			6.3		ns
Turn-Off DelayTime	t <sub>r</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-15V, R <sub>L</sub> =3.6 Ω, R <sub>GEN</sub> =6 Ω		3.2		ns
Turn-Off Fall Time	t <sub>D(off)</sub>			38.2		ns
Turn-On DelayTime	t <sub>f</sub>			12		ns
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =-4A, di/dt=100A/μs		20.2		ns
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>	I <sub>F</sub> =-4A, di/dt=100A/μs		11.2		nC

\* Repetitive rating, pulse width limited by junction temperature.

## ■ Marking

Marking	A1
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