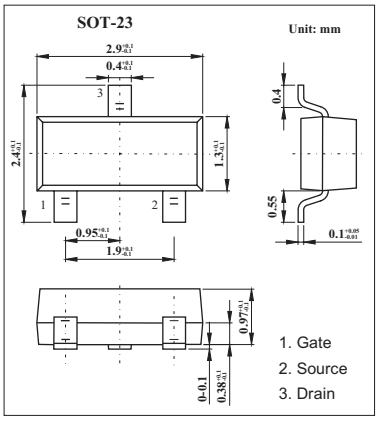
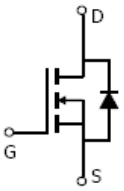
N-Channel Enhancement Mode Field Effect Transistor

KO3414(AO3414)



Features

- $V_{DS\ (V)}$ = 20V
- I_D = 4.2A (V_{GS}=4.5V)
- $R_{DS(ON)}$ < 50mΩ (V_{GS} = 4.5V)
- $R_{DS(ON)}$ < 63mΩ (V_{GS} = 2.5V)
- $R_{DS(ON)}$ < 87mΩ (V_{GS} = 1.8V)



Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current *1 T_A=25℃	I_D	4.2	A
Continuous Drain Current *1 T_A=70℃		3.2	
Pulsed Drain Current *2	I_{DM}	15	
Power Dissipation *1 T_A=25℃	P_D	1.4	W
T_A=70℃		0.9	
Themal Resistance.Junction-to-Ambient *1	R_{thJA}	125	℃/W
Themal Resistance.Junction-to-Case	R_{thJC}	80	℃/W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	℃

*1The 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℃

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=16V, V_{GS}=0V			1	μA
		V_{DS}=16V, V_{GS}=0V ,T_J=55℃			5	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±8V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	0.4	0.6	1	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=4.2A		41	50	mΩ
		V_{GS}=4.5V, I_D=4.2A T_J=125℃		58	70	
		V_{GS}=2.5V, I_D=3.7A		52	63	
		V_{GS}=1.8V, I_D=3.2A		67	87	
On state drain current	$I_{D(ON)}$	V_{GS}=4.5V, V_{DS}=5V	15			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=4.2A		11		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-10V, f=1MHz		436		pF
Output Capacitance	C_{oss}			66		pF
Reverse Transfer Capacitance	C_{rss}			44		pF
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		3		Ω
Total Gate Charge	Q_g	V_{GS}=4.5V, V_{DS}= =10V, I_D=4.2A		6.2		nC
Gate Source Charge	Q_{gs}			1.6		nC
Gate Drain Charge	Q_{gd}			0.5		nC
Turn-On DelayTime	$t_{D(on)}$	V_{GS}=4.5V, V_{DS}=10V, R_L=2.7Ω,R_{GEN}=6Ω		5.5		ns
Turn-On Rise Time	t_r			6.3		ns
Turn-Off DelayTime	$t_{D(off)}$			40		ns
Turn-Off FallTime	t_f			12.7		ns
Body Diode Reverse Recovery Time	t_{rr}	I_F=4A, dI/dt=100A/μs		12.3		ns
Body Diode Reverse Recovery Charge	Q_{rr}	I_F=4A, dI/dt=100A/μs		3.5		nC
Maximum Body-Diode Continuous Current	I_S				2	A
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V		0.76	1	V