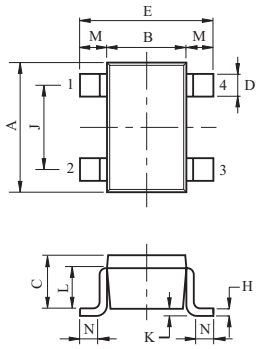
KTK921U

N CHANNEL MOS FIELD EFFECT TRANSISTOR

RF Switching for VCR/DVD/Set Top Box Tuner

FEATURES

- Low loss at on state(Typ 1dB@1GHz)
- With built-in bias diode
- Gate 3.3V operating



DIM	MILLIMETERS
A	2.00 ± 0.20
B	1.25 ± 0.15
C	0.90 ± 0.10
D	0.3+0.10/-0.05
E	2.10±0.20
H	0.15+0.1/-0.06
J	1.30
K	0.00 ~ 0.10
L	0.70
M	0.42
N	0.10 MIN

1. Diode Cathode
2. FET Gate & Diode Anode
3. FET Drain
4. FET Source

USQ

FET Maximum Ratings (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source-Voltage	V_{DS}	±3	V
Drain-Gate-Voltage	V_{DG}	7	V
Source-Gate-Voltage	V_{SG}	7	V
Drain Current	I_D	10	mA

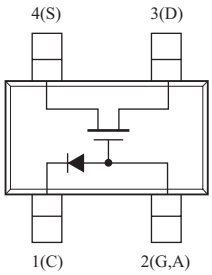
DIODE Maximum Ratings (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Reverse Voltage	V_R	35	V
Forword Current	I_F	100	mA

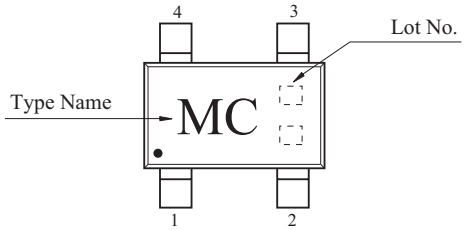
FET DIODE Maximum Ratings (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Dissipation	P_C	200	mW
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	-55~150	℃

EQUIVALENT CIRCUIT



Marking



FET ELECTRICAL CHARACTERISTICS (Ta=25℃)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	V_{DS}=0, I_{GS}=-0.1mA	-7	-	-	V
Gate-Source Pinch-off Voltage	$V_{GS(OFF)}$	V_{DS}=1V, I_D=20㎂	-	-1.9	-2.5	V
Drain-Source Leakage Current	I_{DSX}	V_{DS}=2V, V_{GS}=-3.3V	-	-	10	㎂
Gate Cut-off Current	I_{GSS}	V_{DS}=0, V_{GS}=-3.3V	-	-	-100	nA
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=0, I_D=1mA	-	20	25	Ω
Loss(On-State) Note1	$\|S_{21(ON)}\|^2$	V_{SC}=V_{DC}=0, R_S=R_L=50 Ω, I_F=0, f≤1GHz	-	-	-2.5	dB
		V_{SC}=V_{DC}=0, R_S=R_L=50 Ω, I_F=0, f=1GHz	-	-1.3	-	dB
		V_{SC}=V_{DC}=0, R_S=R_L=75 Ω, I_F=0, f≤1GHz	-	-	-3.5	dB
Isolation (Off-State) Note1	$\|S_{21(OFF)}\|^2$	V_{SC}=V_{DC}=3.3V, R_S=R_L=50 Ω, I_F=1mA, f≤1GHz	-30	-	-	dB
		V_{SC}=V_{DC}=3.3V, R_S=R_L=50 Ω, I_F=1mA, f= 1GHz	-	-38	-	dB
		V_{SC}=V_{DC}=3.3V, R_S=R_L=75 Ω, I_F=1mA, f≤1GHz	-30	-	-	dB
Input Capacitance Note2	C_{ic}	V_{SC}=V_{DC}=5V, I_F=1mA, f=1MHz	-	1	-	pF
		V_{SC}=V_{DC}=0, I_F=0, f=1MHz	-	0.65	-	pF
Output Capacitance Note2	C_{oc}	V_{SC}=V_{DC}=5V, I_F=1mA, f=1MHz	-	1	-	pF
		V_{SC}=V_{DC}=0, I_F=0, f=1MHz	-	0.65	-	pF

Note : 1 I_F=Diode Forward Current

2 C_{ic} is the series connection of C_{sg} and Cgc; C_{oc} is the series connection of C_{dg} and Cgc;

DIODE ELECTRICAL CHARACTERISTICS (Ta=25℃)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Forward Voltage	V_F	I_F=2mA	-	-	0.85	V
Reverse Current	I_R	V_R=15V	-	-	0.1	㎂
Reverse Voltage	V_R	I_R=1㎂	35	-	-	V
Total Capacitance	C_T	V_R=6V, f=1MHz	-	0.7	1.2	pF
Series Resistance	r_S	I_F=2mA, f=100MHz	-	0.5	0.9	Ω

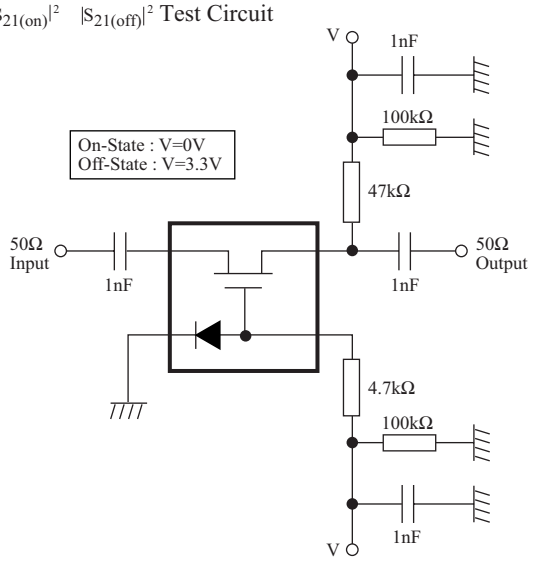



Fig. $|S_{21(on)}|^2$ $|S_{21(off)}|^2$ Test Circuit