

## DESCRIPTION

RT3U33M is a composite transistor built with INK0003AX and INJ0003AX chips in SC-88 package.

## FEATURE

- Input impedance is high, and not necessary to consider a drive electric current.
- $V_{th}$  is low, and drive by low voltage is possible.  $V_{th}=0.6\sim 1.2V$
- Low on Resistance.  $R_{on}=0.9 / 2\Omega (Tr1/Tr2)$  TYP
- High speed switching.
- Small package for easy mounting.

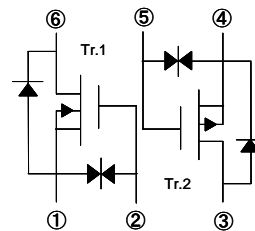
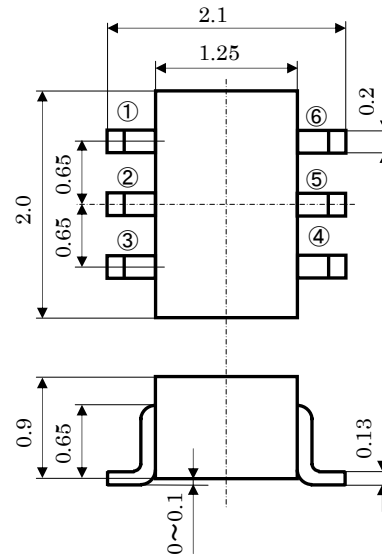
## APPLICATION

high speed switching , Analog switching

\*P-channel MOSFET Tr2's minus sign is omitted

## OUTLINE DRAWING

Unit:mm



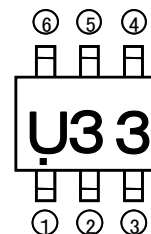
TERMINAL CONNECTOR  
①:SOURCE1  
②:GATE1  
③:DRAIN2  
④:SOURCE2  
⑤:GATE2  
⑥:DRAIN1

JEITA:SC-88

## MAXIMUM RATING ( $T_a=25^\circ C$ )

SYMBOL	PARAMETER	RATING	UNIT
$V_{DSS}$	Drain-source voltage	20	V
$V_{GSS}$	Gate-source voltage	$\pm 8$	V
$I_D$	Drain current	200	mA
$P_D$	Total power dissipation ( $T_a=25^\circ C$ )	150	mW
$T_{ch}$	Channel temperature	+125	$^\circ C$
$T_{stg}$	Range of Storage temperature	-55~+125	$^\circ C$

## MARKING

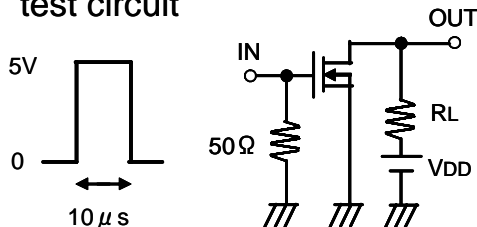


## ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit	
			Min	Typ	Max		
$V_{(BR)DSS}$	Drain-source breakdown voltage	$I_D=100\mu A, V_{GS}=0V$	20	-	-	V	
$I_{GSS}$	Gate-source leak current	$V_{GS}=\pm 5V, V_{DS}=0V$	-	-	$\pm 0.5$	$\mu A$	
$I_{DSS}$	Zero gate voltage drain current	$V_{DS}=20V, V_{GS}=0V$	-	-	50	$\mu A$	
$V_{th}$	Gate threshold voltage	$I_D=250\mu A, V_{DS}=V_{GS}$	0.6	-	1.2	V	
$ Y_{fs} $	Forward transfer admittance	$V_{DS}=10V, I_D=0.1A$	Tr1	-	300	-	mS
			Tr2	-	280	-	
$R_{DS(ON)}$	Static drain-source on-state resistance	$I_D=100mA, V_{GS}=4.0V$	Tr1	-	0.9	-	$\Omega$
			Tr2	-	2.0	-	
$C_{iss}$	Input capacitance	$V_{DS}=10V, V_{GS}=0V, f=1MHz$	Tr1	-	34	-	pF
			Tr2	-	37	-	
$C_{oss}$	Output capacitance	$V_{DS}=10V, V_{GS}=0V, f=1MHz$	Tr1	-	8.5	-	pF
			Tr2	-	12	-	
$t_{ON}$	Switching time	$V_{DD}=5V, I_D=10mA$ $V_{GS}=0\sim 5V$	Tr1	-	14	-	ns
$t_{OFF}$			Tr2	-	16	-	
			Tr1	-	85	-	
			Tr2	-	110	-	

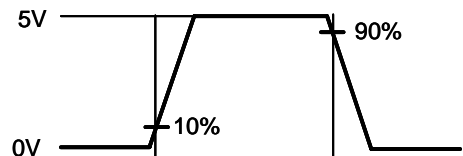
### Switching time test condition ( Tr.1 )

#### test circuit

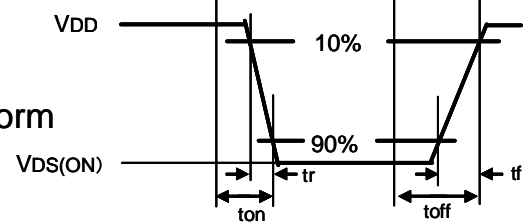


$V_{DD}=5V$   
D.U.  $\leq 1\%$   
Common source  
 $T_a=25^\circ C$

#### input waveform

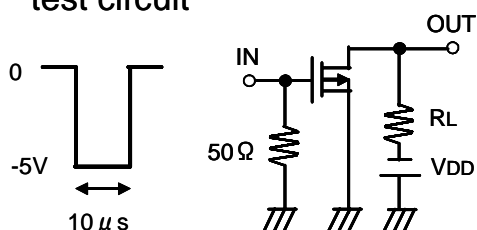


#### output waveform



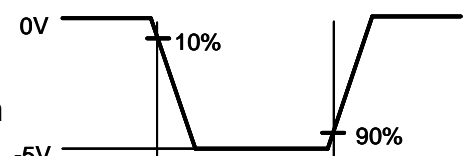
### Switching time test condition ( Tr.2 )

#### test circuit

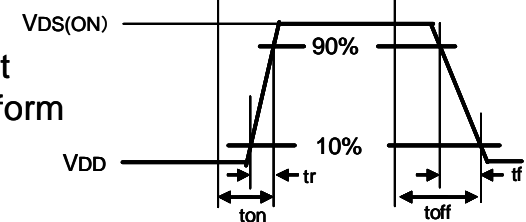


$V_{DD}=-5V$   
D.U.  $\leq 1\%$   
Common source  
 $T_a=25^\circ C$

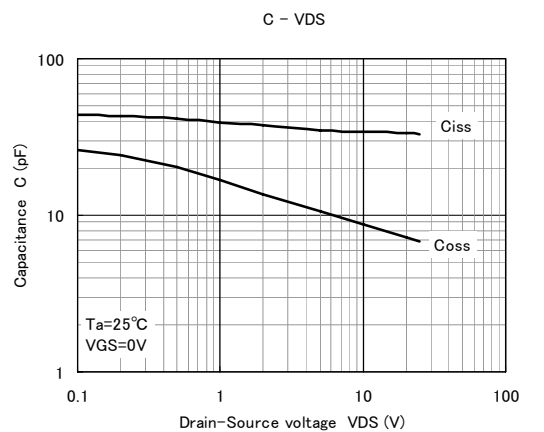
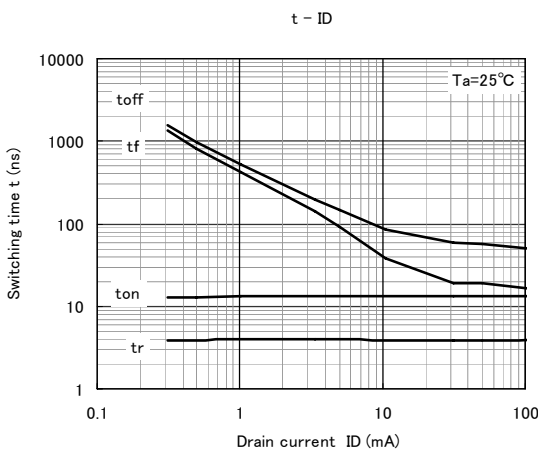
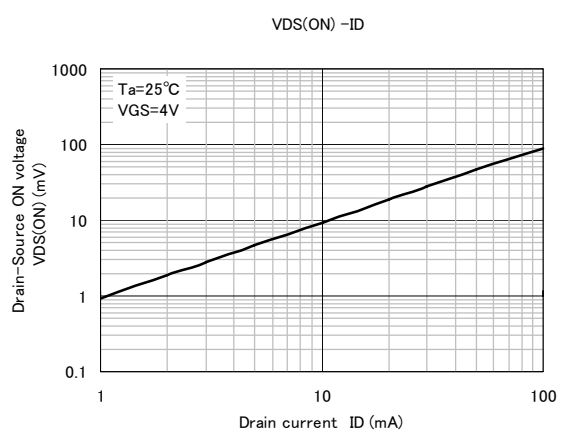
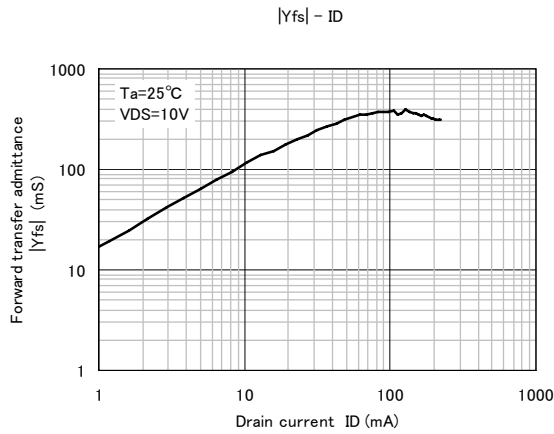
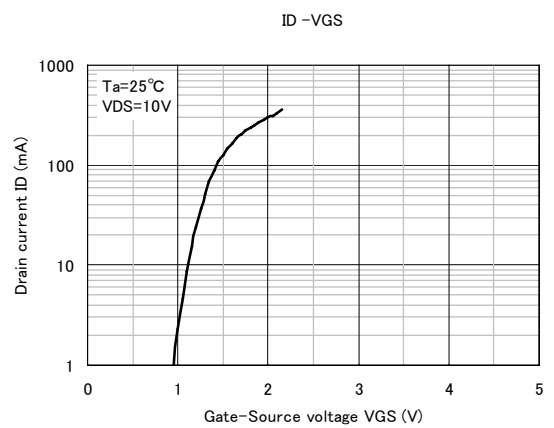
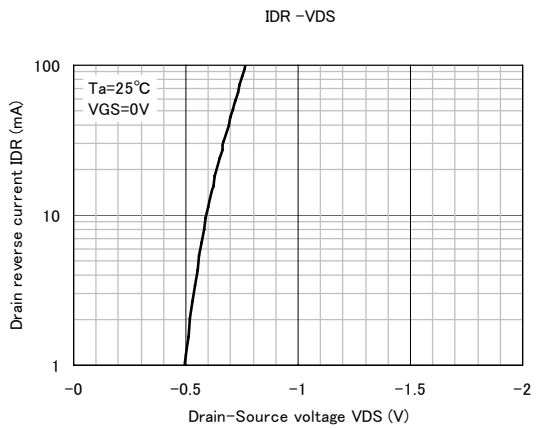
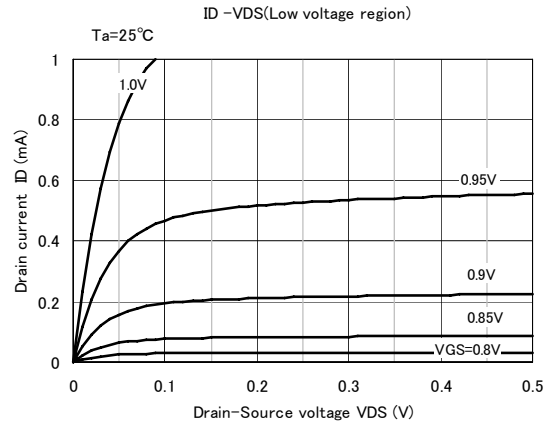
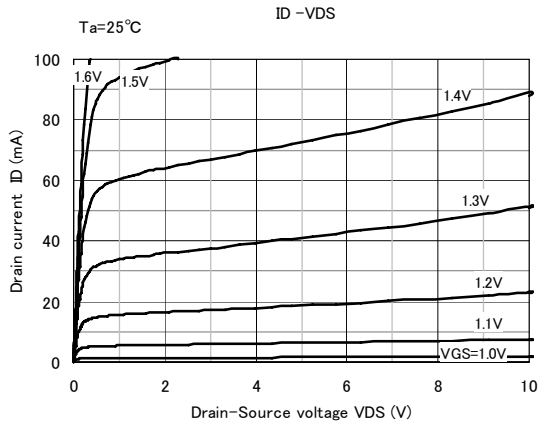
#### input waveform



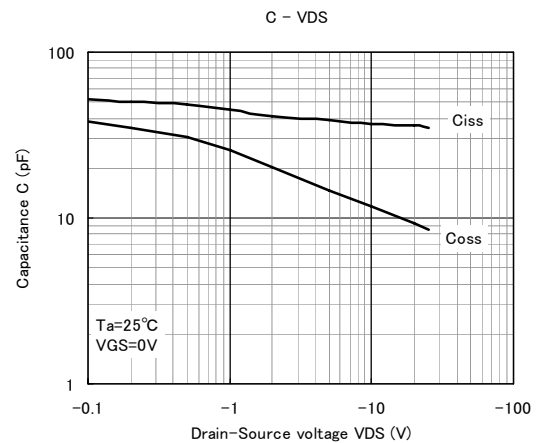
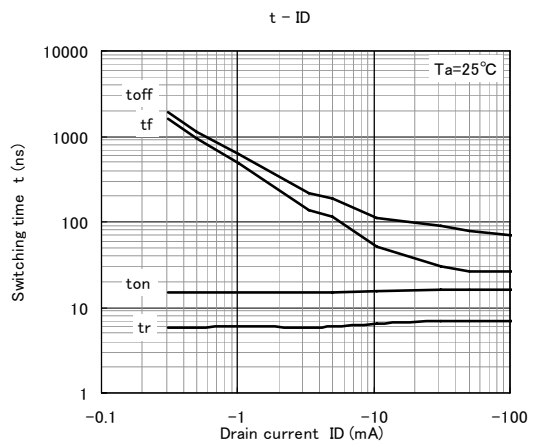
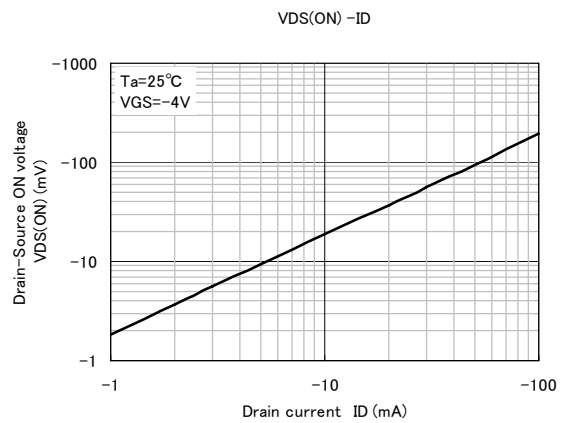
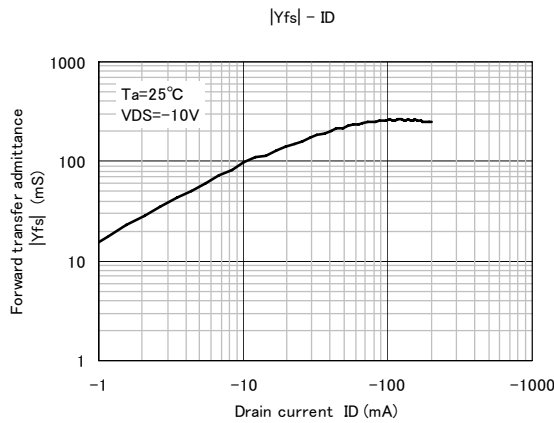
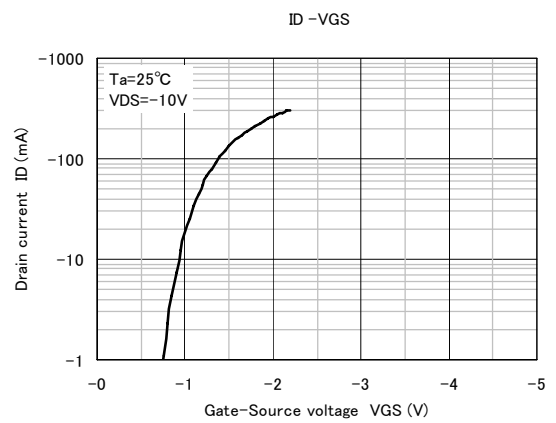
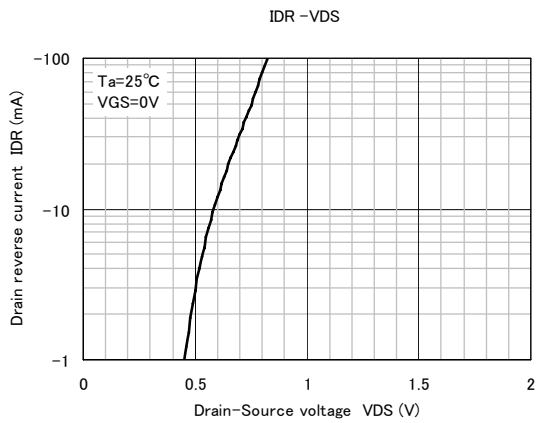
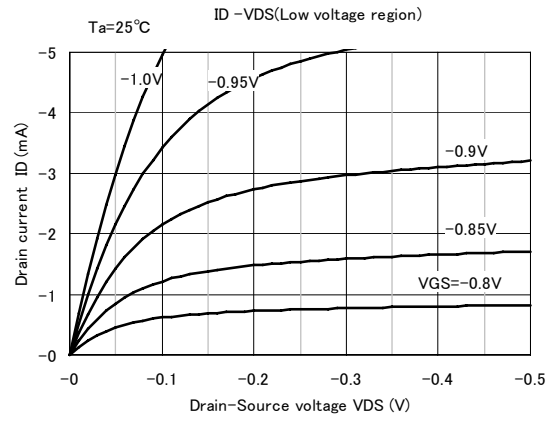
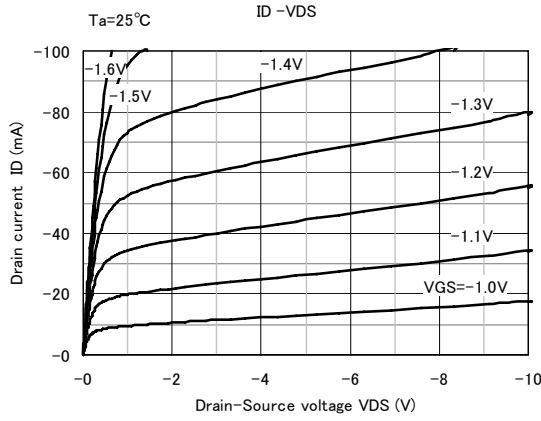
#### output waveform



# TYPICAL CHARACTERISTICS ( Tr.1 )



# TYPICAL CHARACTERISTICS ( Tr.2 )





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