RT3U33M

Composite Transistor
For high speed switching
Silicon N-channel+P-channel MOSFET

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.
・Drive voltage 2.5V
・Low on Resistance. R_{ON}=0.9 / 2Ω(Tr1/Tr2) (TYP)
・High speed switching.
・Small package for easy mounting.

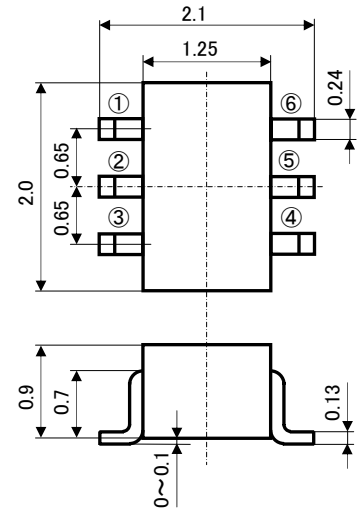
APPLICATION

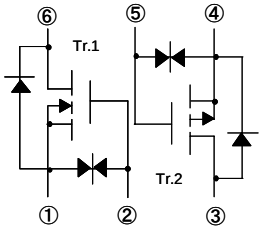
High speed switching , Analog switching

*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

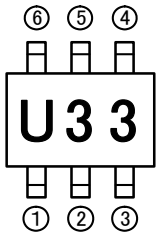
JEITA:SC-88

MAXIMUM RATING (Ta=25℃) (Tr1,Tr2 Common)

SYMBOL	PARAMETER	RATING	UNIT
V_{DSS}	Drain-source voltage	20	V
V_{GSS}	Gate-source voltage	±8	V
I_D	Drain current(DC)	200	mA
I_{DP}	Drain current(Pulse)	400(※1)	mA
P_D	Total power dissipation	150	mW
T_{ch}	Channel temperature	+150	℃
T_{stg}	Range of Storage temperature	-55～+150	℃

※1:Pw≦10μs, Duty cycle≦1%

MARKING



Tr1 ELECTRICAL CHARACTERISTICS (Ta=25℃)

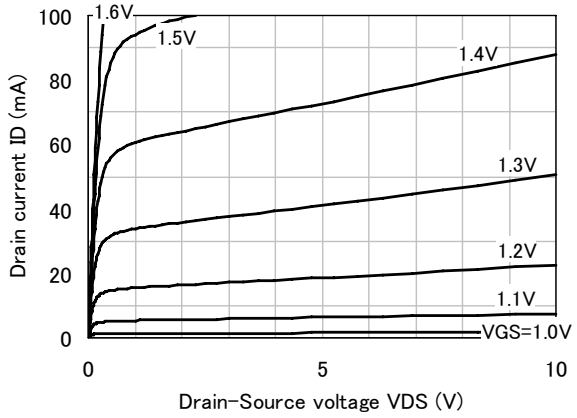
SYMBOL	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$V_{(BR)DSS}$	Drain-source breakdown voltage	I_D=100μA, V_{GS}=0V	20	–	–	V
I_{GSS}	Gate-source leak current	V_{GS}=±5V, V_{DS}=0V	–	–	±0.5	μA
I_{DSS}	Zero gate voltage drain current	V_{DS}=20V, V_{GS}=0V	–	–	1.0	μA
V_{th}	Gate threshold voltage	I_D=250μA, V_{DS}=V_{GS}	0.6	–	1.2	V
$\lvert Y_{fs} \rvert$	Forward transfer admittance	V_{DS}=10V, I_D=0.1A	–	300	–	mS
$R_{DS(ON)}$	Static drain-source on-state resistance	I_D=100mA, V_{GS}=4.0V	–	0.9	–	Ω
C_{iss}	Input capacitance	V_{DS}=10V, V_{GS}=0V, f=1MHz	–	34	–	pF
C_{oss}	Output capacitance		–	8.5	–	
t_{on}	Switching time	V_{DD}=5V, I_D=10mA V_{GS}=0～5V	–	14	–	ns
t_{off}			–	85	–	

Tr2 ELECTRICAL CHARACTERISTICS (Ta=25℃)

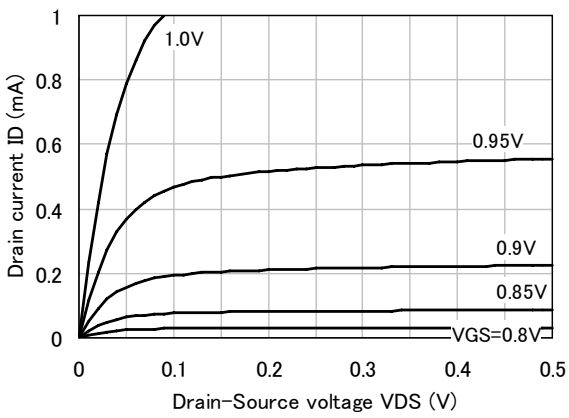
SYMBOL	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$V_{(BR)DSS}$	Drain-source breakdown voltage	I_D=−100μA, V_{GS}=0V	−20	–	–	V
I_{GSS}	Gate-source leak current	V_{GS}=±5V, V_{DS}=0V	–	–	±0.5	μA
I_{DSS}	Zero gate voltage drain current	V_{DS}=−20V, V_{GS}=0V	–	–	−1.0	μA
V_{th}	Gate threshold voltage	I_D=−250μA, V_{DS}=V_{GS}	−0.6	–	−1.2	V
$\lvert Y_{fs} \rvert$	Forward transfer admittance	V_{DS}=−10V, I_D=−0.1A	–	280	–	mS
$R_{DS(ON)}$	Static drain-source on-state resistance	I_D=−100mA, V_{GS}=−4.0V	–	2.0	–	Ω
C_{iss}	Input capacitance	V_{DS}=−10V, V_{GS}=0V, f=1MHz	–	37	–	pF
C_{oss}	Output capacitance		–	12	–	
t_{on}	Switching time	V_{DD}=−5V, I_D=−10mA V_{GS}=0～−5V	–	16	–	ns
t_{off}			–	110	–	

Tr1 TYPICAL CHARACTERISTICS

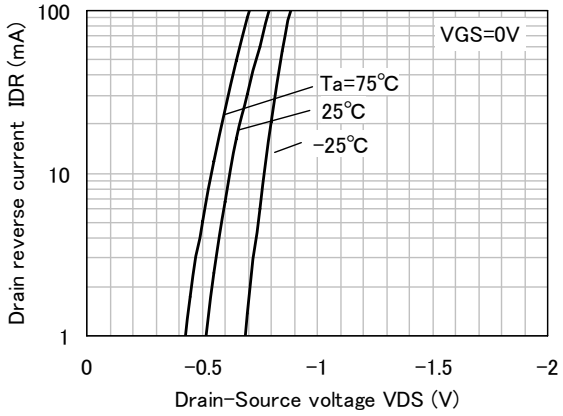
Ta=25°C ID – VDS



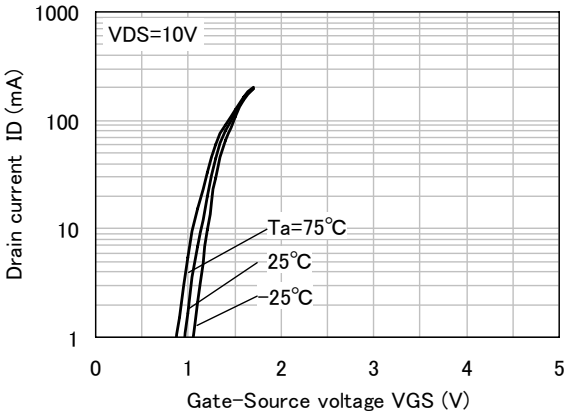
Ta=25°C ID – VDS(Low voltage region)



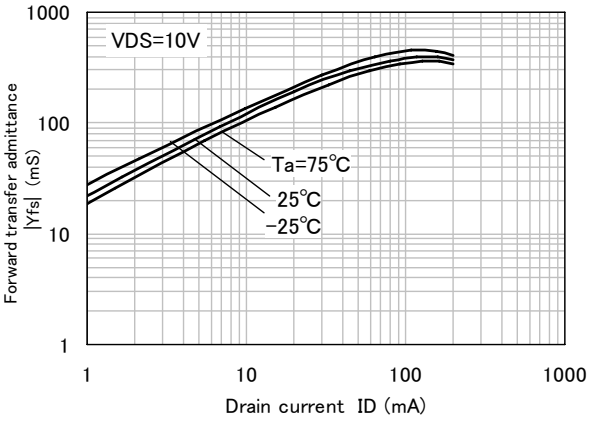
IDR – VDS



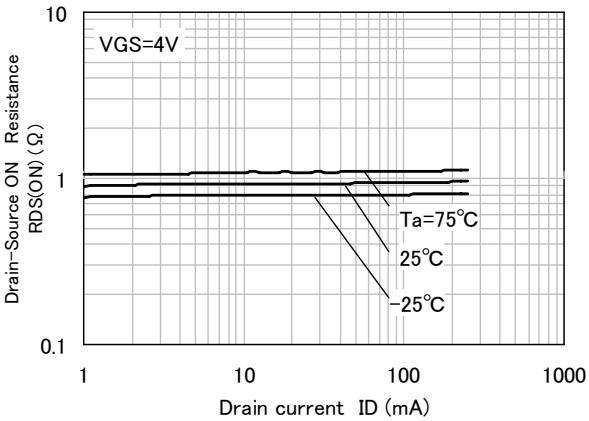
ID – VGS



|Yfs| – ID

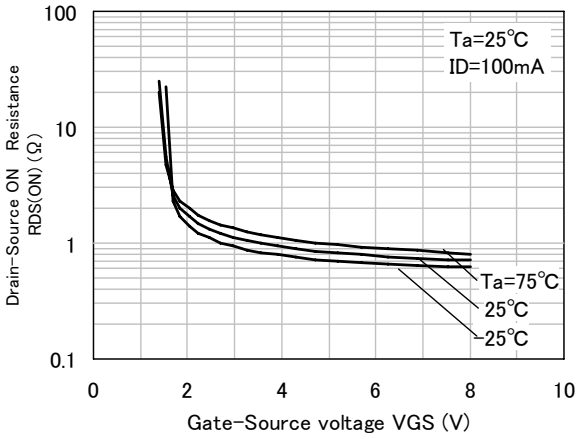


RDS(ON) – ID

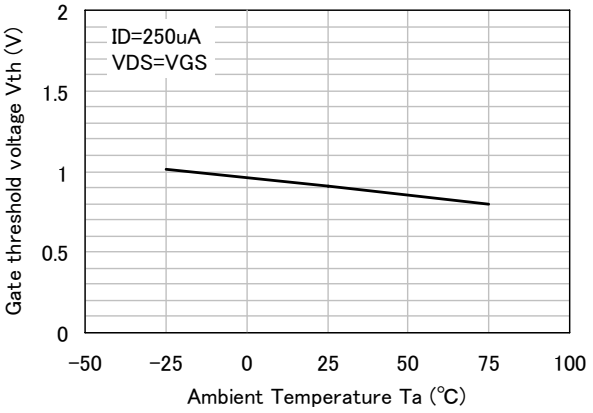


Tr1 TYPICAL CHARACTERISTICS

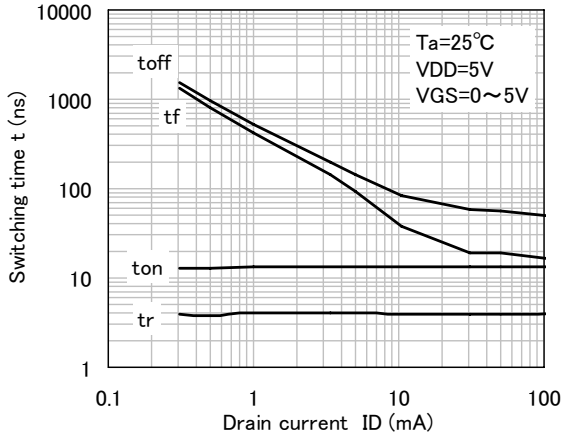
RDS(ON) - VGS



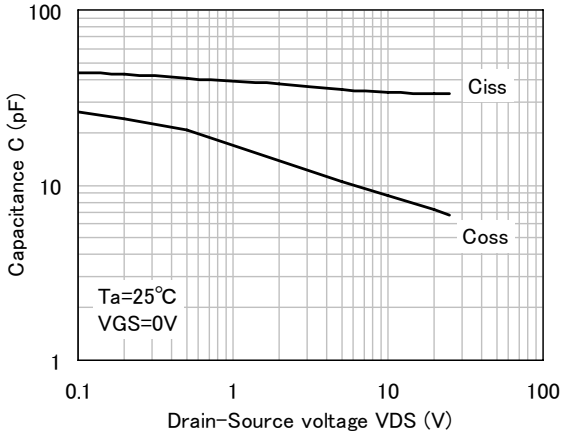
Vth - Ta



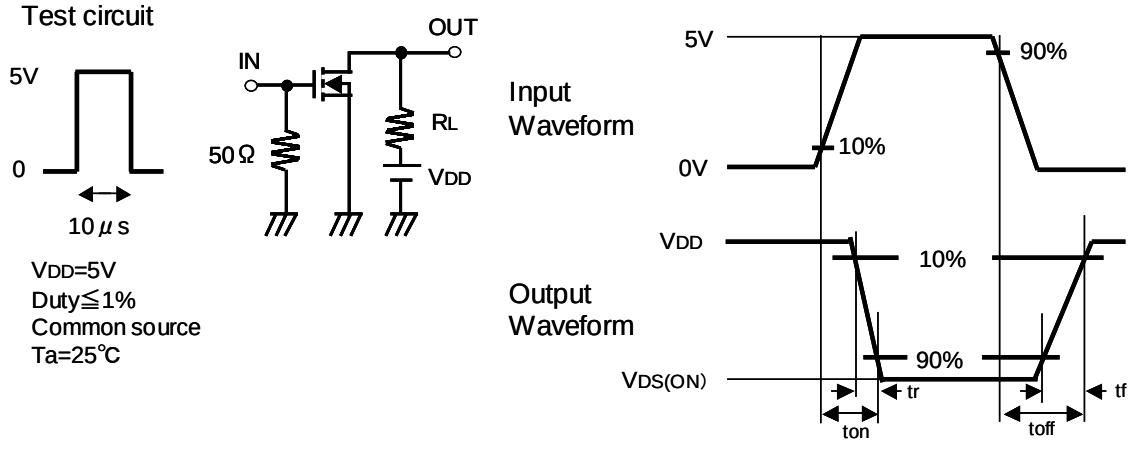
t - ID



C - VDS

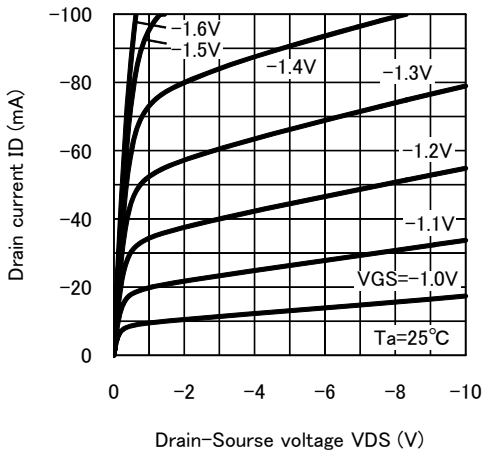


Tr1 Switching time test condition

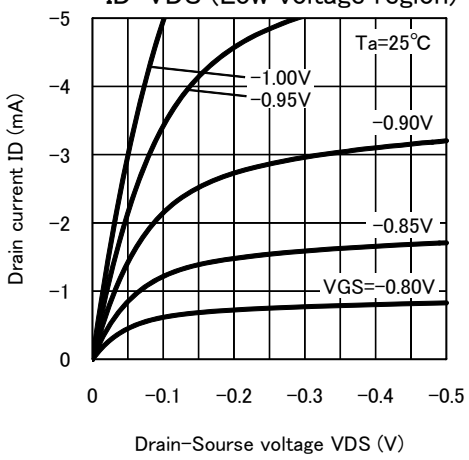


Tr2 TYPICAL CHARACTERISTICS

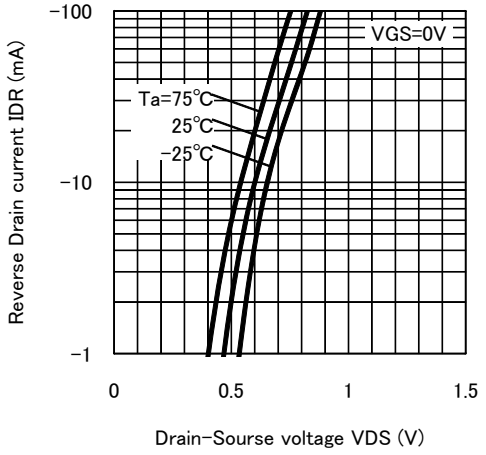
ID-VDS



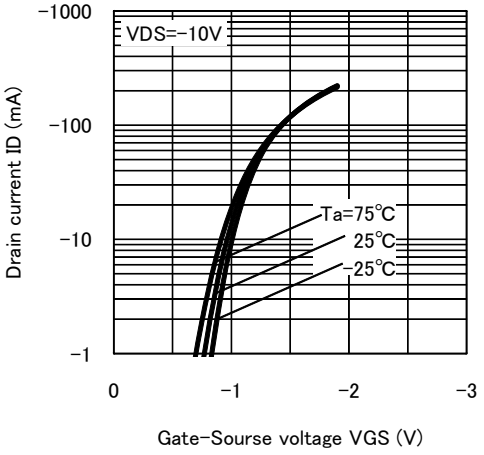
ID-VDS (Low voltage region)



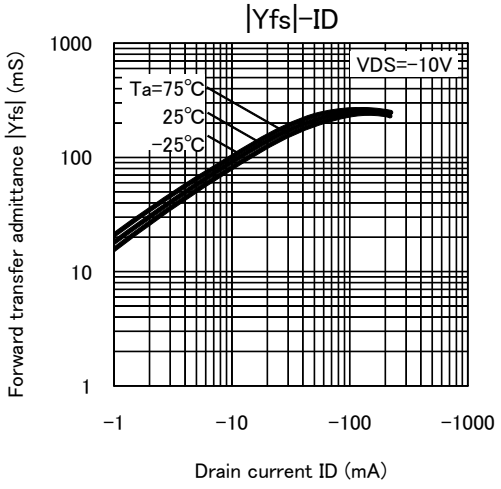
IDR-VDS



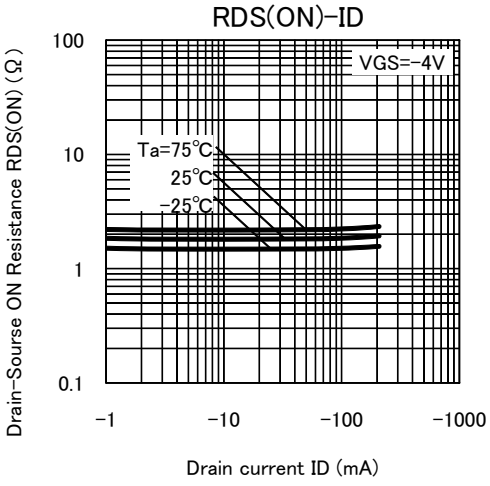
ID-VGS



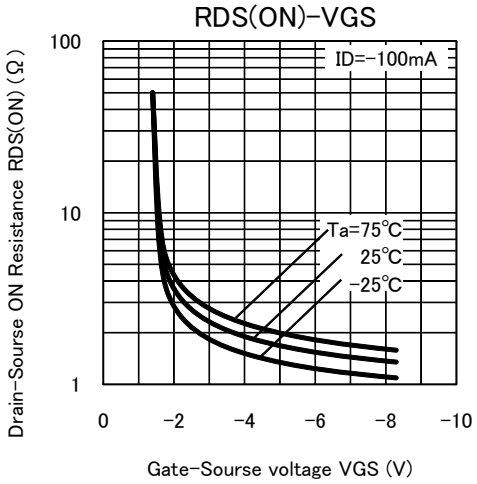
|Yfs|-ID

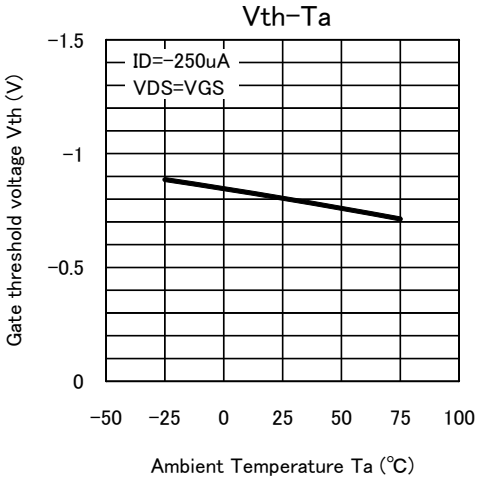


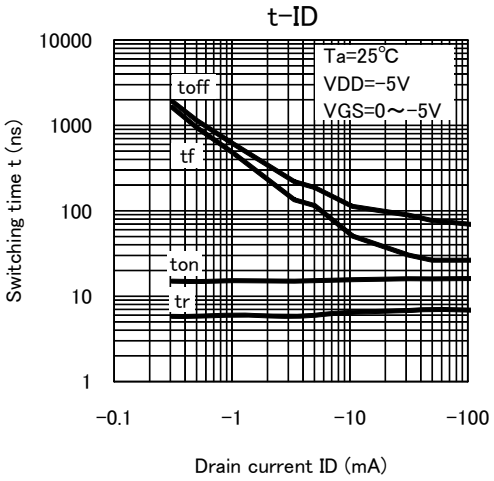
RDS(ON)-ID

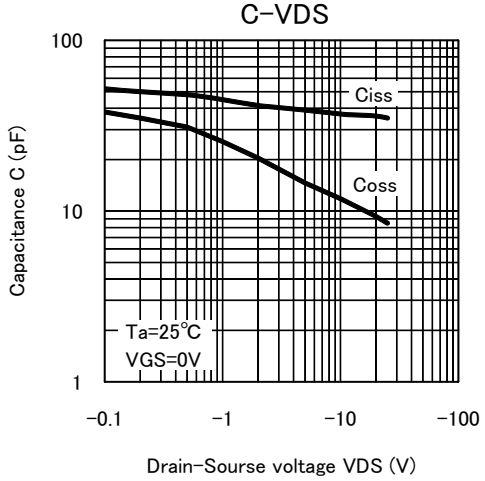


Tr2 TYPICAL CHARACTERISTICS

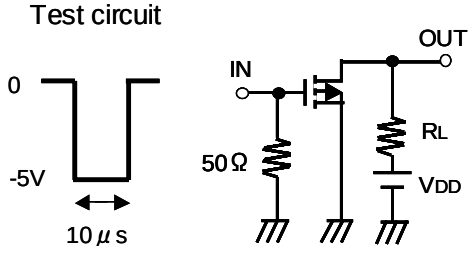




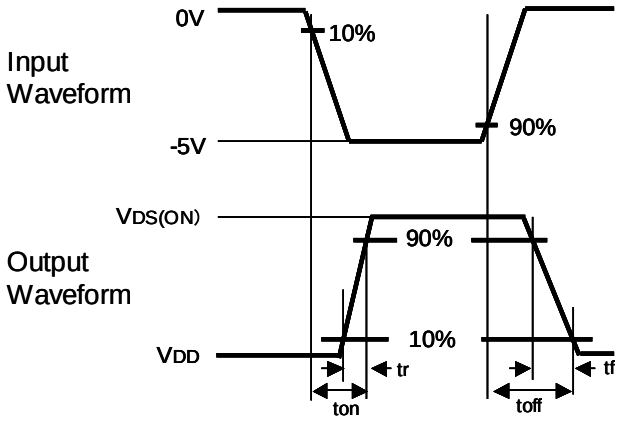




Tr2 Switching time test condition



VDD=-5V
Duty≦1%
Common source
Ta=25℃



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