INK0103AC1

High speed switching
Silicon N-channel MOSFET

DESCRIPTION

INK0103AC1 is a Silicon N-channel MOSFET.
This product is most suitable for low voltage use such as portable machinery, because of low voltage drive and low resistance.

FEATURE

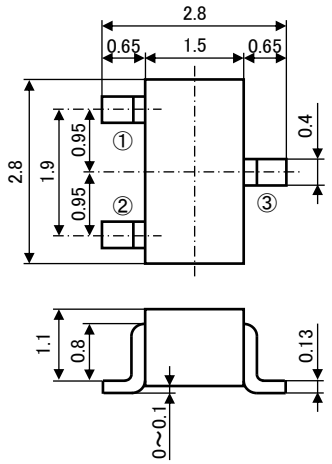
・Input impedance is high, and not necessary to consider a drive electric current.
・Drive voltage 1.8V
・Low on Resistance.
$R_{DS(ON)}$=0.33Ω (TYP) @I_D=0.5A,V_{GS}=4.5V
$R_{DS(ON)}$=0.46Ω (TYP) @I_D=0.5A,V_{GS}=2.5V
$R_{DS(ON)}$=0.64Ω (TYP) @I_D=0.3A,V_{GS}=1.8V
・High speed switching.
・Small packing for easy mounting.

APPLICATION

Inductive loads switching

OUTLINE DRAWING

Unit : mm



TERMINAL CONNECTOR
①:GATE
②:SOURCE
③:DRAIN

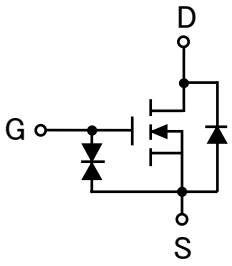
JEITA－:SC-59
JEDEC:Similar to TO-236

MAXIMUM RATINGS (Ta=25℃)

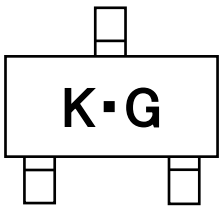
Parameter	Symbol	Rating	Unit
Drain-Source voltage	V_{DSS}	20	V
Gate-Source voltage	V_{GSS}	±8	V
Drain current(DC)	I_D	0.7	A
Drain current(Pulse)	I_{DP}	1.4(※1)	A
Total power dissipation	P_D	200	mW
Channel temperature	T_{ch}	+150	℃
Storage temperature	T_{stg}	−55～+150	℃

※1:Pw≦10μs, Duty cycle≦1%

EQUIVALENT CIRCUIT



MARKING

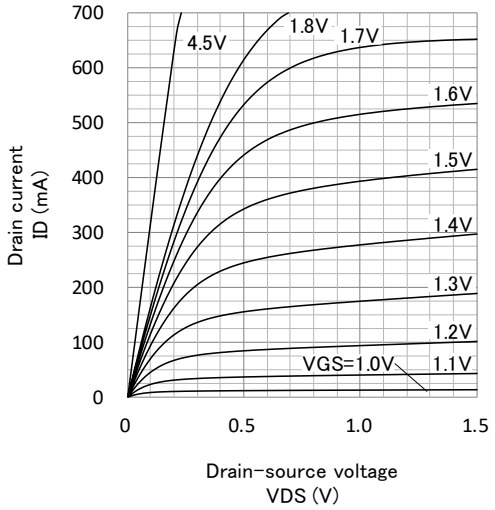


ELECTRICAL CHARACTERISTICS (Ta=25℃)

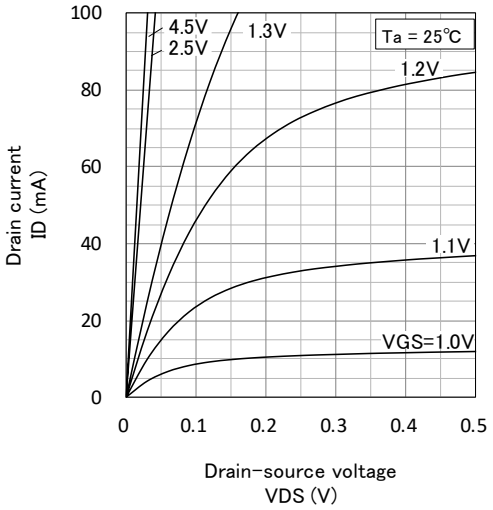
Parameter	Symbol	Test Condition	Limit			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	I_D=100μA, V_{GS}=0V	20	−	−	V
Gate-Source leak current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V	−	−	±10	μA
Zero gate voltage drain current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	−	−	1	μA
Gate threshold voltage	V_{th}	I_D=250μA, V_{DS}=V_{GS}	0.5	−	1.0	V
Static Drain-Source on-state resistance	$R_{DS(ON)}$	I_D=0.5A, V_{GS}=4.5V	−	0.33	−	Ω
		I_D=0.5A, V_{GS}=2.5V	−	0.46	−	
		I_D=0.3A, V_{GS}=1.8V	−	0.64	−	
Input capacitance	C_{iss}	V_{DS}=5V, V_{GS}=0V,f=1MHz	−	64	−	pF
Output capacitance	C_{oss}		−	16	−	
Switching time	t_{on}	V_{DD}=5V , I_D=0.5A V_{GS}=5V	−	22	−	ns
	t_{off}		−	30	−	

TYPICAL CHARACTERISTICS

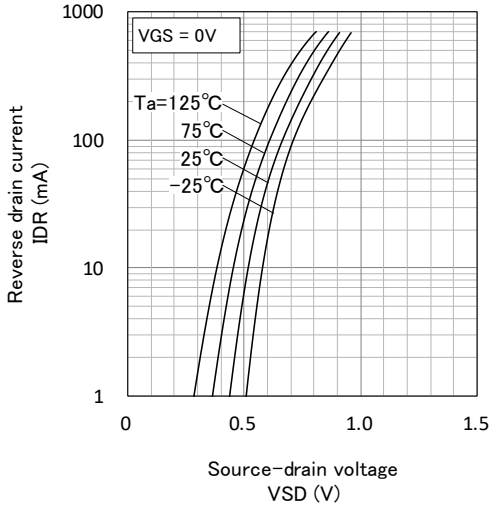
ID – VDS (Ta=25℃)



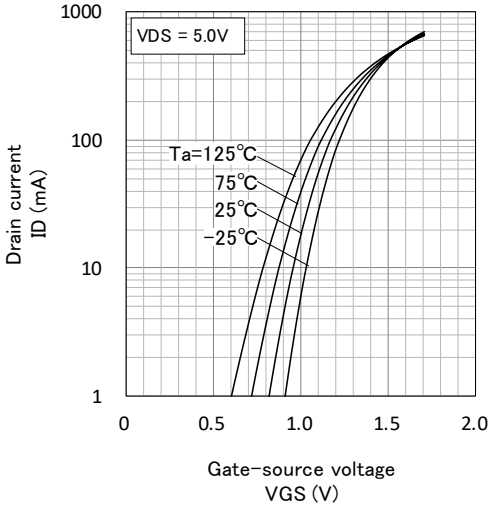
ID – VDS (Low voltage legion)



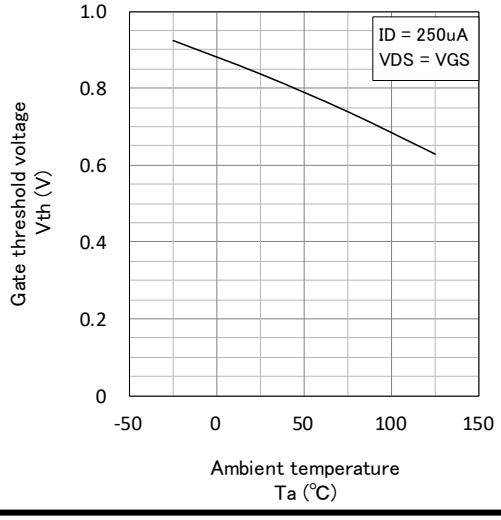
IDR – VSD



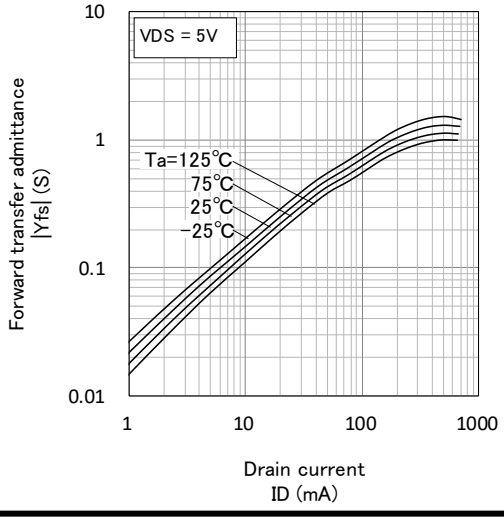
ID – VGS



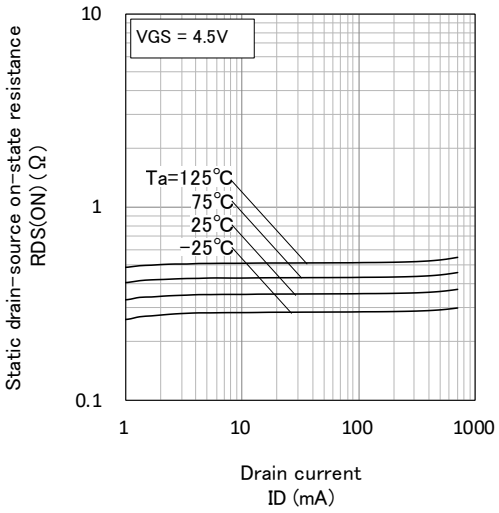
Vth – Ta



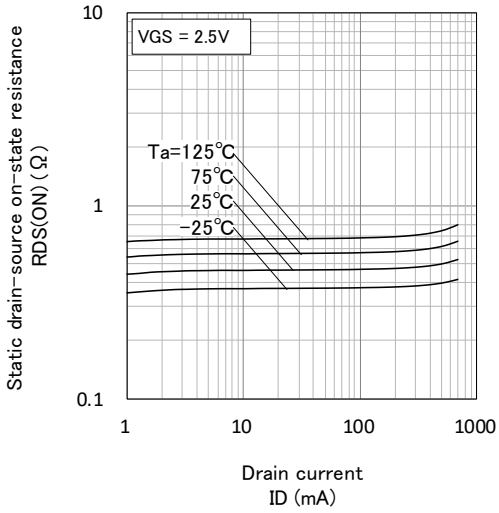
|Yfs| – ID



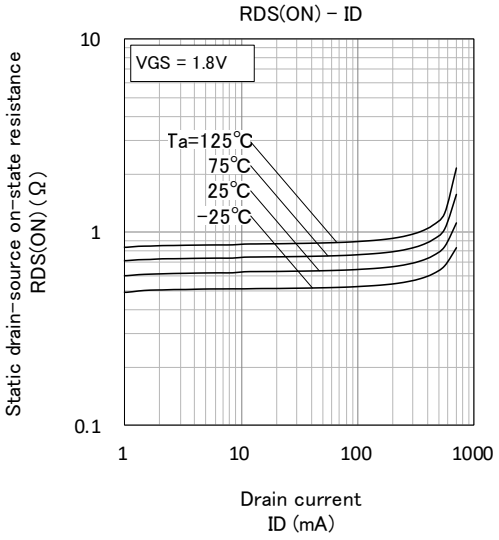
RDS(ON) – ID



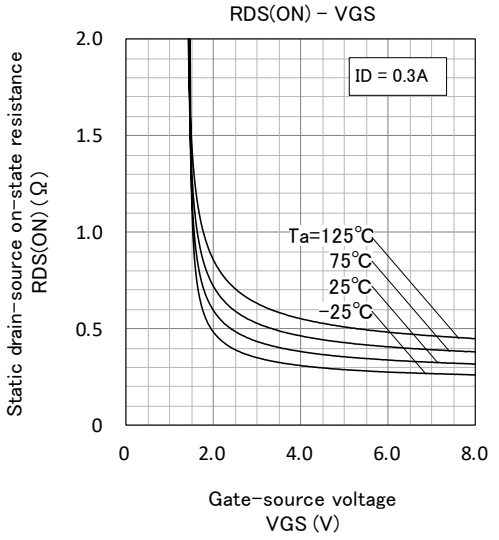
RDS(ON) – ID



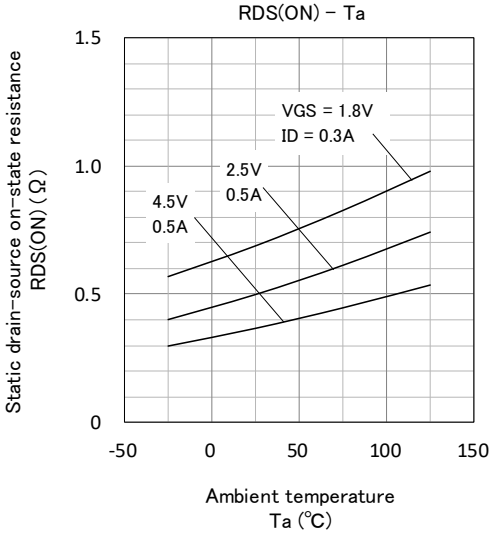
RDS(ON) – ID



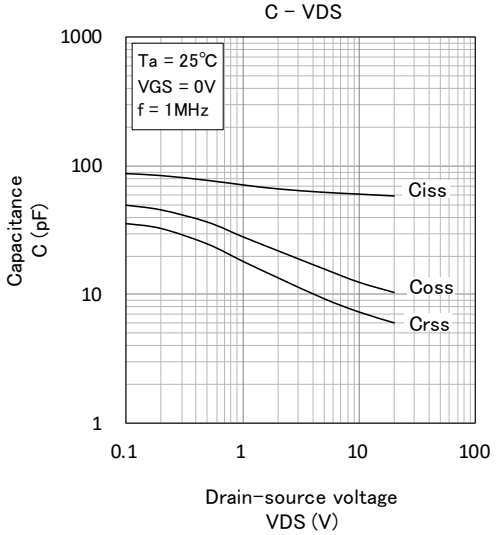
RDS(ON) – VGS



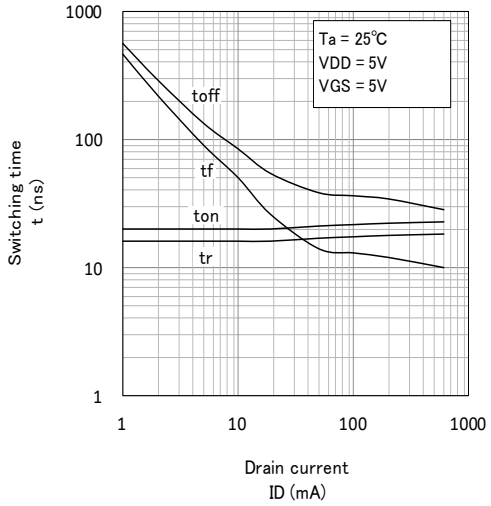
RDS(ON) – Ta



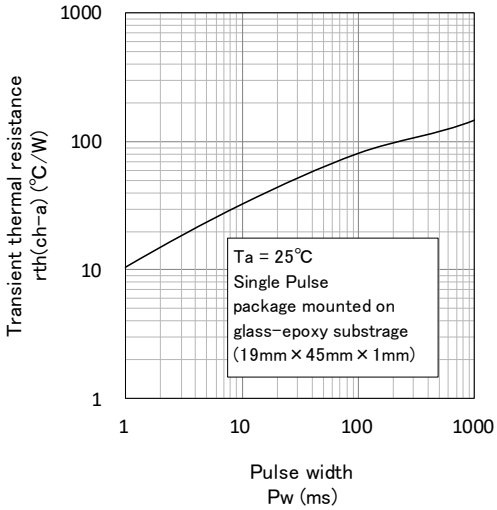
C – VDS



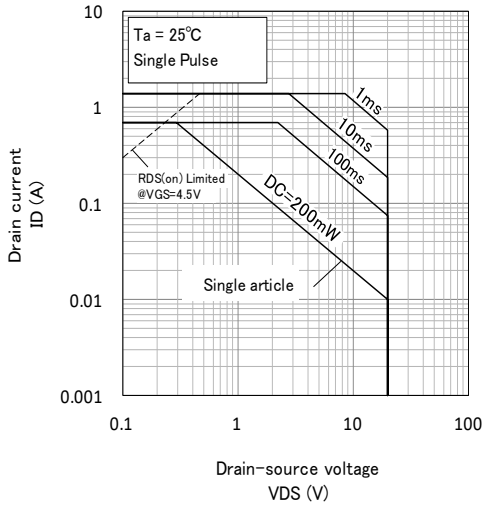
t – ID



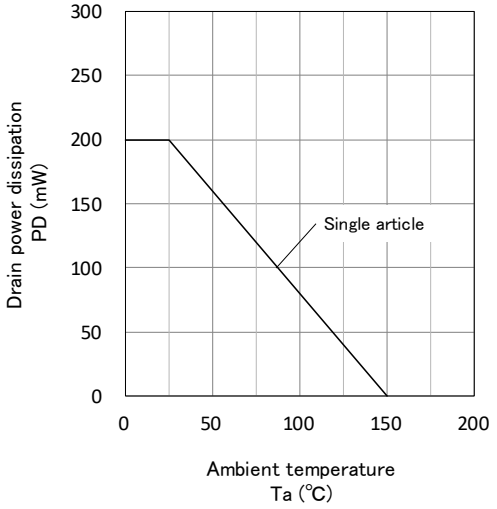
rth(ch-a) – Pw



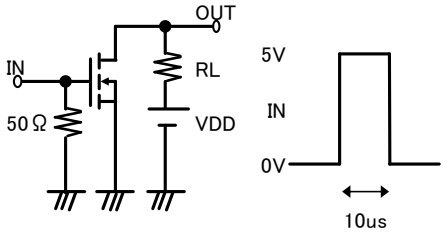
ASO



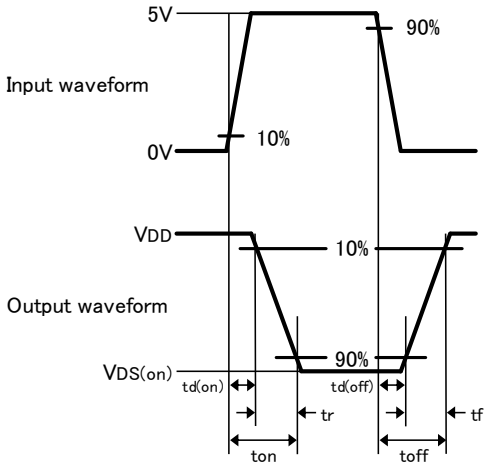
PD – Ta



Switching time test condition



Duty ≦ 1%
Input: tr, tf < 10ns
VDD = 5V
Common source
Ta = 25℃



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