INKE111AC1

Zener Diode built-in

Silicon N-channel MOSFET

DESCRIPTION

INKE111AC1 is a Silicon N-channel MOSFET built-in zener diode between drain and source.

FEATURE

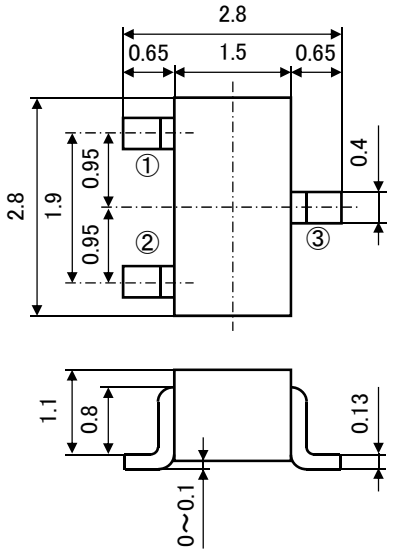
- Low on Resistance.
  $R_{DS(ON)}$=0.8Ω (TYP) @I_D=500mA,V_{GS}=4.0V
  $R_{DS(ON)}$=0.6Ω (TYP) @I_D=500mA,V_{GS}=10V
- High speed switching.
- Drive voltage 4V
- Built-in zener diode between drain and source.
- Small package for easy mounting.

APPLICATION

Switching

OUTLINE DRAWING

UNIT:mm



TERMINAL CONNECTER
①:GATE
②:SOURCE
③:DRAIN

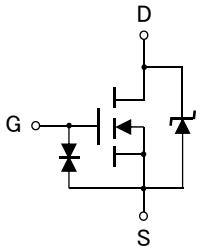
JEITA:SC-59
JEDEC:Similar to TO-236

MAXIMUM RATING (Ta=25℃)

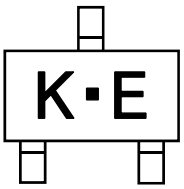
Symbol	Parameter	Rating	Unit
VGSS	Gate-Source Voltage	±20	V
ID	Drain Current(DC)	0.5	A
IDP	Drain Current(Pulse)※1	1.5	A
PD	Total power Dissipation	200	mW
		300※2	mW
IAV	Avalanche Current※3,4	1.0	A
EAV	Avalanche Energy※3,4	0.06	mJ
Tch	Channel Temperature	+150	℃
Tstg	Storage Temperature	-55～+150	℃

※1:PW≦1ms, Duty≦1%
※2:Package mounted on glass-epoxy substrate(19mm×9mm×1mm)
※3:Consecutive pulses PW≦20μs, Duty≦0.2%
※4:L=100uH

EQUIVALENT CIRCUIT



MARKING



【MOSFET】ELECTRICAL CHARACTERISTICS (Ta=25℃)

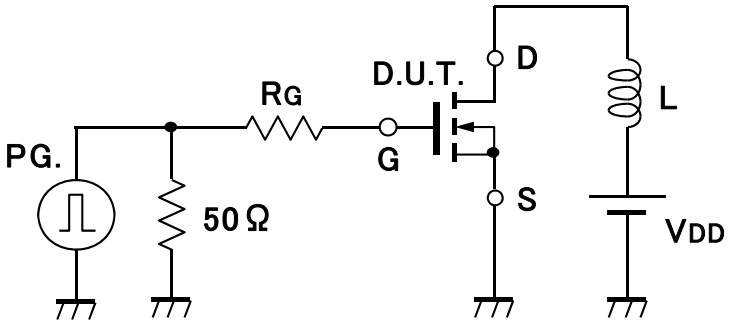
記号	Parameter	Test Condition	Limit			Unit
			MIN	TYP	MAX	
V(BR)DSS	Drain-Source Breakdown Voltage	ID=100μA, VGS=0V	40	–	60	V
IGSS	Gate-Source Leak current	VGS=±20V, VDS=0V	–	–	±10	μA
IDSS	Zero Gate Voltage Drain Current	VDS=40V, VGS=0V	–	–	1	μA
Vth	Gate Threshold Voltage	ID=250μA, VDS=VGS	1.0	–	2.0	V
|Yfs|	Forward Transfer Admittance	VDS=5V, ID=200mA	–	680	–	mS
RDS(ON)	Static Drain-Source On-State Resistance	ID=500mA, VGS=4.0V	–	0.8	–	Ω
		ID=500mA, VGS=10V	–	0.6	–	
Ciss	Input Capacitance	VDS=5V, VGS=0V, f=1MHz	–	60	–	pF
Coss	Output Capacitance		–	15	–	
ton	Switching Time	VDD=5V, ID=200mA	–	21	–	ns
toff		VGS=0～5V	–	23	–	

【Zener Diode】ELECTRICAL CHARACTERISTICS (Ta=25℃)

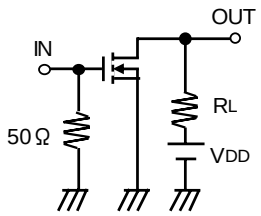
Zener Voltage VZ(V)			Reverse current IR(μA)	
MIN	MAX	IZ(mA)	MAX	VR(V)
40	60	0.1	1.0	40

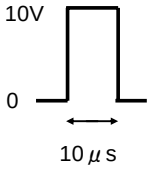
Avalanche current test condition

Ta=25℃
RG=25Ω
VDD=20V
VGS=10→0V
L=100uH

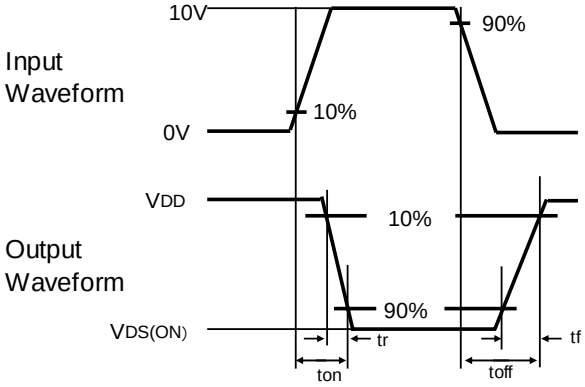


Switching time test condition



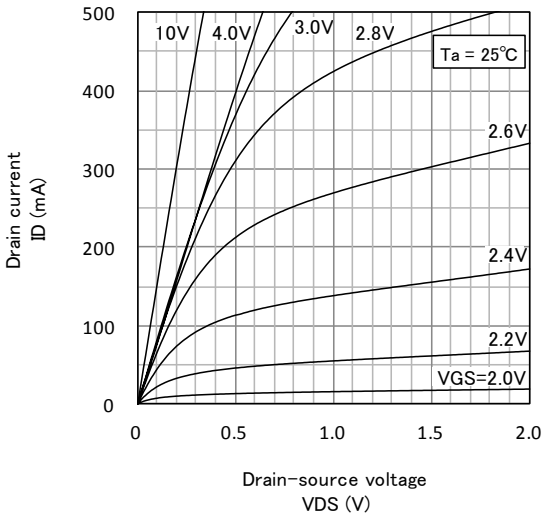


VDD=15V
Duty≦1%
Input : tr, tf<10ns
Common source
Ta=25℃

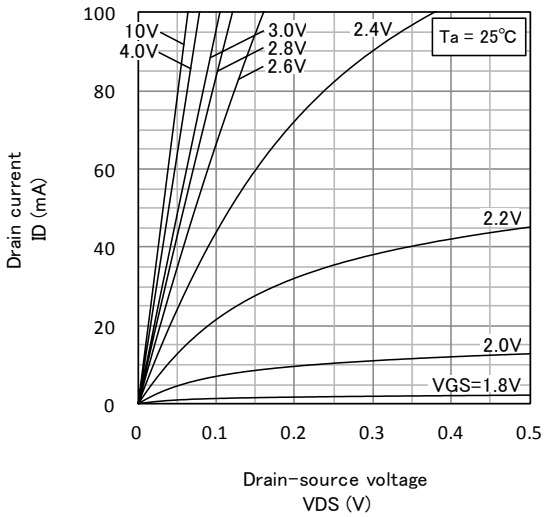


TYPICAL CHARACTERISTICS

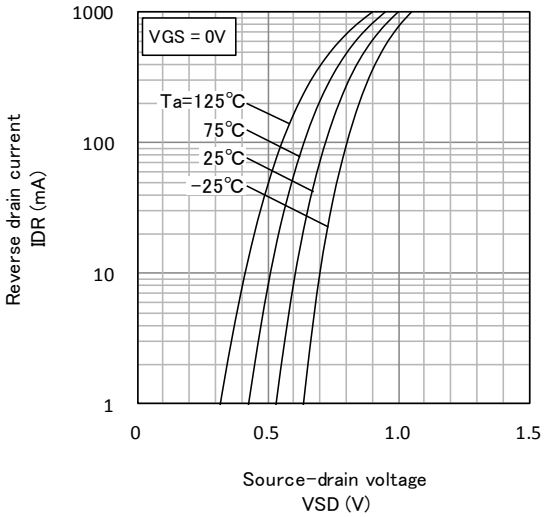
ID – VDS



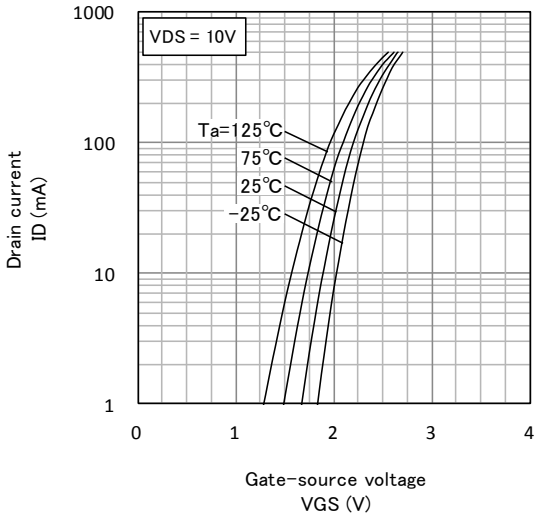
ID – VDS (Low voltage legion)



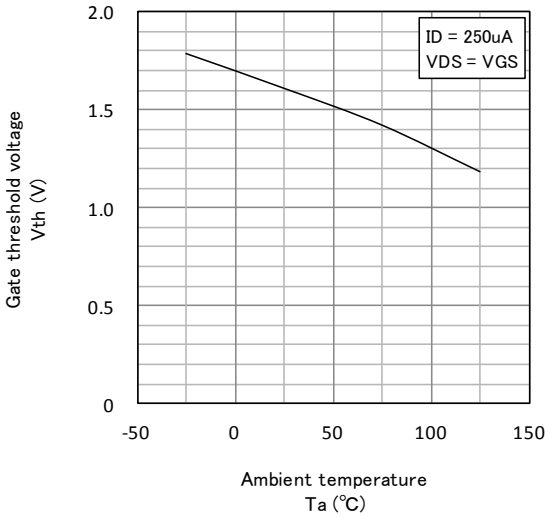
IDR – VSD



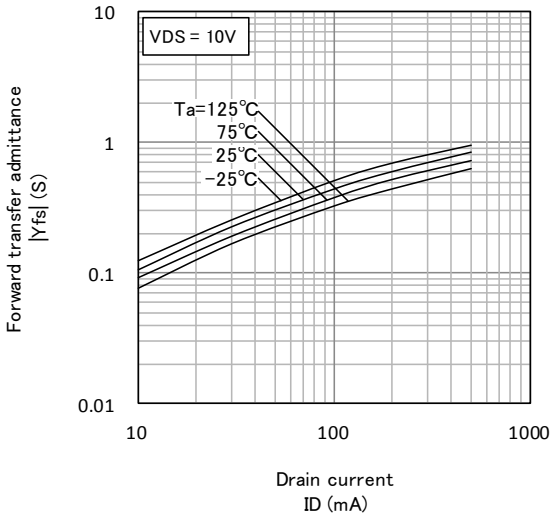
ID – VGS



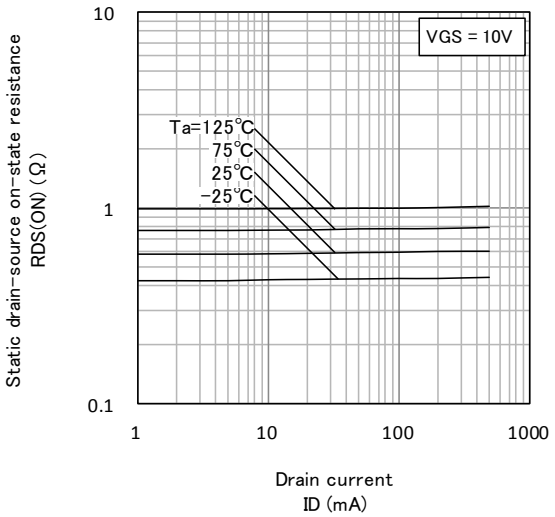
Vth – Ta



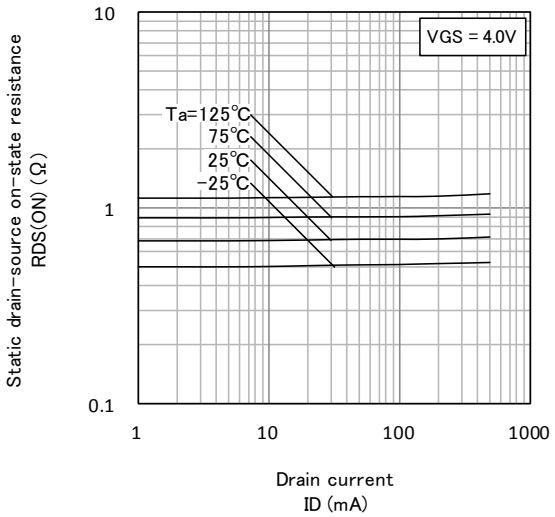
|Yfs| – ID



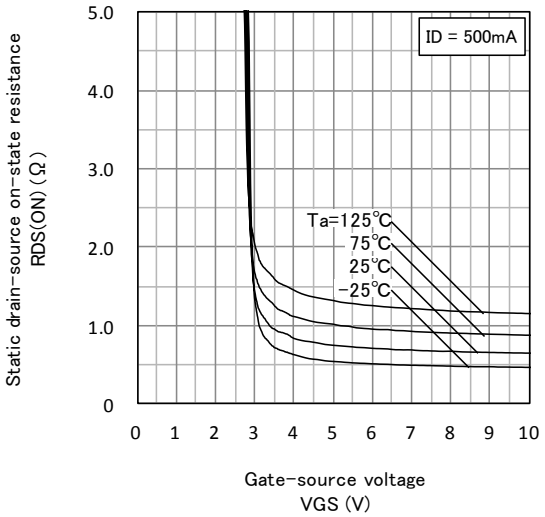
RDS(ON) – ID



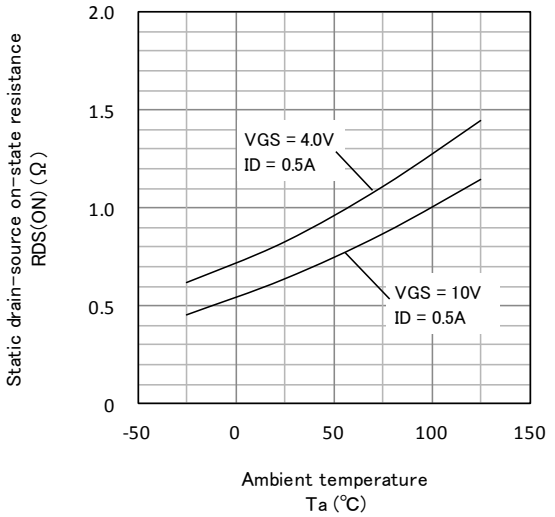
RDS(ON) – ID



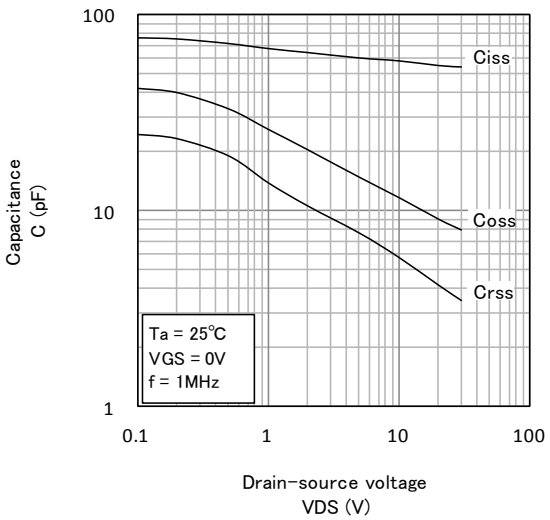
RDS(ON) – VGS



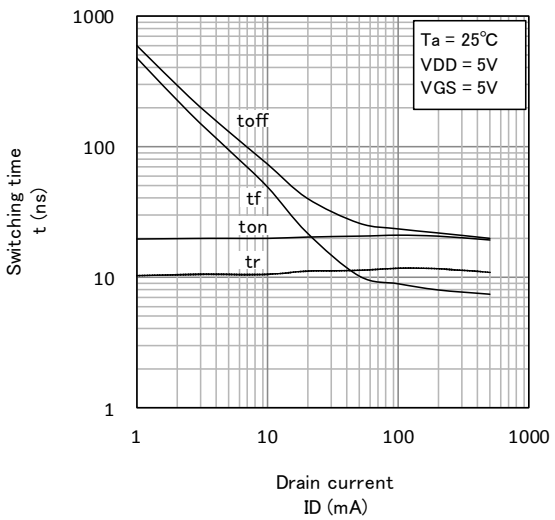
RDS(ON) – Ta



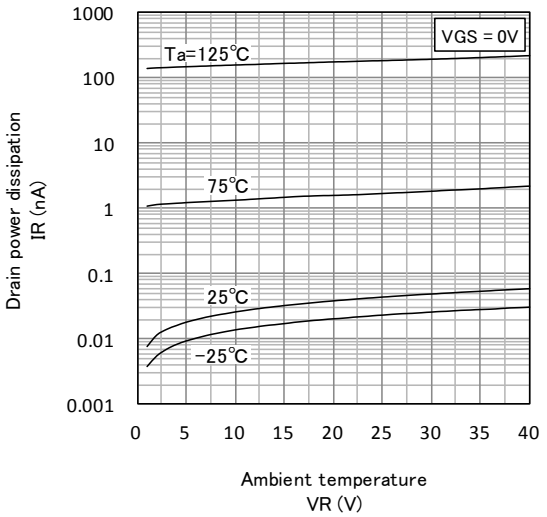
C – VDS



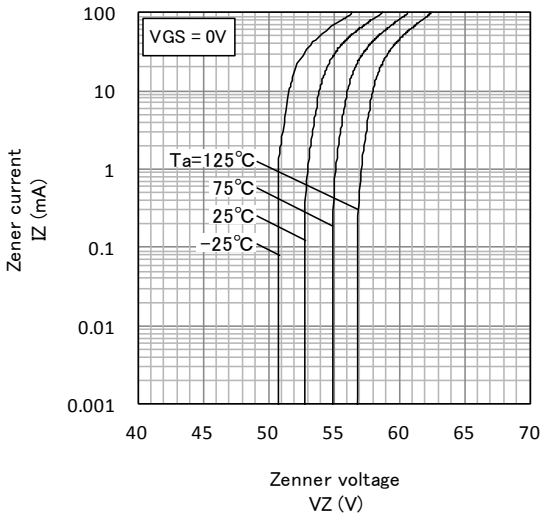
t – ID



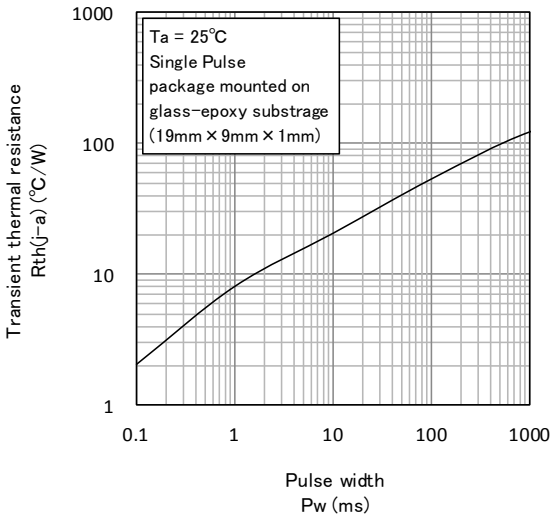
IR – VR



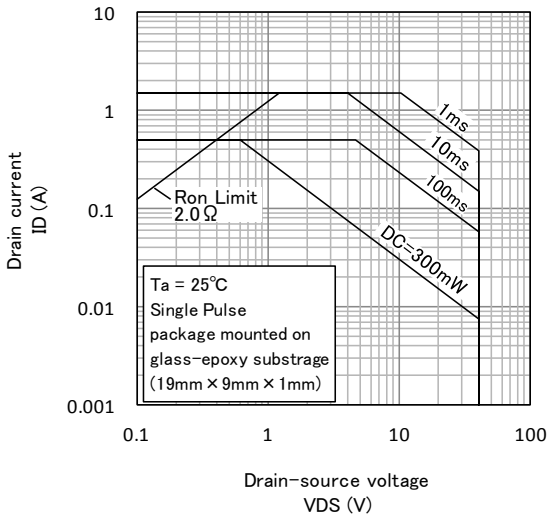
IZ – VZ



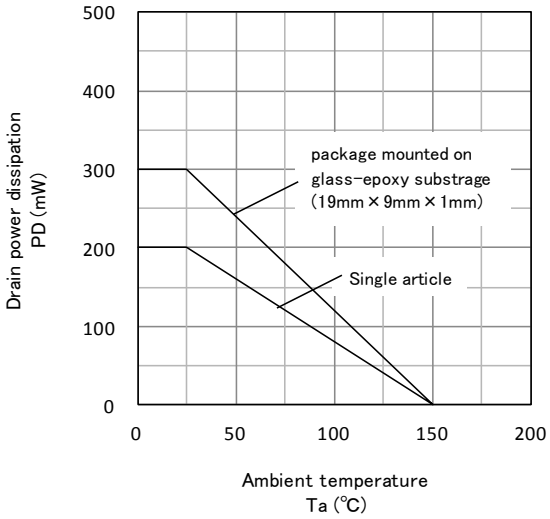
Rth(j-a) – Pw



ASO



PD – Ta



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