TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

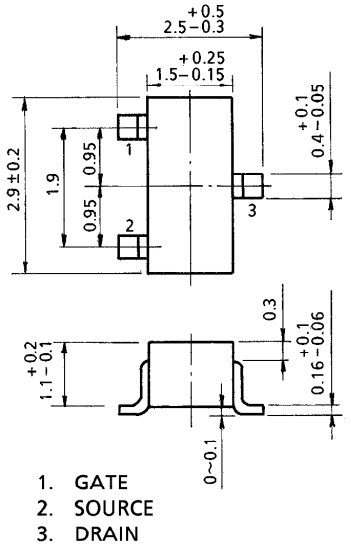
2SK2036

HIGH SPEED SWITCHING APPLICATIONS.

ANALOG SWITCHING APPLICATIONS.

- High Input Impedance.
- Low Gate Threshold Voltage : $V_{th}=0.5\sim1.5V$
- Excellent Switching Times : $t_{on}=0.28\mu s$ (Typ.)
  $t_{off}=0.34\mu s$ (Typ.)
- Small Package
- Enhancement-Mode

Unit in mm



JEDEC	TO-236MOD
EIAJ	SC-59
TOSHIBA	2-3F1F

Weight : 0.012g

MAXIMUM RATINGS (Ta = 25°C)

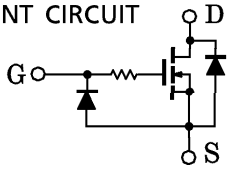
CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GSS}	10	V
Drain Current	I_D	100	mA
Drain Power Dissipation	P_D	200	mW
Channel Temperature	T_{ch}	150	°C
Storage Temperature Range	T_{stg}	−55~150	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

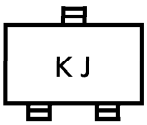
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS}=10V$, $V_{DS}=0$	—	—	1	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D=100\mu A$, $V_{GS}=0$	20	—	—	V
Drain Cut-off Current		I_{DSS}	$V_{DS}=20V$, $V_{GS}=0$	—	—	1	μA
Gate Threshold Voltage		V_{th}	$V_{DS}=3V$, $I_D=0.1mA$	0.5	—	1.5	V
Forward Transfer Admittance		$\|Y_{fs}\|$	$V_{DS}=3V$, $I_D=10mA$	35	62	—	mS
Drain-Source ON Resistance		$R_{DS(ON)}$	$I_D=10mA$, $V_{GS}=2.5V$	—	3.5	6	Ω
Input Capacitance		C_{iss}	$V_{DS}=3V$, $V_{GS}=0$, f=1MHz	—	14	—	pF
Reverse Transfer Capacitance		C_{rss}	$V_{DS}=3V$, $V_{GS}=0$, f=1MHz	—	5.3	—	pF
Output Capacitance		C_{oss}	$V_{DS}=3V$, $V_{GS}=0$, f=1MHz	—	16	—	pF
Switching Time	Turn-on Time	t_{on}	$V_{DD}=3V$, $I_D=10mA$, $V_{GS}=0\sim2.5V$	—	0.28	—	μs
	Turn-off Time	t_{off}	$V_{DD}=3V$, $I_D=10mA$, $V_{GS}=0\sim2.5V$	—	0.34	—	μs

This transistor is electrostatic sensitive device.
Please handle with caushon.

EQUIVALENT CIRCUIT



MARKING



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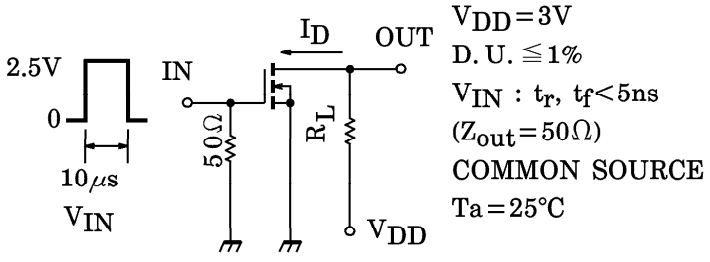
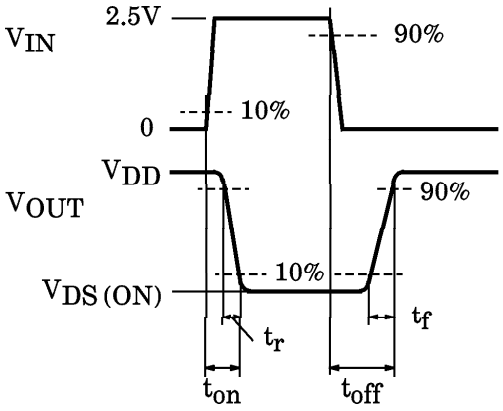
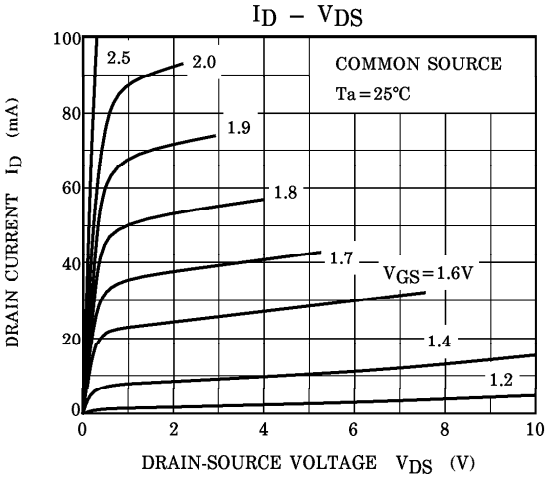
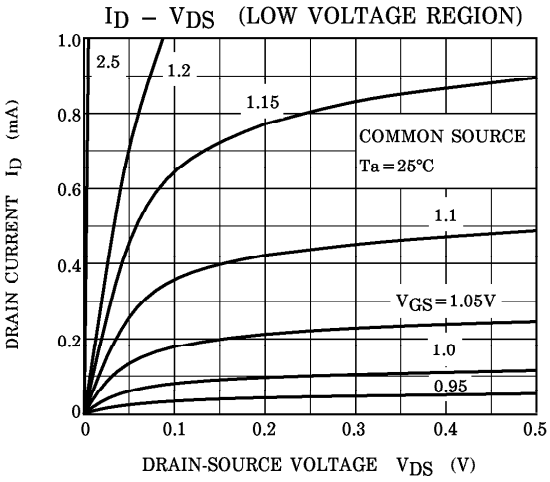
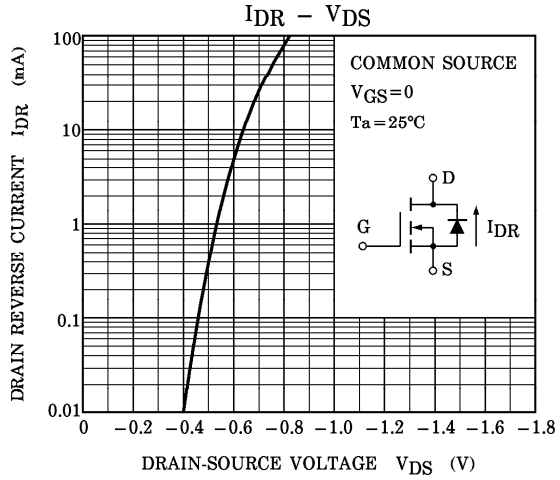
SWITCHING TIME TEST CIRCUIT

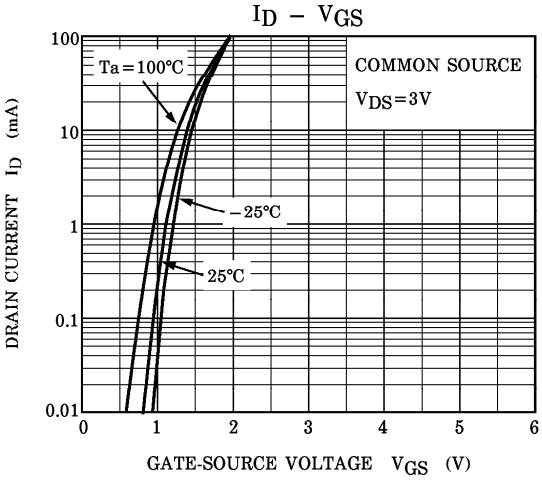












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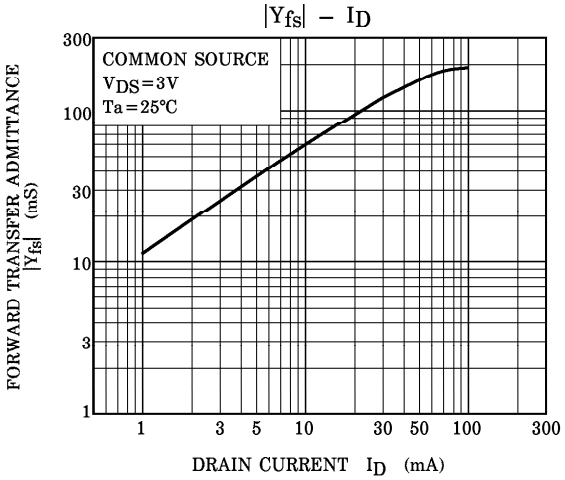
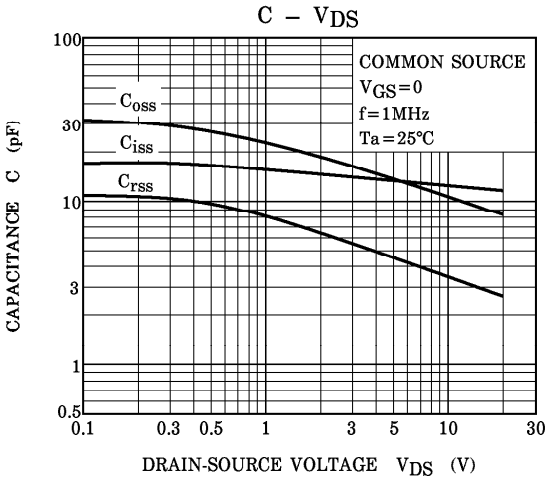
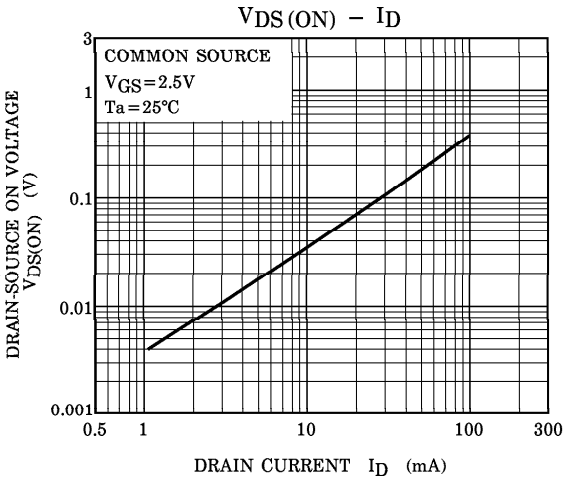
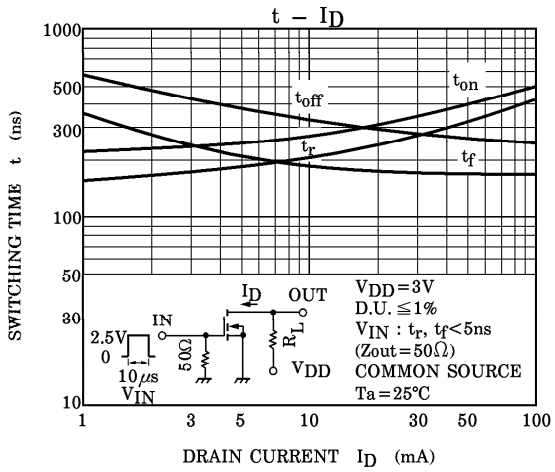
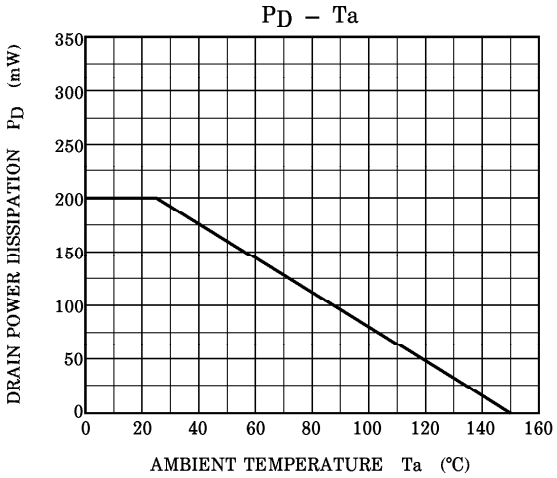

|Yfs| – ID
COMMON SOURCE
VDS=3V
Ta=25°C
FORWARD TRANSFER ADMITTANCE |Yfs| (mS)
DRAIN CURRENT ID (mA)


C – VDS
COMMON SOURCE
VGS=0
f=1MHz
Ta=25°C
Coss
Ciss
Crss
CAPACITANCE C (pF)
DRAIN-SOURCE VOLTAGE VDS (V)


VDS (ON) – ID
COMMON SOURCE
VGS=2.5V
Ta=25°C
DRAIN-SOURCE ON VOLTAGE VDS(ON) (V)
DRAIN CURRENT ID (mA)


t – ID
toff
ton
tr
tf
SWITCHING TIME t (ns)
IN
OUT
2.5V
0
10μs
VIN
50Ω
RL
VDD
VDD=3V
D.U. ≦1%
VIN : tr, tf<5ns
(Zout=50Ω)
COMMON SOURCE
Ta=25°C
DRAIN CURRENT ID (mA)


PD – Ta
DRAIN POWER DISSIPATION PD (mW)
AMBIENT TEMPERATURE Ta (°C)