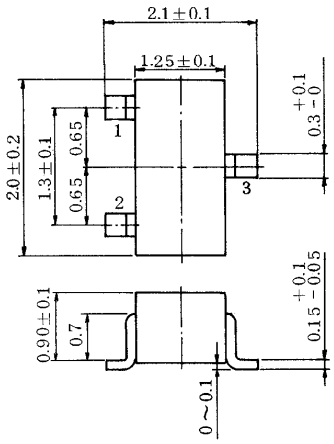
TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

2SK2034

HIGH SPEED SWITCHING APPLICATIONS.
ANALOG SWITCH APPLICATIONS.

- High Input Impedance.
- Low Gate Threshold Voltage : $V_{th}=0.5\sim1.5V$
- Excellent Switching Times : $t_{on}=0.16\mu s$ (typ.)
  $t_{off}=0.15\mu s$ (typ.)
- Small Package.
- Enhancement-Mode

Unit in mm



1. GATE
2. SOURCE
3. DRAIN

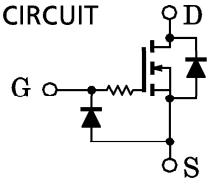
JEDEC	—
EIAJ	SC-70
TOSHIBA	2-2E1E

Weight : 0.006g

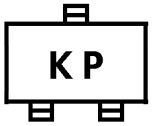
MAXIMUM RATINGS (Ta = 25°C)

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

EQUIVALENT CIRCUIT



MARKING

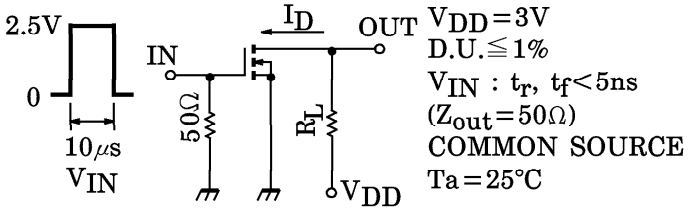


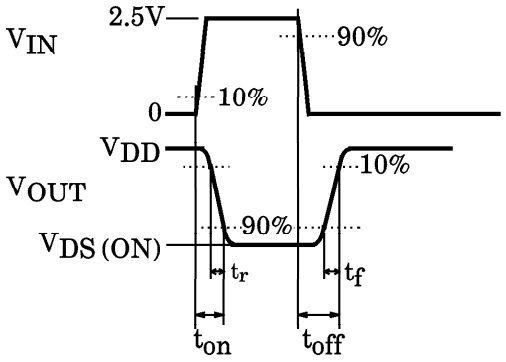
THIS TRANSISTOR ELECTROSTATIC SENSITIVE DEVICE. PLEASE HANDLE WITH CAUSHON.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

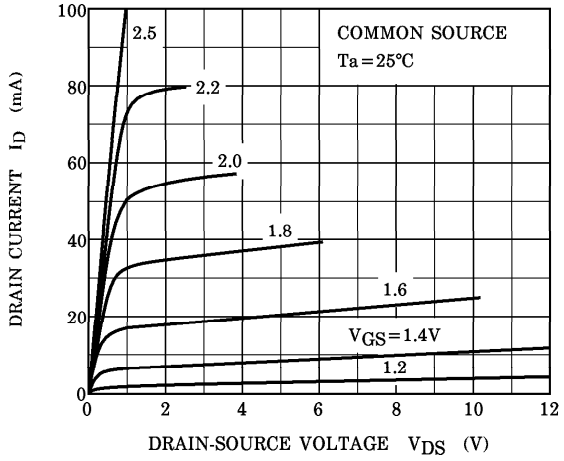
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	V_{GS}=10V, V_{DS}=0	—	—	1	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	I_D=100μA, V_{GS}=0	20	—	—	V
Drain Cut-off Current		I_{DSS}	V_{DS}=20V, V_{GS}=0	—	—	1	μA
Gate Threshold Voltage		V_{th}	V_{DS}=3V, I_D=0.1mA	0.5	—	1.5	V
Forward Transfer Admittance		$\|Y_{fs}\|$	V_{DS}=3V, I_D=10mA	25	50	—	mS
Drain-Source ON Resistance		$R_{DS\ (ON)}$	I_D=10mA, V_{GS}=2.5V	—	8	12	Ω
Input Capacitance		C_{iss}	V_{DS}=3V, V_{GS}=0, f=1MHz	—	8.5	—	pF
Reverse Transfer Capacitance		C_{rss}	V_{DS}=3V, V_{GS}=0, f=1MHz	—	3.3	—	pF
Output Capacitance		C_{oss}	V_{DS}=3V, V_{GS}=0, f=1MHz	—	9.3	—	pF
Switching Time	Turn-on Time	t_{on}	V_{DD}=3V, I_D=10mA V_{GS}=0~2.5V	—	0.16	—	μs
	Turn-off Time	t_{off}	V_{DD}=3V, I_D=10mA VGS=0~2.5V	—	0.15	—	μs

SWITCHING TIME TEST CIRCUIT

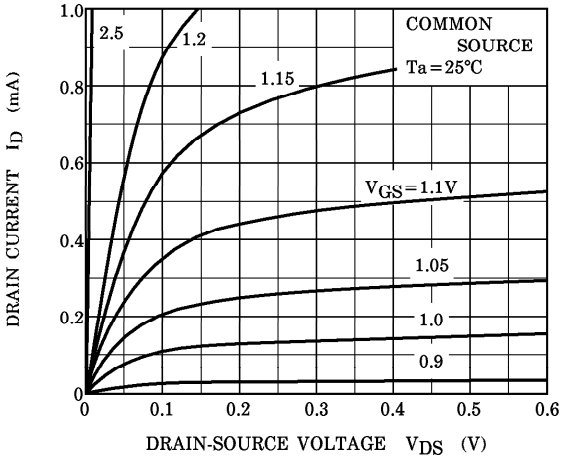




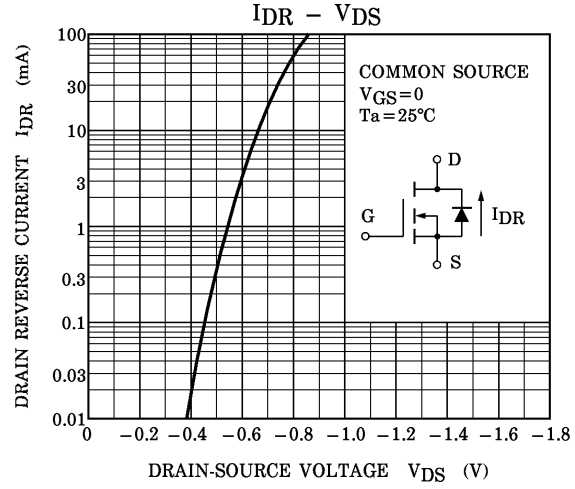
I_D – V_{DS}



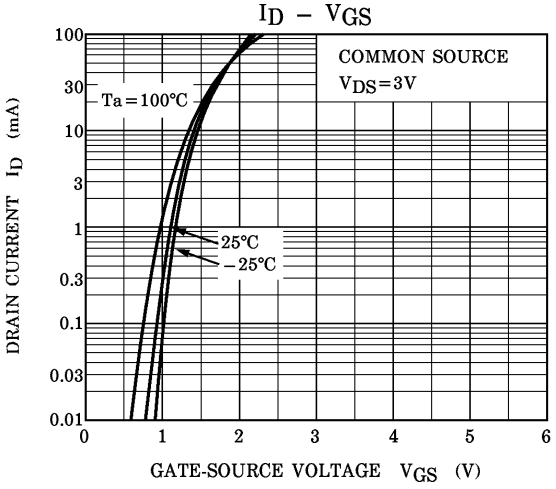
I_D – V_{DS} (LOW VOLTAGE REGION)



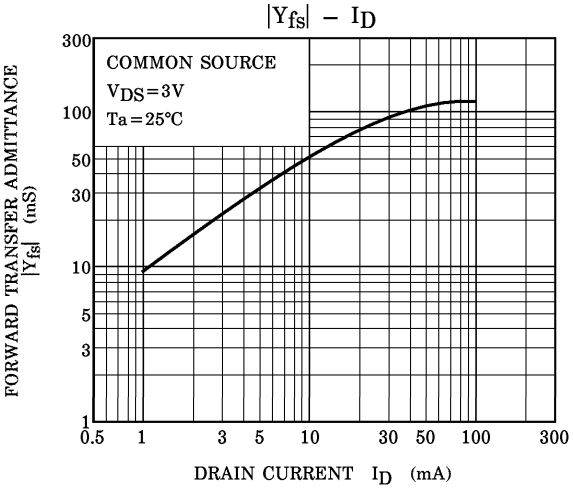
I_{DR} – V_{DS}



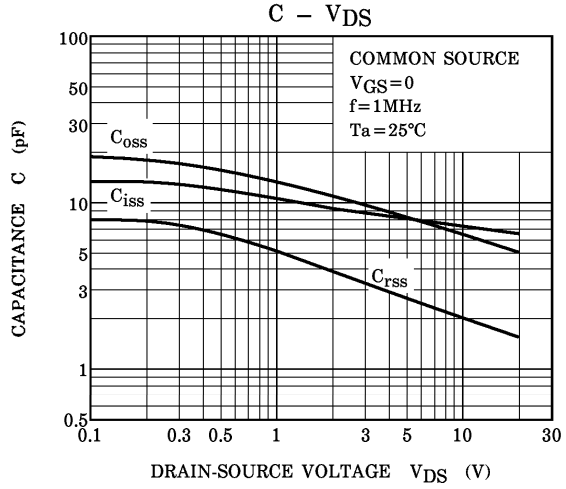
I_D – V_{GS}



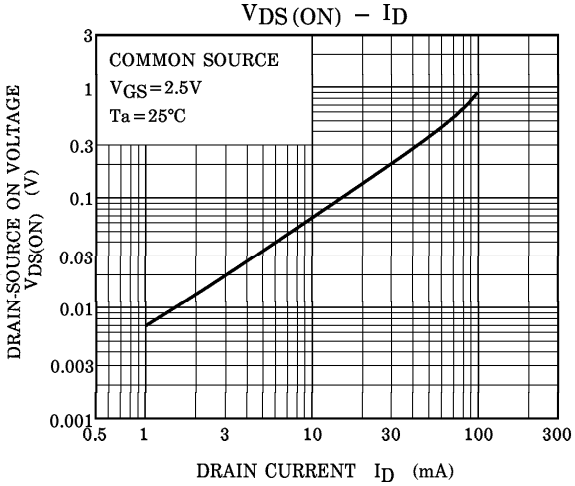
$|Y_{fs}|$ – I_D



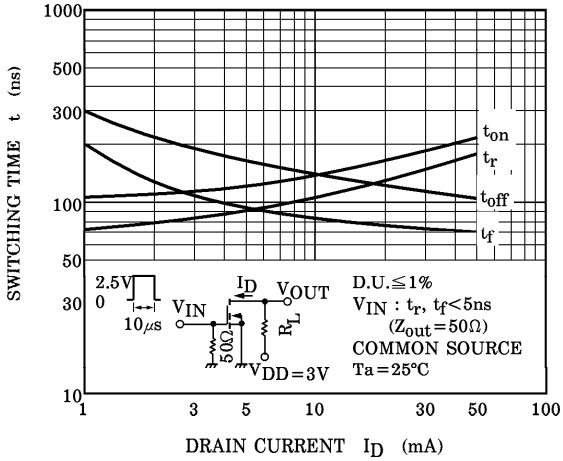
C – V_{DS}



$V_{DS\,(ON)}$ – I_D



t – I_D



P_D – Ta