

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

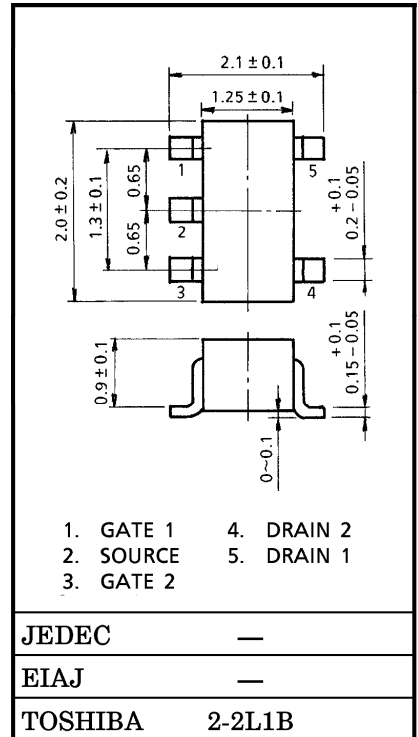
# HN4K03JU

HIGH SPEED SWITCHING APPLICATIONS

ANALOG SWITCH APPLICATIONS

- High Input Impedance
- Low Gate Threshold Voltage :  $V_{th} = 0.5 \sim 1.5 \text{ V}$
- Excellent Switching Times
- Small Package

Unit in mm



MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ ) (Q1, Q2 COMMON)

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	$P_D^*$	200	mW
Channel Temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	$-55 \sim 150$	$^\circ\text{C}$

\* : Total Rating

Weight : 6.2 mg

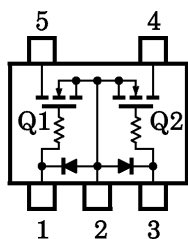
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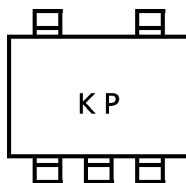
ELECTRICAL CHARACTERISTICS (Ta = 25°C) (Q1, Q2 COMMON)

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

EQUIVALENT CIRCUIT (TOP VIEW)

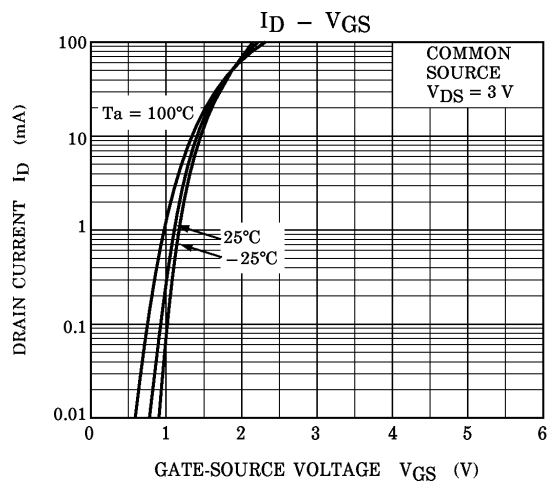
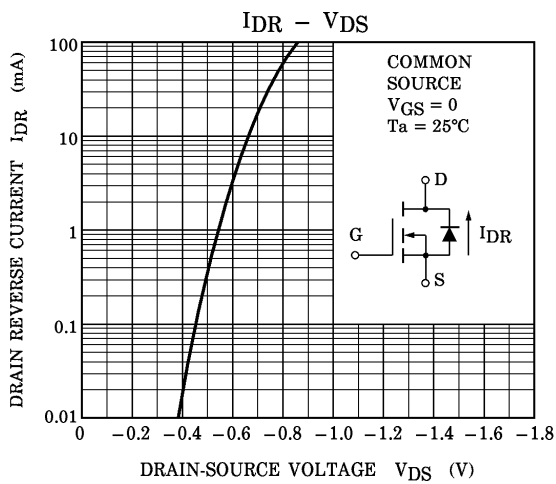
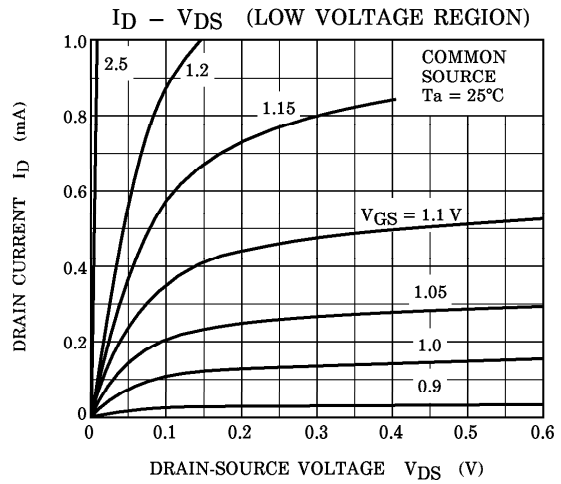
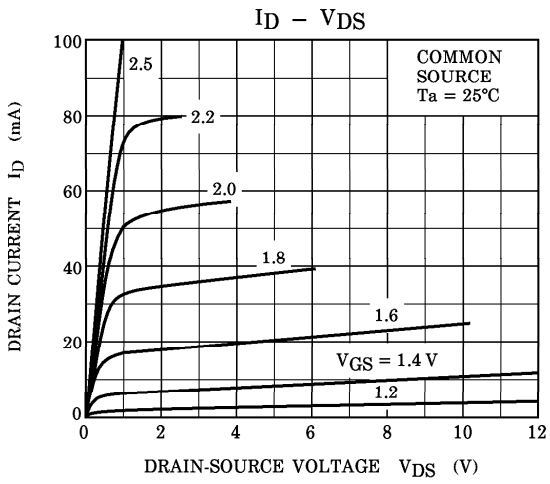
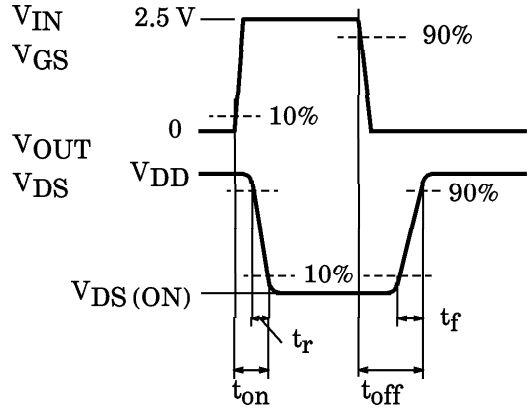
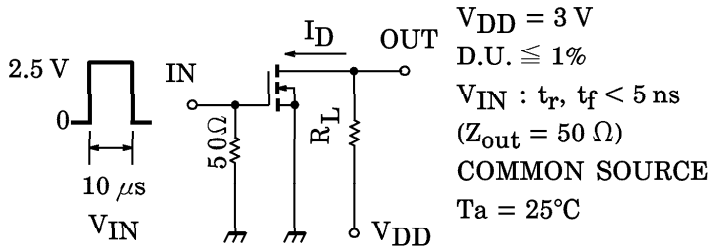


MARKING

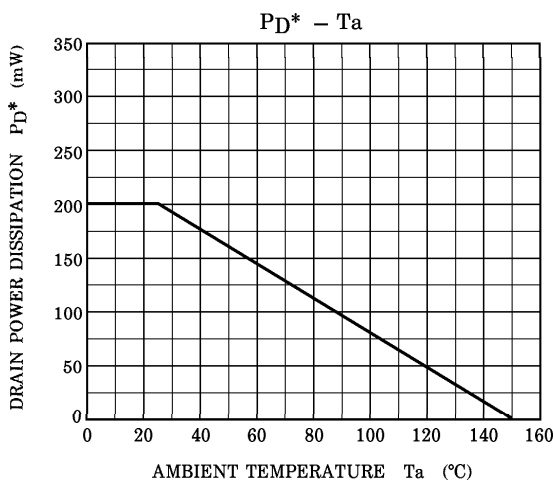
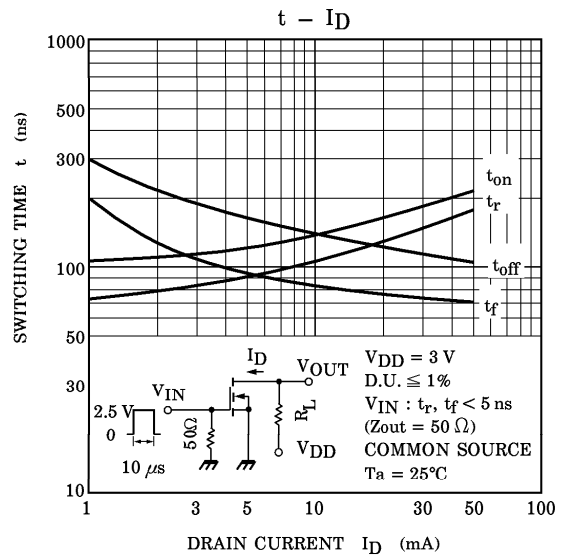
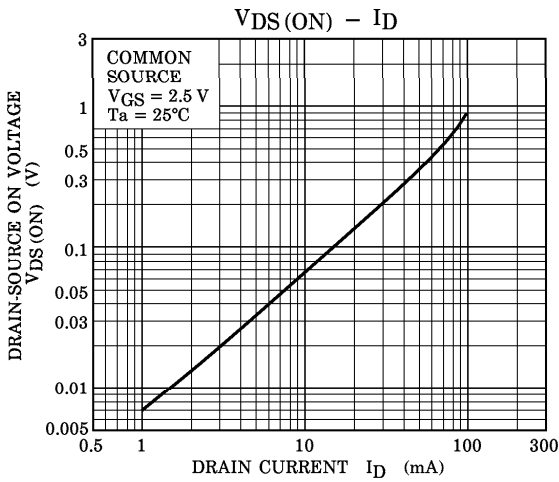
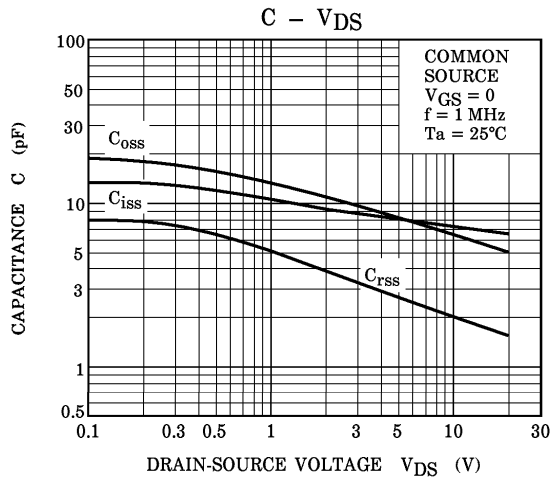
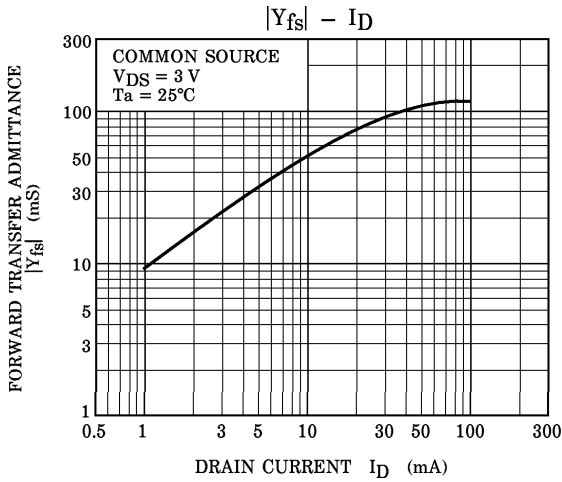


(Q1, Q2 COMMON)

SWITCHING TIME TEST CIRCUIT



(Q1, Q2 COMMON)



\* : Total Rating