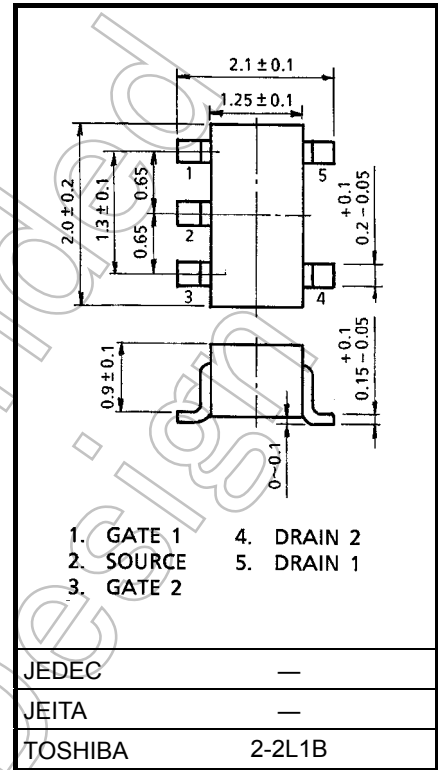


# HN4K03JU

High Speed Switching Applications  
 Analog Switch Applications

Unit: mm

- High input impedance
- Low gate threshold voltage:  $V_{th} = 0.5$  to  $1.5V$
- Excellent switching times
- Small package



### Absolute Maximum Ratings (Ta = 25°C) (Q1, Q2 Common)

Characteristics	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	°C
Storage temperature range	$T_{stg}$	-55 to 150	°C

Weight: 6.2 mg (typ.)

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

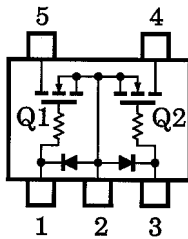
\*: Total rating

Start of commercial production  
 1997-02

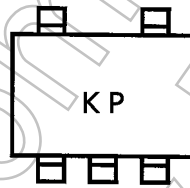
## Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

Characteristics	Symbol	Test Condition	Min.	Typ.	Max.	Unit	
Gate leakage current	$I_{GSS}$	$V_{GS} = 10V, V_{DS} = 0$	—	—	1	$\mu A$	
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	$\mu A$	
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	$\Omega$	
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	$t_{on}$	$V_{DD} = 3V, I_D = 10mA, V_{GS} = 0 \text{ to } 2.5V$	—	0.16	—	$\mu s$
	Turn-off time	$t_{off}$	$V_{DD} = 3V, I_D = 10mA, V_{GS} = 0 \text{ to } 2.5V$	—	0.15	—	

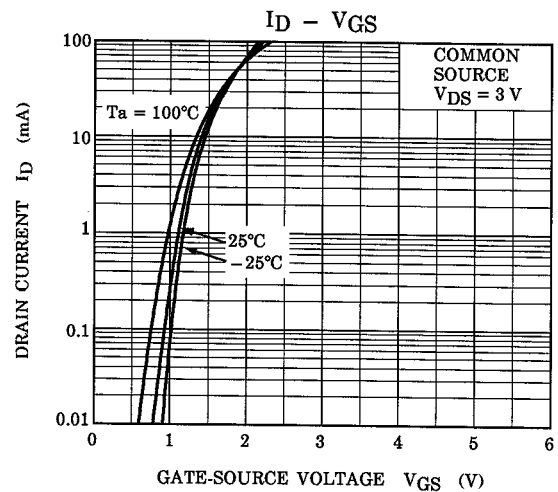
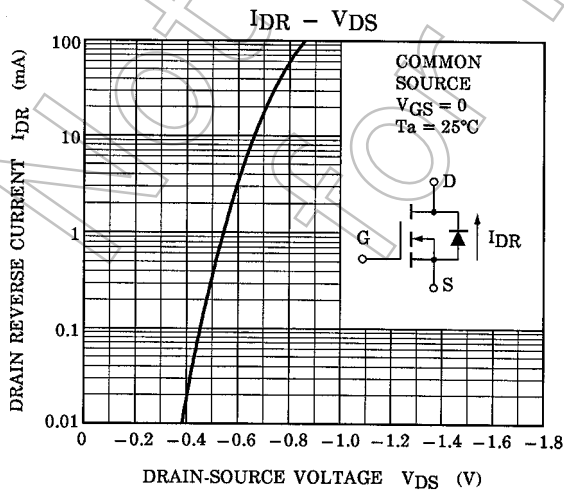
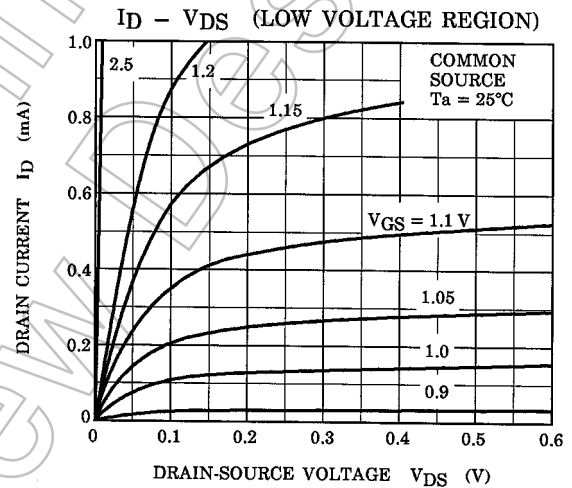
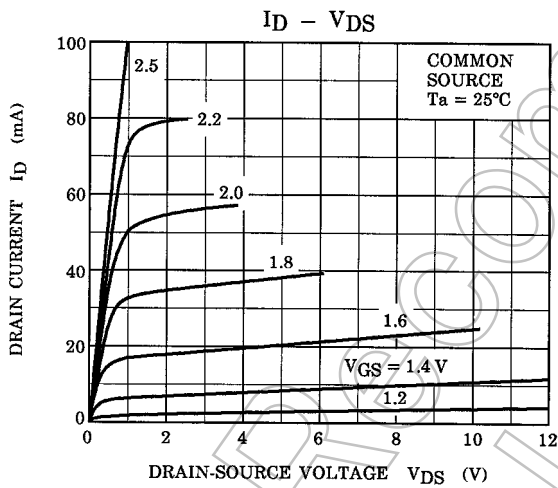
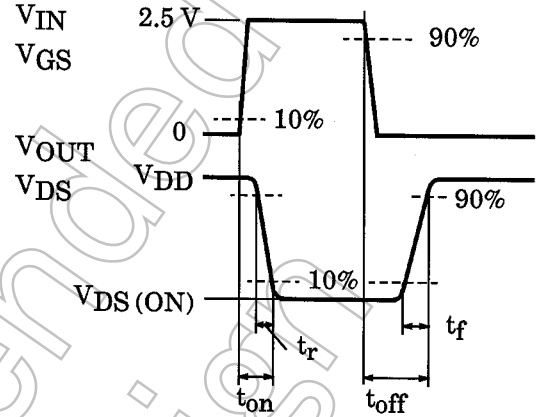
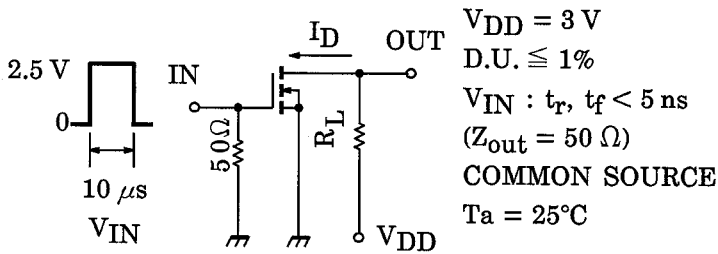
### Equivalent Circuit (top view)



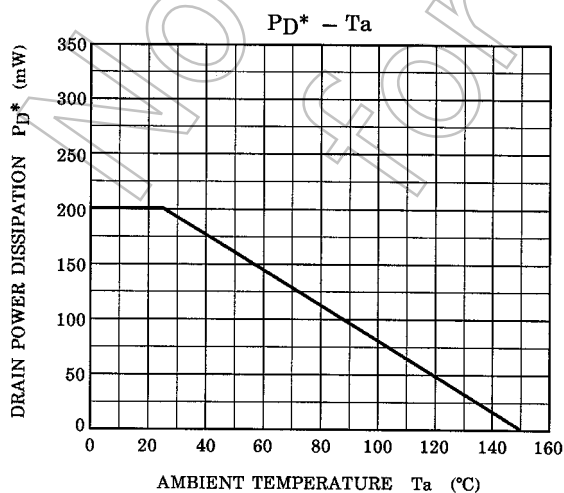
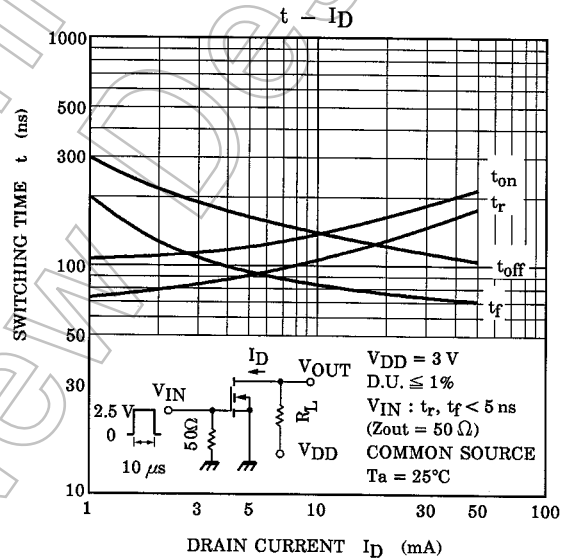
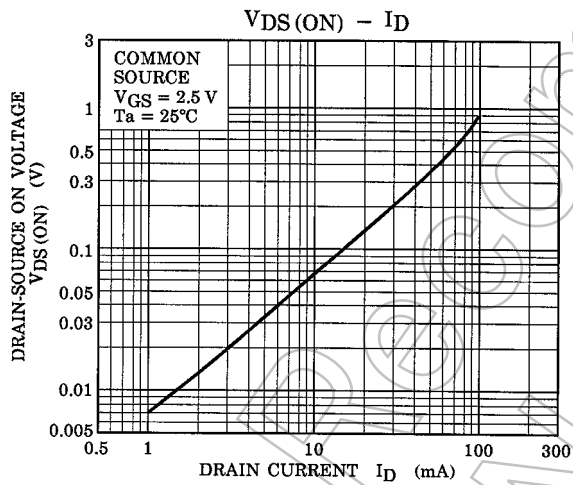
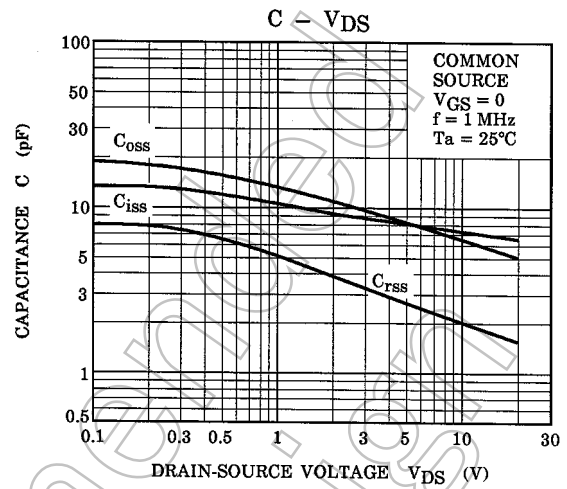
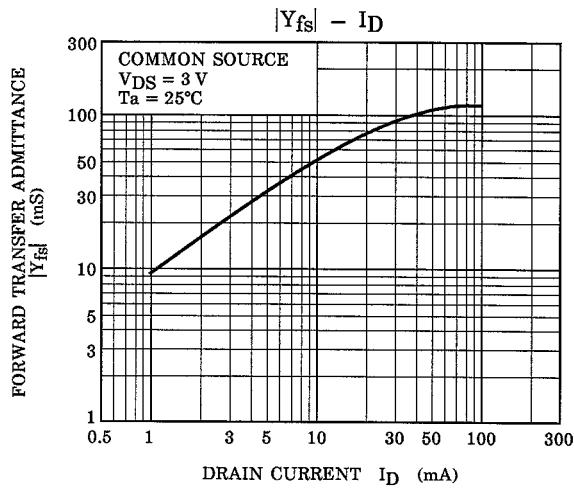
### Marking



(Q1, Q2 Common)  
Switching Time Test Circuit



(Q1, Q2 Common)



\* : Total Rating

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