

## HN1K02FU

High Speed Switching Applications

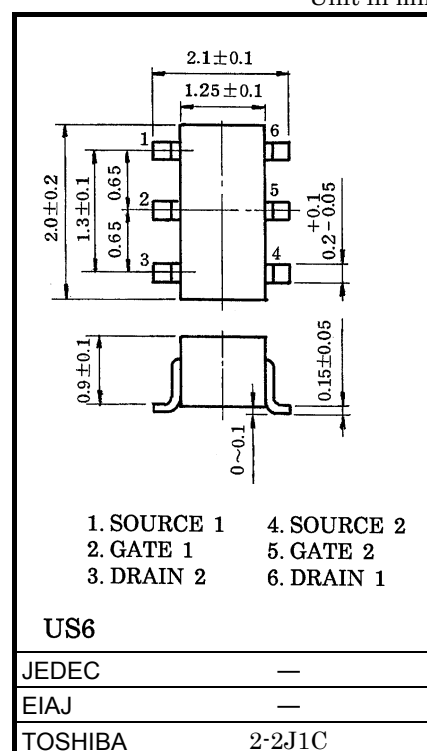
Analog Switch Applications

Unit in mm

- 2.5 V gate drive.
- Low threshold voltage:  $V_{th} = 0.5V \sim 1.5V$
- High speed
- Enhancement-mode
- Small package

### Absolute Maximum Ratings ( $T_a = 25^\circ C$ ) (Q1, Q2 Common)

Characteristic	Symbol	Rating	Unit
Drain-Source voltage	$V_{DS}$	20	V
Gate-Source voltage	$V_{GSS}$	10	V
DC Drain current	$I_D$	50	mA
Drain power dissipation	$P_D^*$	200	mW
Channel temperature	$T_{ch}$	150	$^\circ C$
Storage temperature range	$T_{stg}$	-55~150	$^\circ C$



Weight: 6.8mg

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.

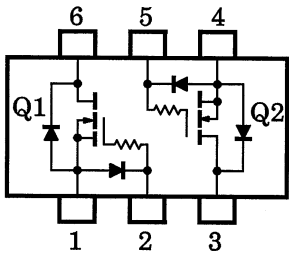
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

\* Total rating

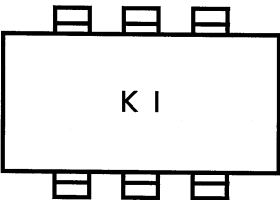
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Gate leakage current		IGSS	VGS = 10V, VDS = 0	—	—	1	μA
Drain-Source breakdown voltage		V (BR) DSS	ID = 100μA, VGS = 0	20	—	—	V
Drain cut-off current		IDSS	VDS = 20V, VGS = 0	—	—	1	μA
Gate threshold voltage		Vth	VDS = 3V, ID = 0.1mA	0.5	—	1.5	V
Forward transfer admittance		Yfs	VDS = 3V, ID = 10mA	20	—	—	mS
Drain-Source ON resistance		RDS (ON)	ID = 10mA, VGS = 2.5V	—	20	40	Ω
Input capacitance		Ciss	VDS = 3V, VGS = 0, f = 1MHz	—	5.5	—	pF
Reverse transfer capacitance		Crss	VDS = 3V, VGS = 0, f = 1MHz	—	1.6	—	pF
Output capacitance		Coss	VDS = 3V, VGS = 0, f = 1MHz	—	6.5	—	pF
Switching time	Turn-on time	ton	VDD = 3V, ID = 10mA, VGS = 0~2.5V	—	0.14	—	μs
	Turn-off time	toff	VDD = 3V, ID = 10mA, VGS = 0~2.5V	—	0.14	—	μs

Equivalent Circuit (Top View)

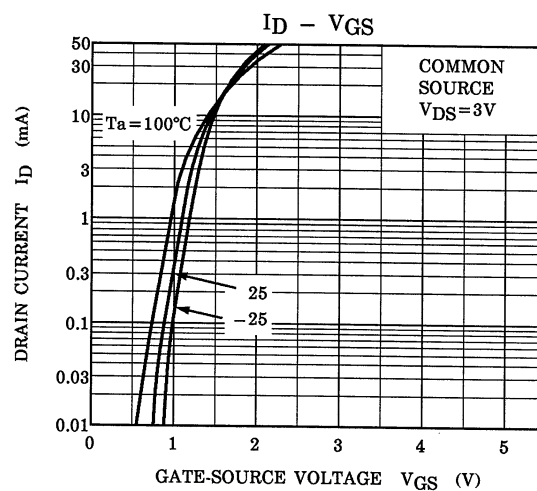
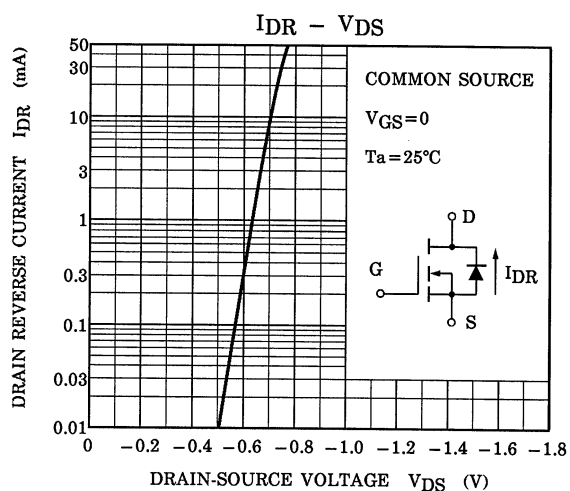
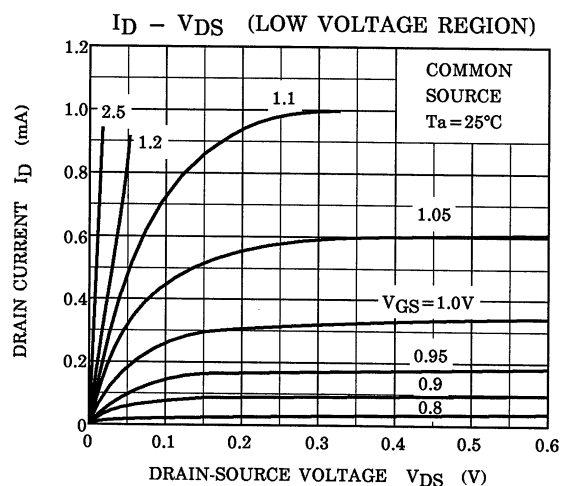
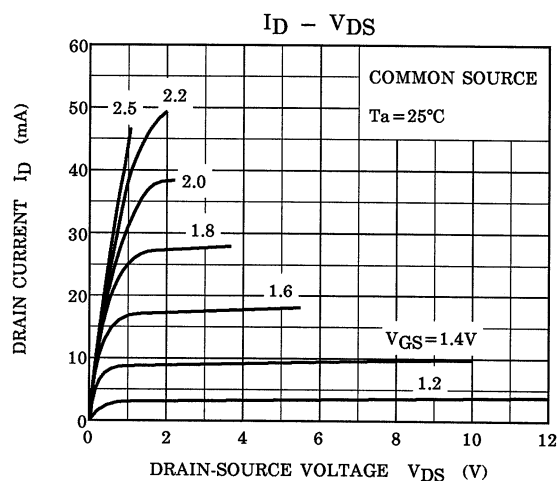
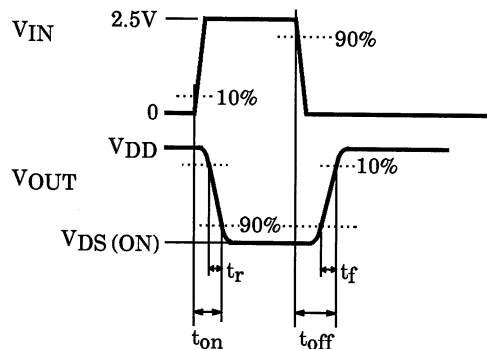
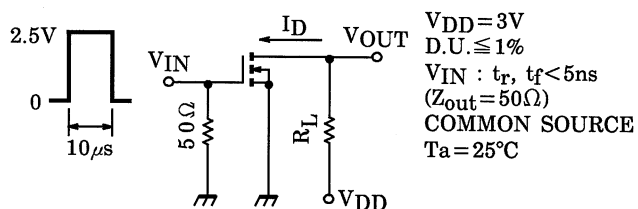


Marking

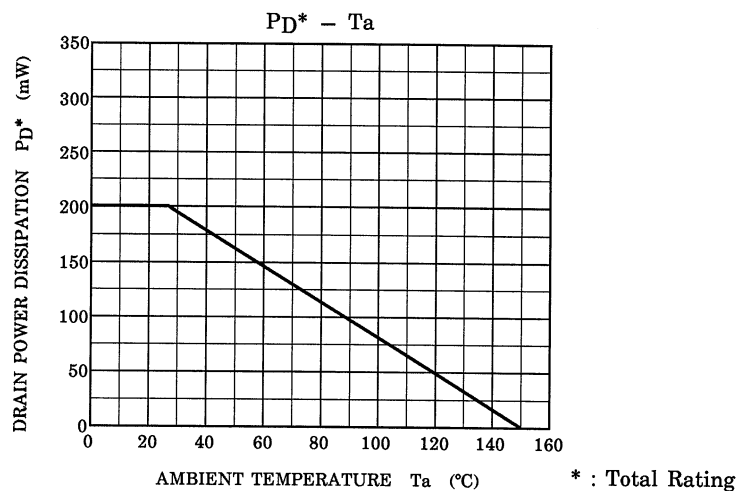
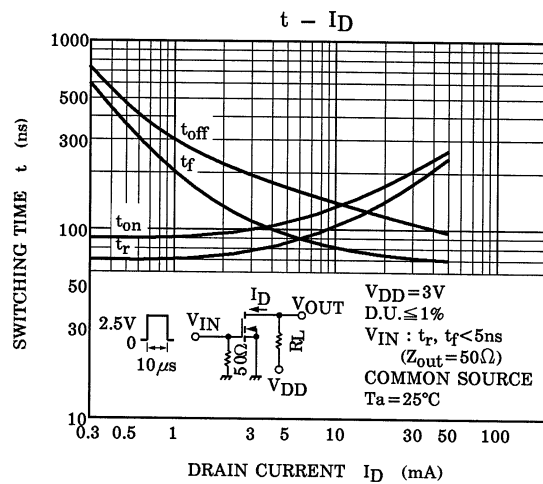
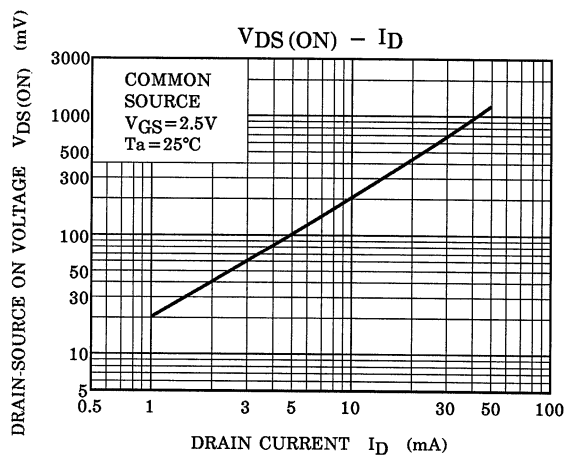
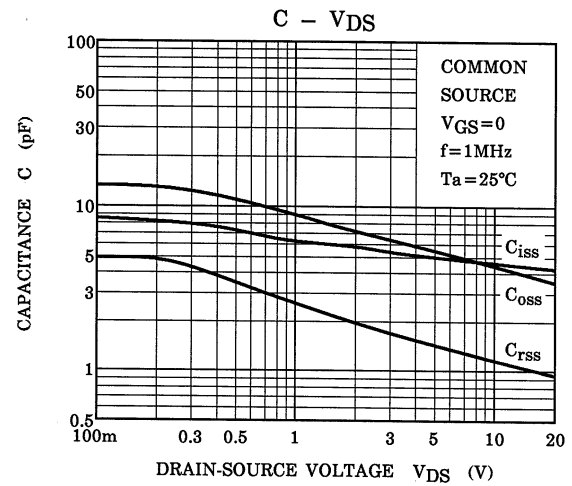
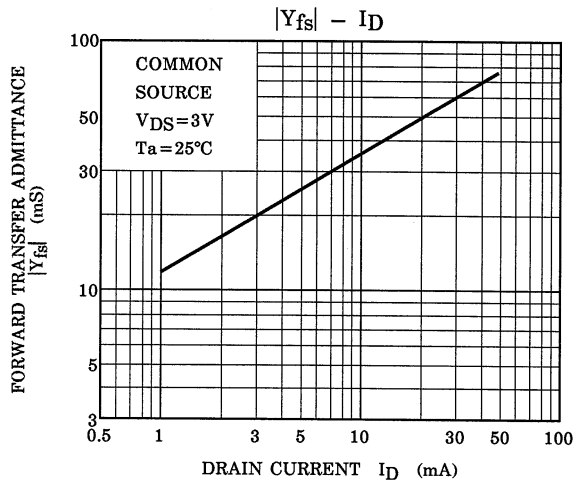


(Q1,Q2 Common)

## Switching Time Test Circuit



(Q1,Q2 Common)



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20070701-EN GENERAL

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