

HN4K03JU

High Speed Switching Applications

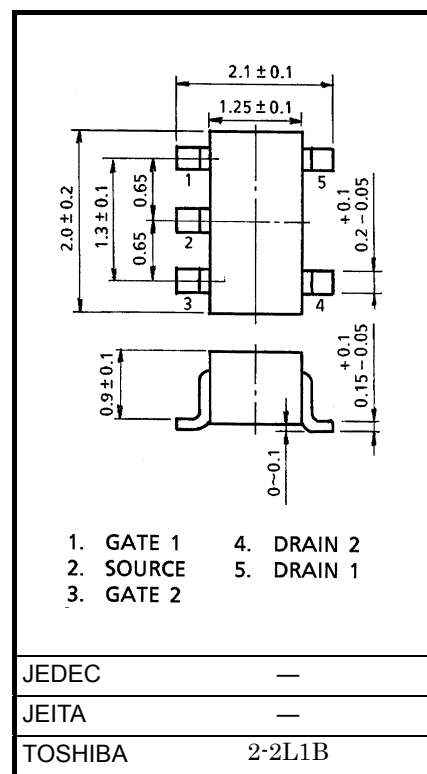
Analog Switch Applications

Unit in mm

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

Absolute Maximum Ratings ($T_a = 25^\circ C$) (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	$^\circ C$
Storage temperature range	T_{stg}	$-55 \sim 150$	$^\circ C$



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.

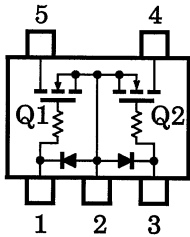
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

*: Total rating

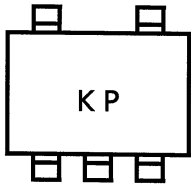
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

Characteristics		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} $	$V_{DS} = 3V, I_D = 10mA$	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}	$V_{DD} = 3V, I_D = 10mA$ $V_{GS} = 0 \sim 2.5V$	—	0.16	—	μs
	Turn-off time	t_{off}	$V_{DD} = 3V, I_D = 10mA$ $V_{GS} = 0 \sim 2.5V$	—	0.15	—	

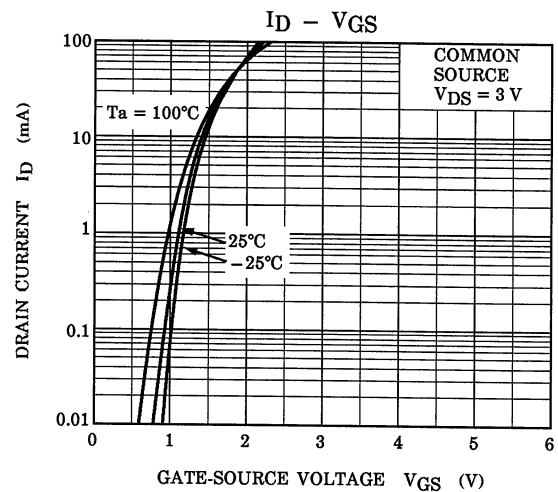
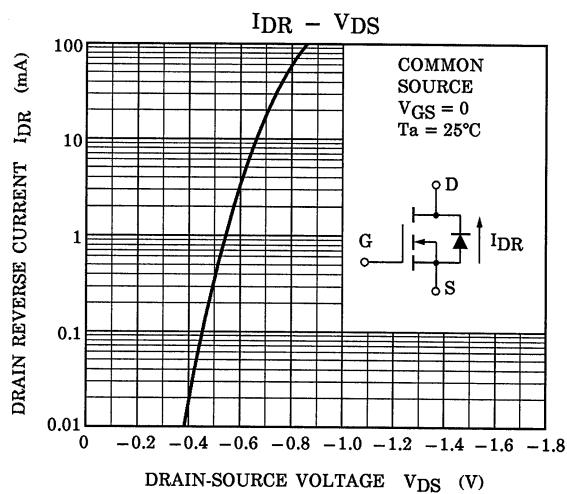
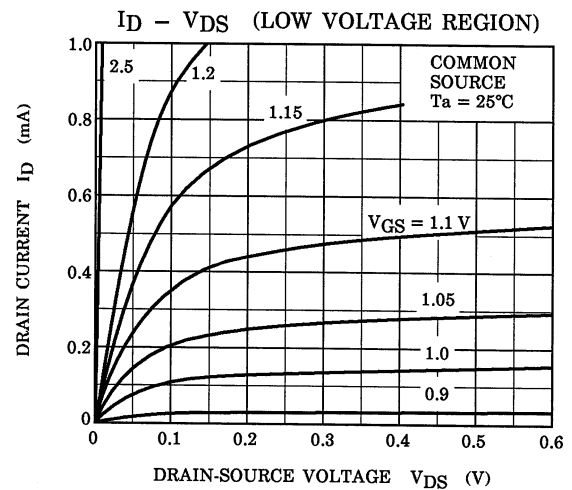
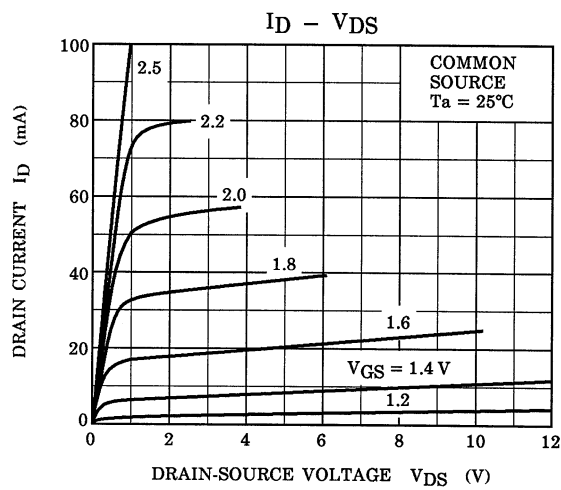
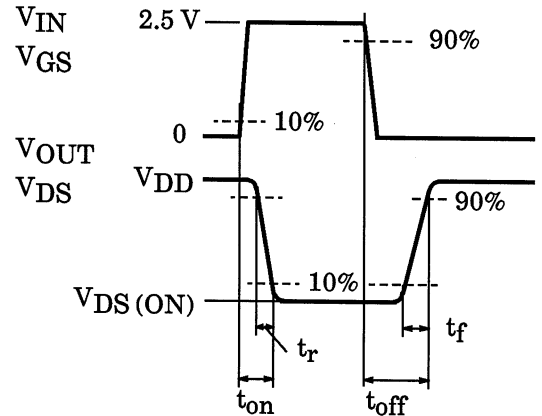
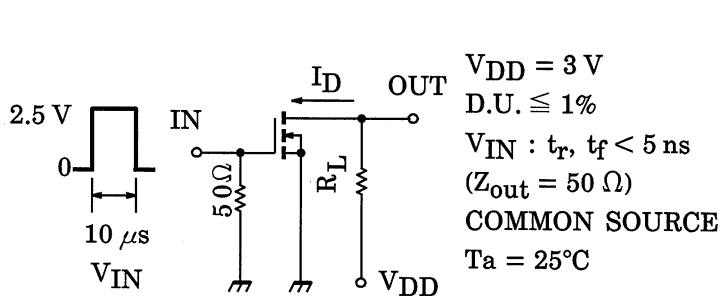
Equivalent Circuit (top view)



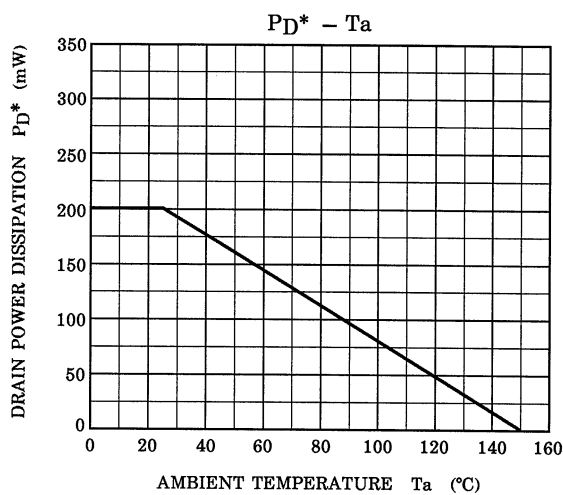
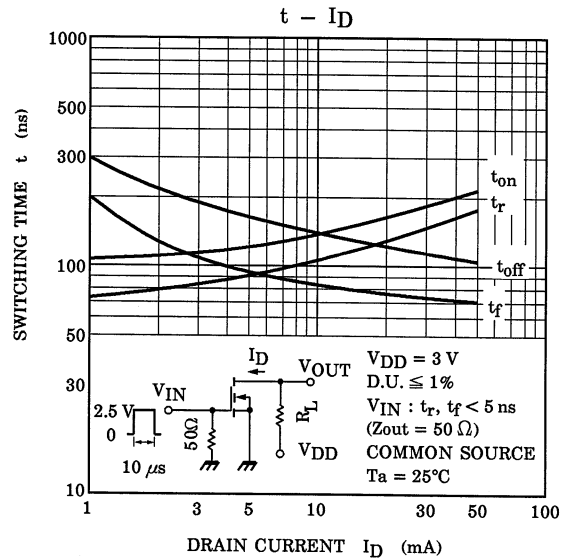
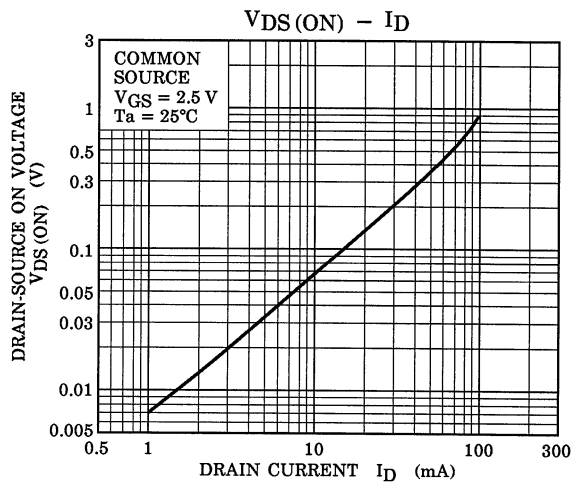
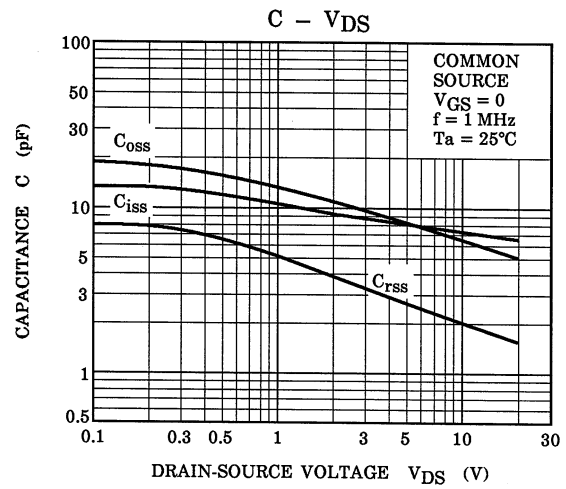
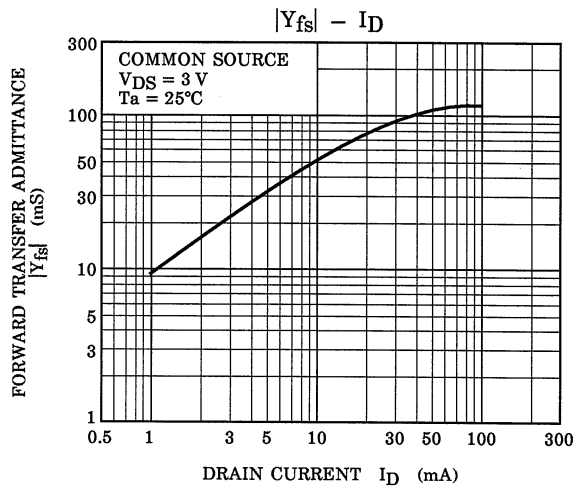
Marking



(Q1, Q2 Common) Switching Time Test Circuit



(Q1, Q2 Common)



* : Total Rating

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