

HN1K02FU

High Speed Switching Applications

Analog Switch Applications

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

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

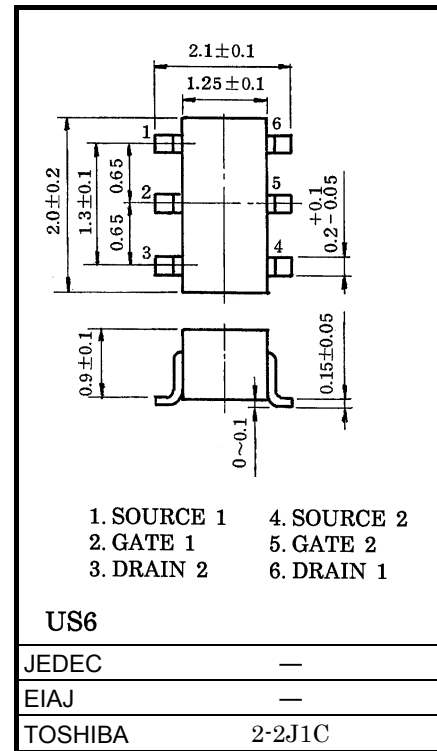
Characteristic	Symbol	Rating	Unit
Drain-Source voltage	V_{DS}	20	V
Gate-Source voltage	V_{GSS}	10	V
DC Drain current	I_D	50	mA
Drain power dissipation	P_D^*	200	mW
Channel temperature	T_{ch}	150	°C
Storage temperature range	T_{stg}	-55~150	°C

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

Unit in mm



US6

JEDEC

EIAJ

TOSHIBA

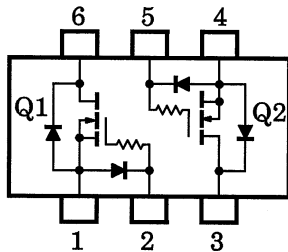
2-2J1C

Weight: 6.8mg

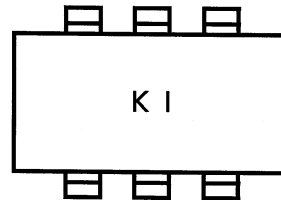
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

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		$V_{(BR)DSS}$	$I_D = 100\mu A, V_{GS} = 0$	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} $	$V_{DS} = 3V, I_D = 10mA$	20	—	—	mS
Drain-Source ON resistance		$R_{DS(ON)}$	$I_D = 10mA, V_{GS} = 2.5V$	—	20	40	Ω
Input capacitance		C_{iss}	$V_{DS} = 3V, V_{GS} = 0, f = 1MHz$	—	5.5	—	pF
Reverse transfer capacitance		C_{rss}	$V_{DS} = 3V, V_{GS} = 0, f = 1MHz$	—	1.6	—	pF
Output capacitance		C_{oss}	$V_{DS} = 3V, V_{GS} = 0, f = 1MHz$	—	6.5	—	pF
Switching time	Turn-on time	t_{on}	$V_{DD} = 3V, I_D = 10mA, V_{GS} = 0\sim 2.5V$	—	0.14	—	μs
	Turn-off time	t_{off}	$V_{DD} = 3V, I_D = 10mA, V_{GS} = 0\sim 2.5V$	—	0.14	—	μs

Equivalent Circuit (Top View)

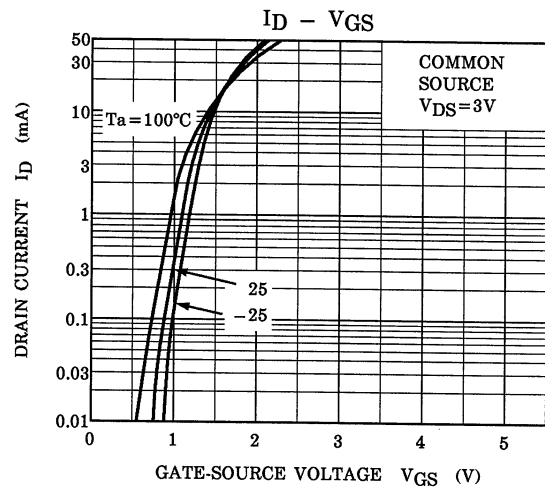
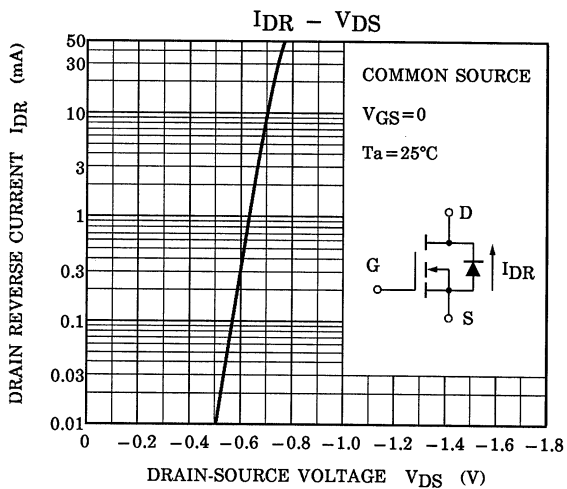
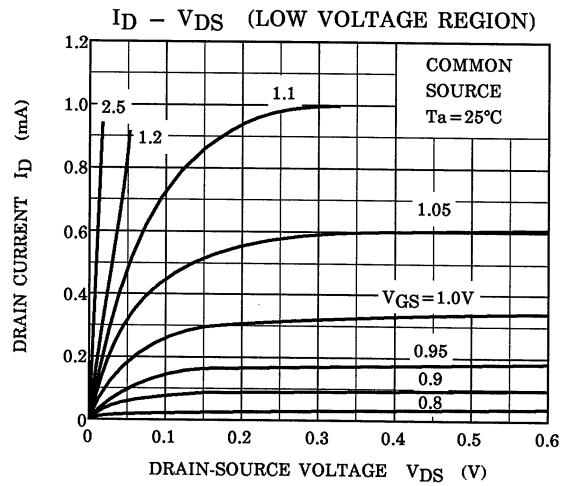
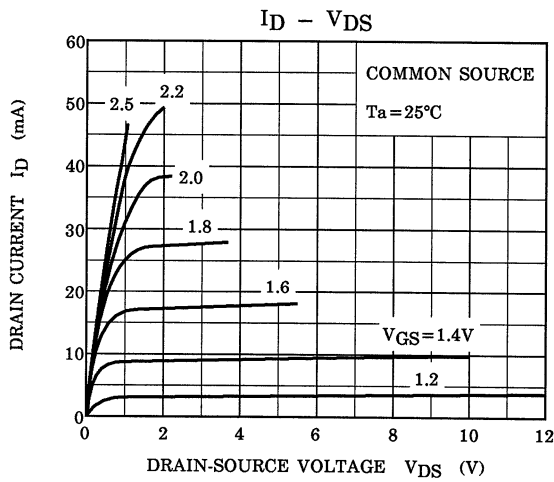
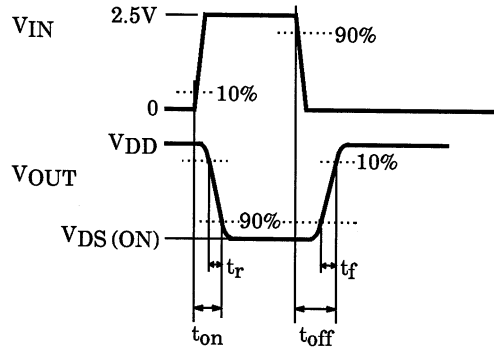
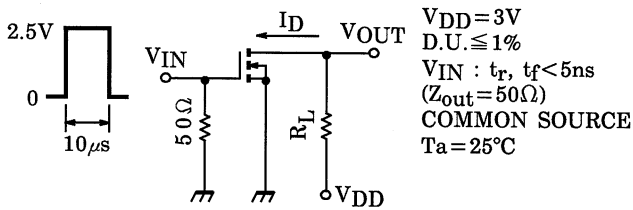


Marking

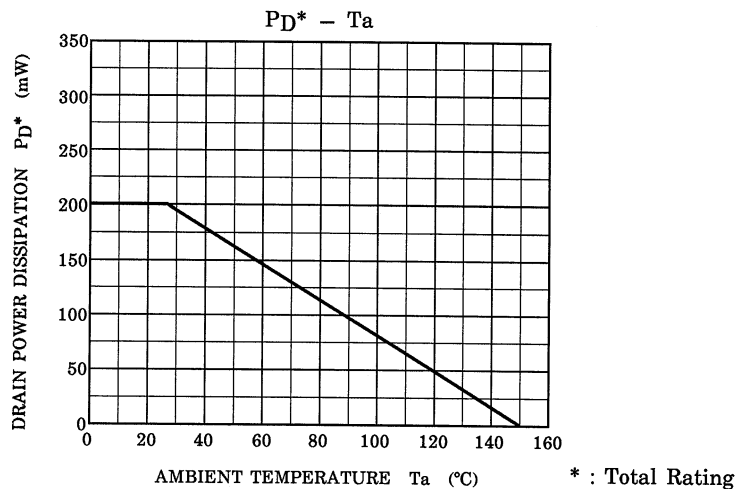
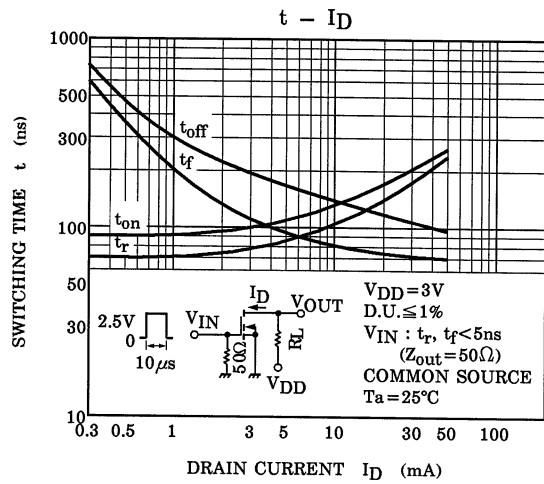
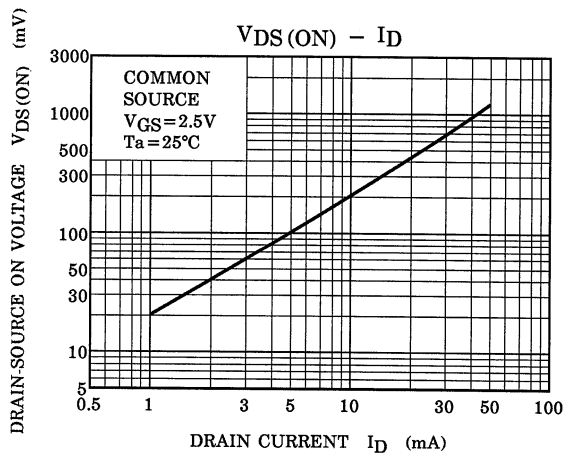
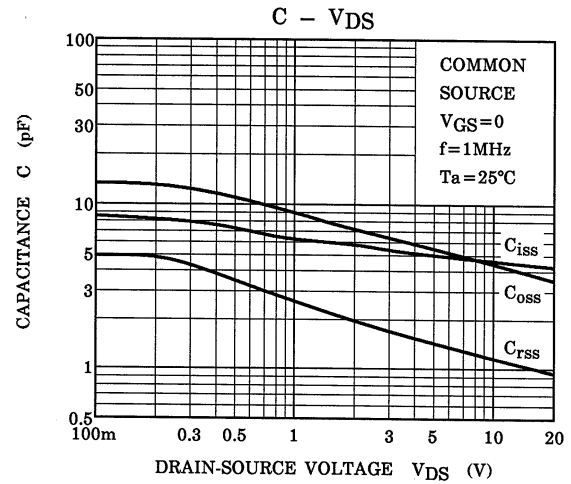
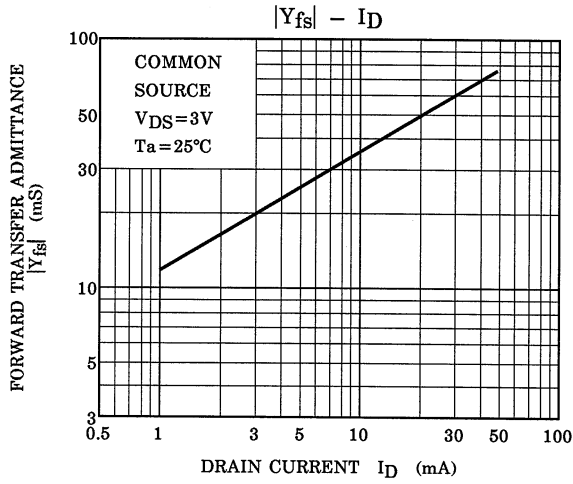


(Q1,Q2 Common)

Switching Time Test Circuit



(Q1,Q2 Common)



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20070701-EN GENERAL

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