

TOSHIBA**HN1K03FU**

TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

HN1K03FU

High Speed Switching Applications

Analog Switch Applications

- High input impedance
- Low gate threshold voltage : $V_{th} = 0.5V \sim 1.5V$
- Excellent switching times : $t_{on} = 0.16\mu s$ (typ.)
 $t_{off} = 0.15\mu s$ (typ.)
- Small package
- Enhancement-mode

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

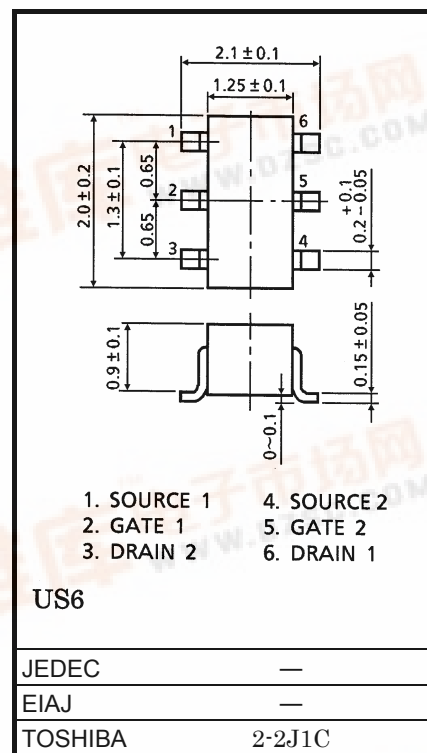
Characteristic	Symbol	Rating	Unit
Drain-Source voltage	V_{DS}	20	V
Gate-Source voltage	V_{GSS}	10	V
DC Drain current	I_D	100	mA
Drain power dissipation	P_D^*	200	mW
Channel temperature	T_{ch}	150	°C
Storage temperature range	T_{stg}	-55~150	°C

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

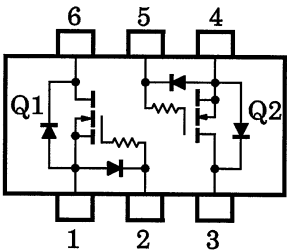


Weight: 6.8mg

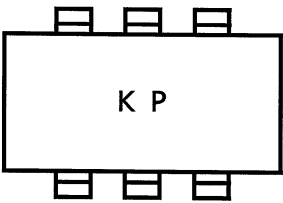
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

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	25	50	—	mS
Drain-Source ON resistance		RDS (ON)	ID = 10mA, VGS = 2.5V	—	8	12	Ω
Input capacitance		Ciss	VDS = 3V, VGS = 0, f = 1MHz	—	8.5	—	pF
Reverse transfer capacitance		Crss	VDS = 3V, VGS = 0, f = 1MHz	—	3.3	—	pF
Output capacitance		Coss	VDS = 3V, VGS = 0, f = 1MHz	—	9.3	—	pF
Switching time	Turn-on time	ton	VDD = 3V, ID = 10mA, VGS = 0~2.5V	—	0.16	—	μs
	Turn-off time	toff	VDD = 3V, ID = 10mA, VGS = 0~2.5V	—	0.15	—	μs

Equivalent Circuit (Top View)

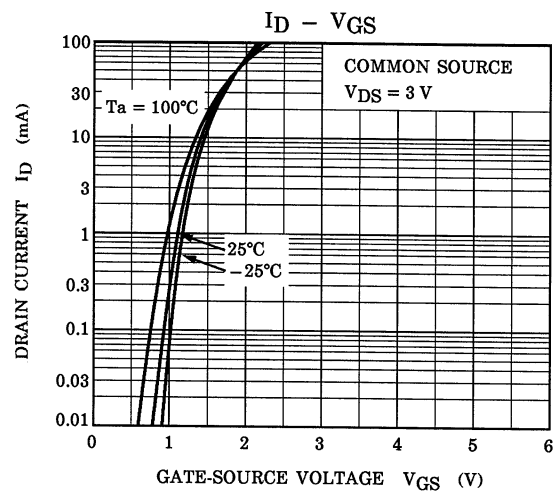
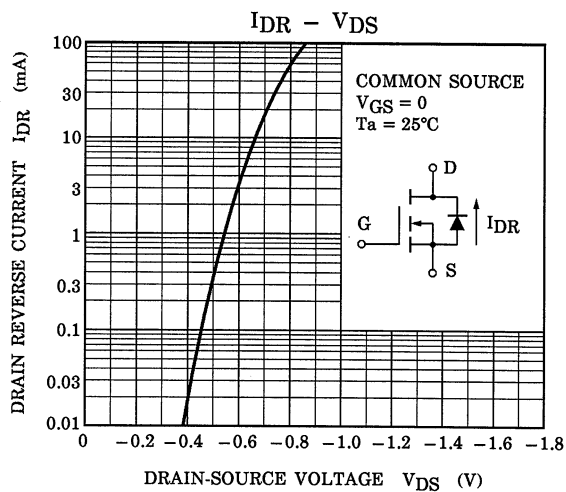
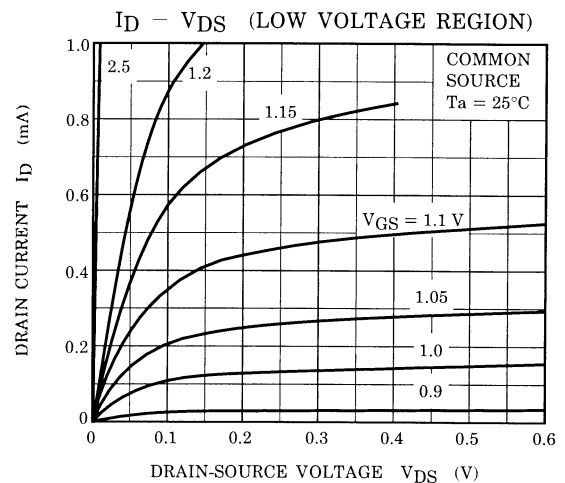
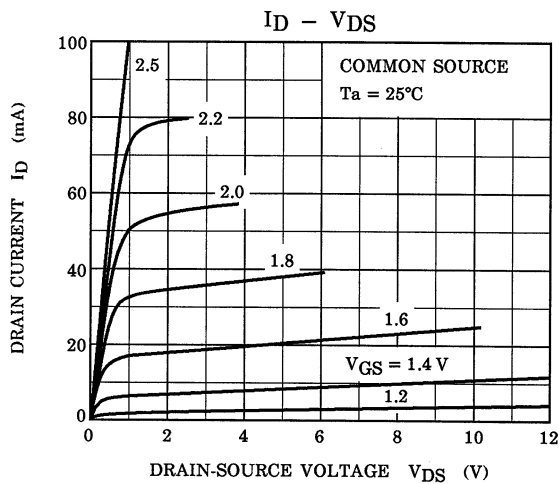
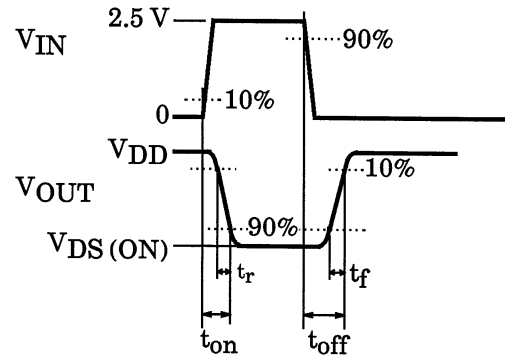
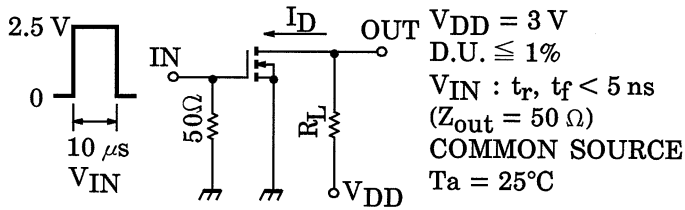


Marking

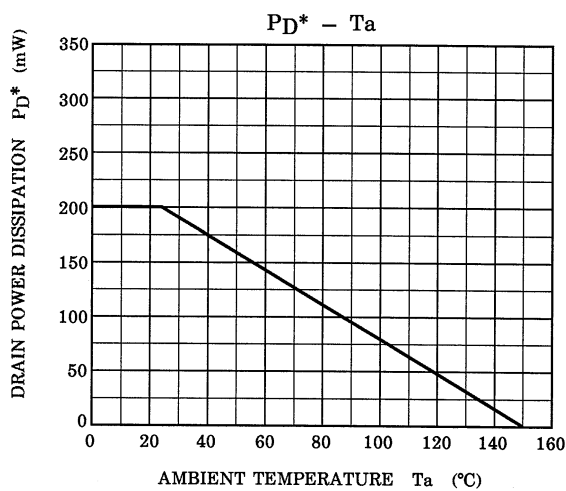
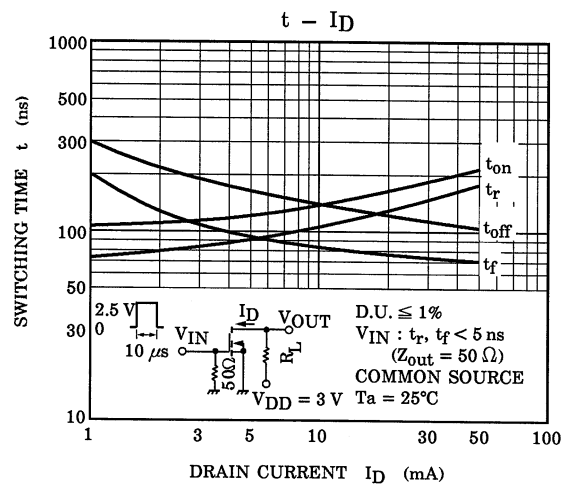
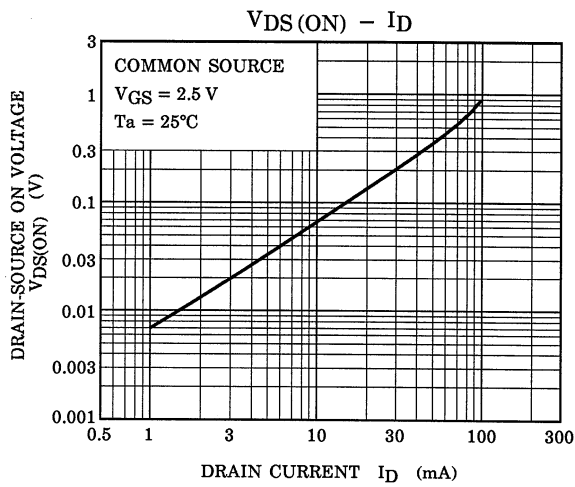
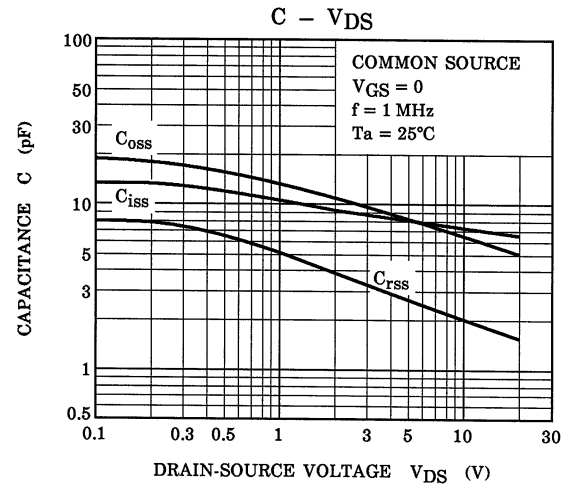
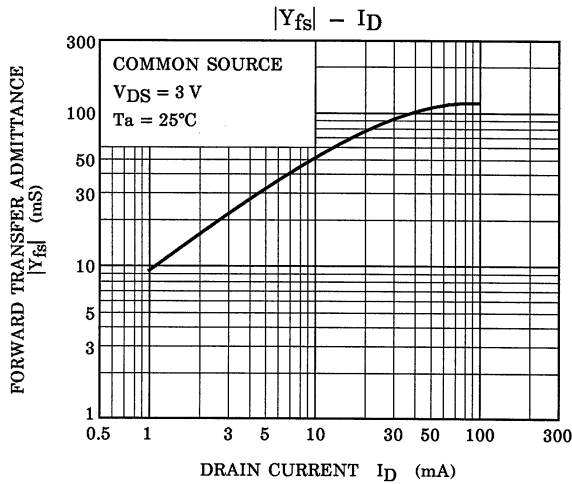


(Q1,Q2 Common)

Switching Time Test Circuit



(Q1,Q2 Common)



* : Total Rating

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20070701-EN GENERAL

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