TOSHIBA Field Effect Transistor Silicon P Channel Mos Type

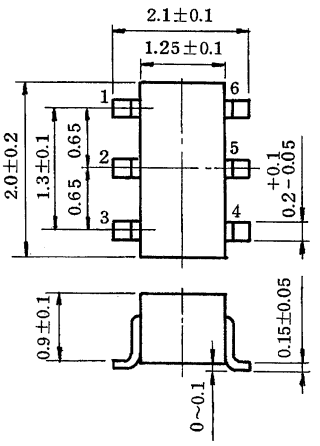
HN1J02FU

High Speed Switching Applications

Analog Switch Applications

- High input impedance
- Low threshold voltage: V_{th} =−0.5V~−1.5V
- High speed
- Small package

Unit in mm



1. SOURCE 1
2. GATE 1
3. DRAIN 2
4. SOURCE 2
5. GATE 2
6. DRAIN 1

US6

JEDEC	—
EIAJ	—
TOSHIBA	2-2J1C

Weight: 6.8mg

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}	−7	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

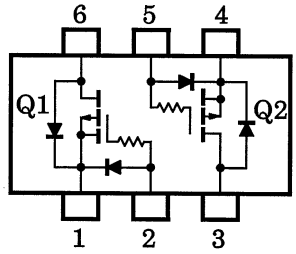
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

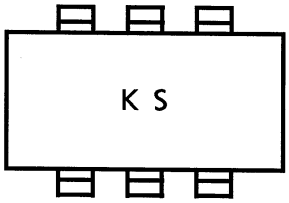
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I_{GSS}	—	V_{GS} = −7V, V_{DS} = 0	—	—	−1	μA
Drain-source breakdown voltage		$V_{(BR)\ DSS}$	—	I_D = −100μA, 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	15	—	—	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	—	10.4	—	pF
Reverse transfer capacitance		C_{rss}	—	V_{DS} = −3V, V_{GS} = 0, f = 1MHz	—	2.8	—	pF
Output capacitance		C_{oss}	—	V_{DS} = −3V, V_{GS} = 0, f = 1MHz	—	8.4	—	pF
Switching time	Turn-on time	t_{on}	—	V_{DD} = −3V, I_D = −10mA, V_{GS} = 0~−2.5V	—	0.15	—	μs
	Turn-off time	t_{off}	—	V_{DD} = −3V, I_D = −10mA, V_{GS} = 0~−2.5V	—	0.13	—	μs

Equivalent Circuit (Top View)

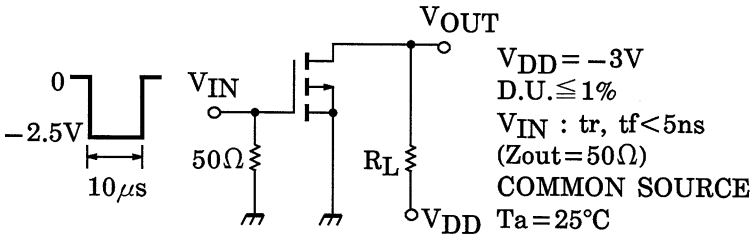


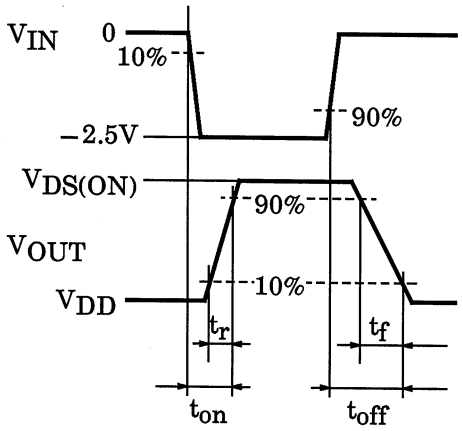
Marking

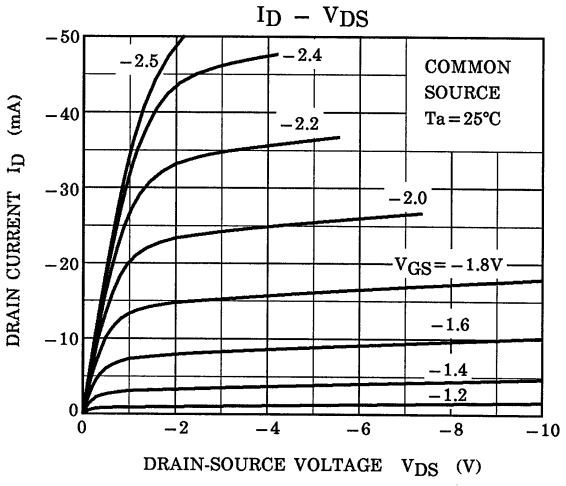


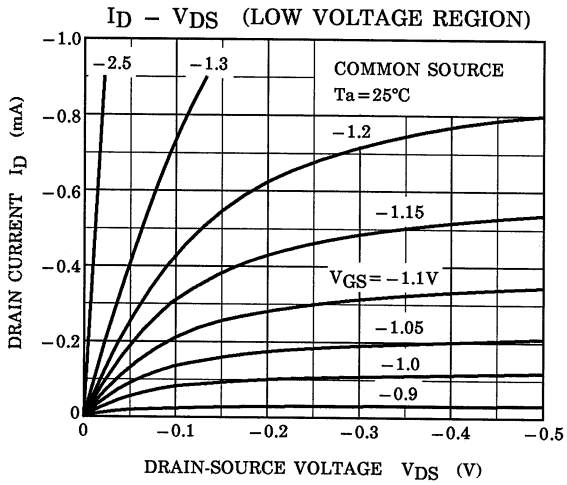
(Q1,Q2 Common)

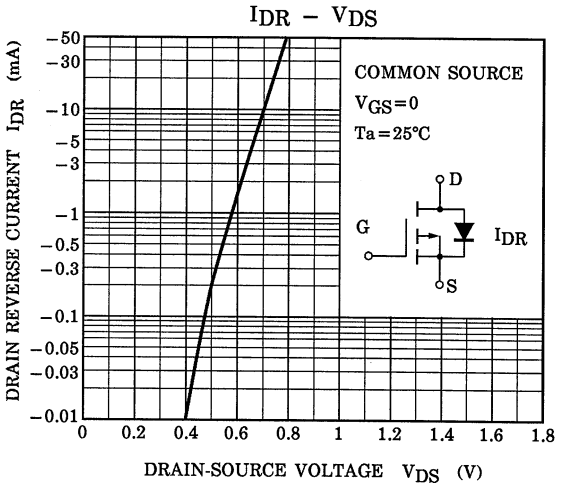
Switching Time Test Circuit

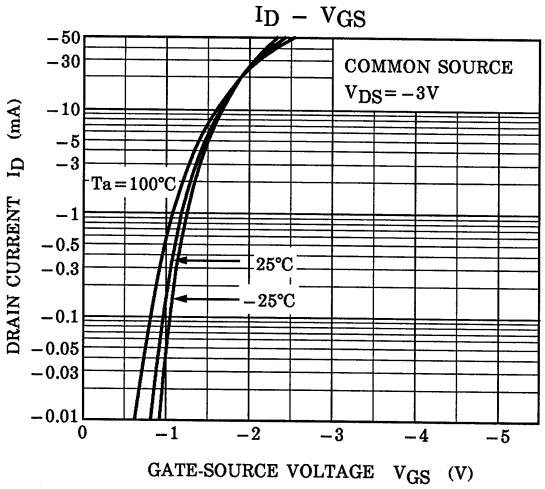






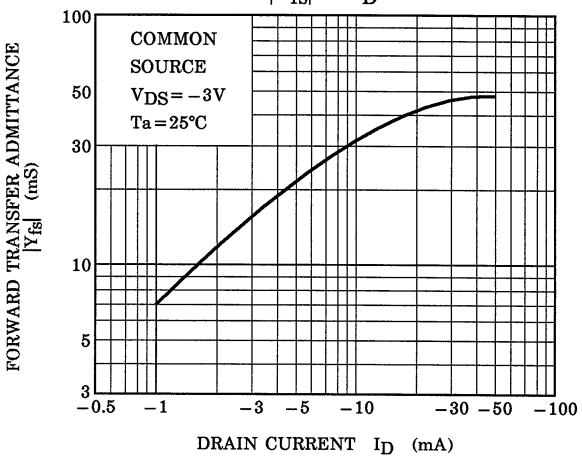




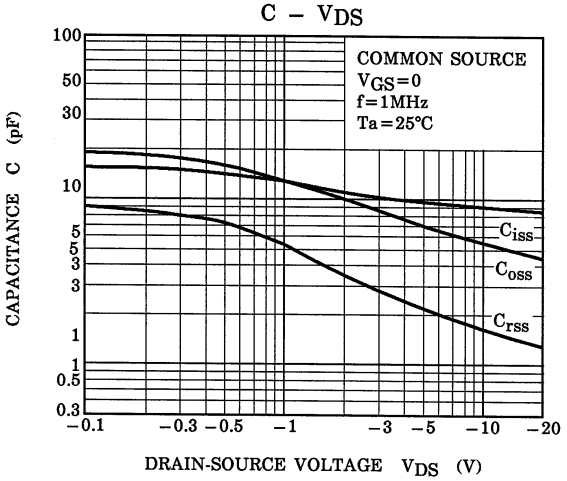


(Q1,Q2 Common)

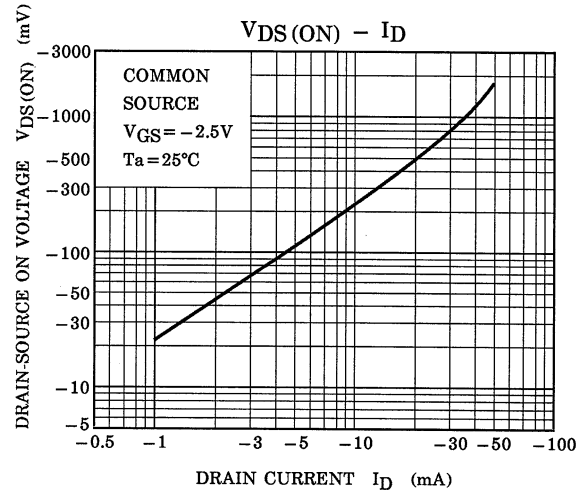
$|Y_{fs}|$ – I_D



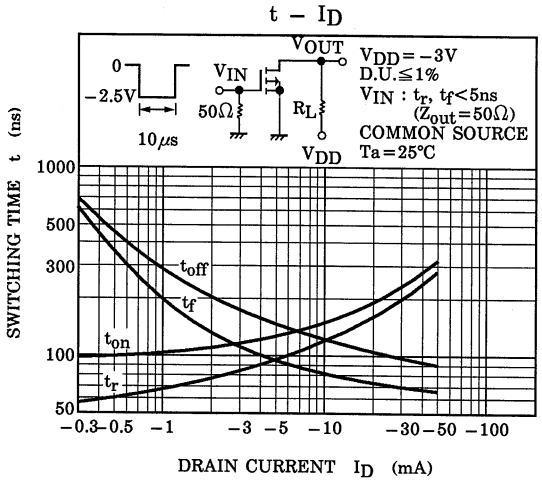
C – V_{DS}



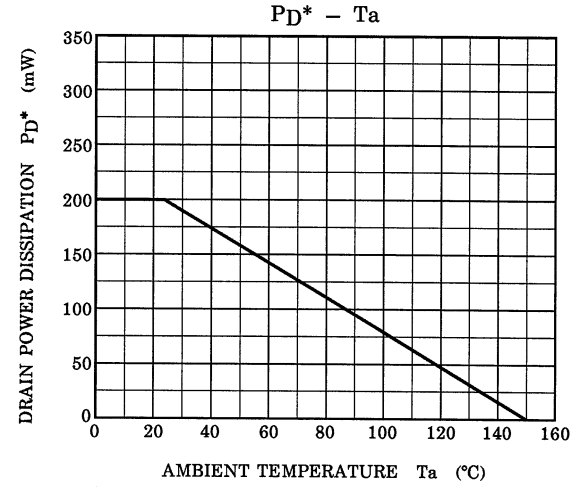
$V_{DS(ON)}$ – I_D



t – I_D



P_D* – Ta



* : Total Rating

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20070701-EN GENERAL

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