

TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

HN1K03FU

High Speed Switching Applications

Analog Switch Applications

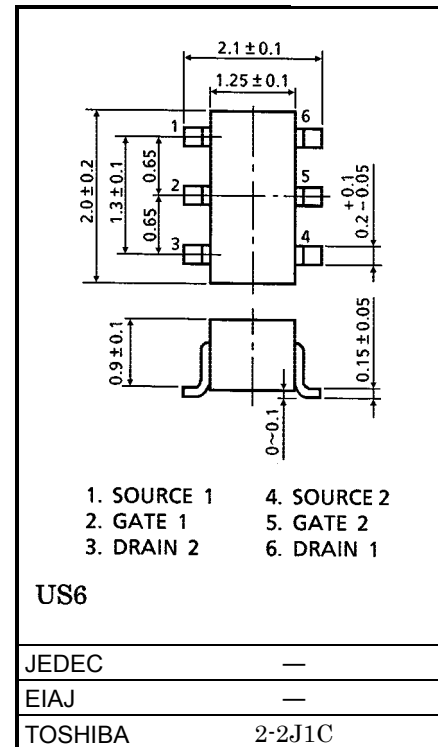
Unit in mm

- 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

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

*: Total rating



Weight: 6.8mg

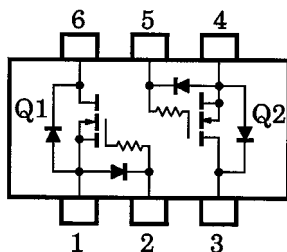
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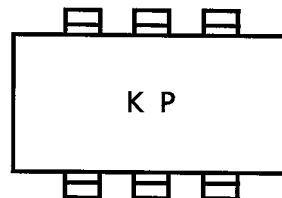
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

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} $	$V_{DS} = 3V, I_D = 10mA$	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	—	μs

Equivalent Circuit (Top View)

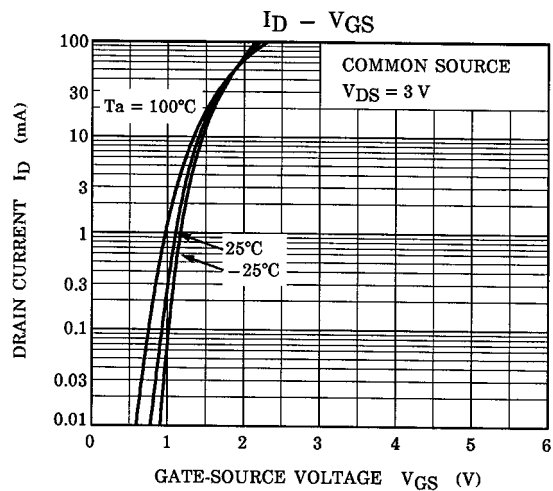
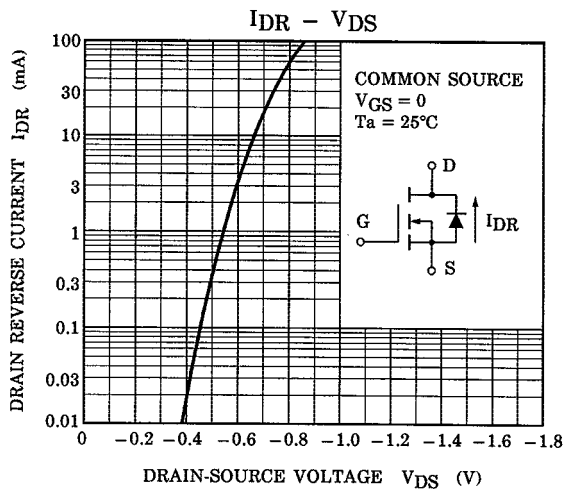
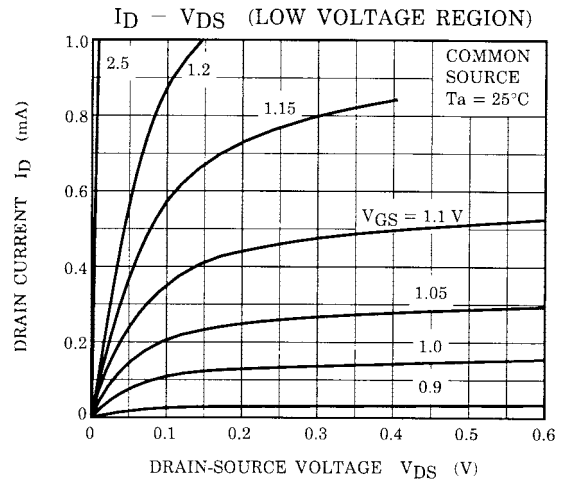
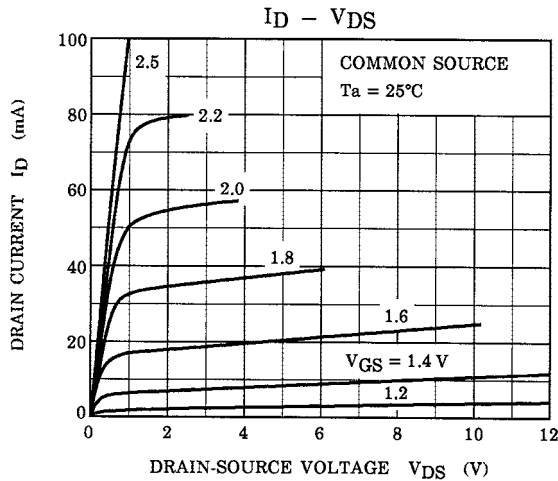
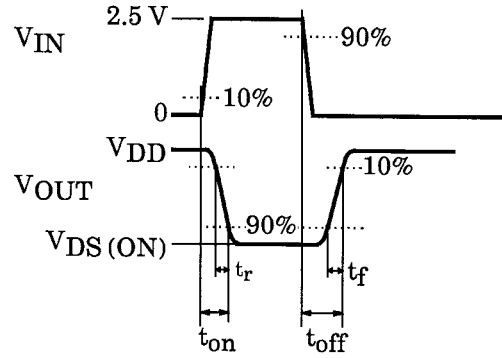
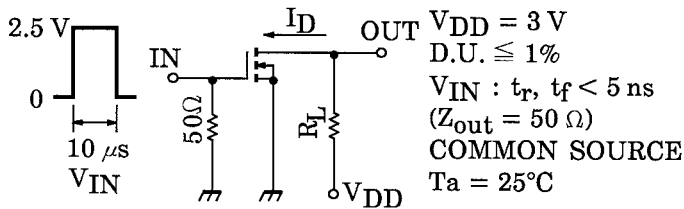


Marking

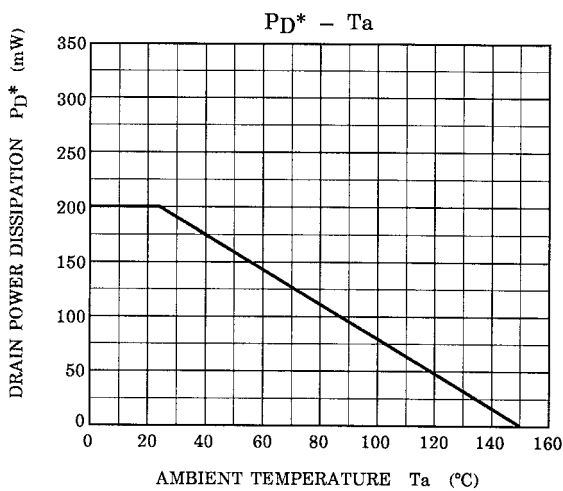
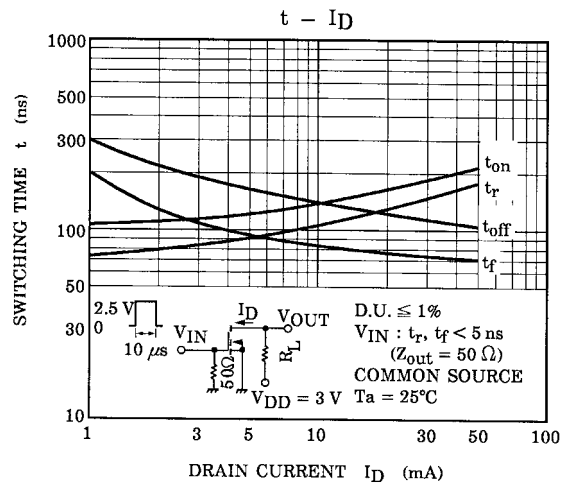
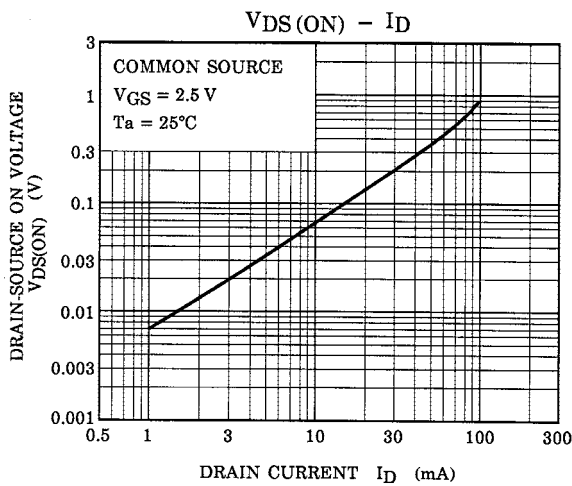
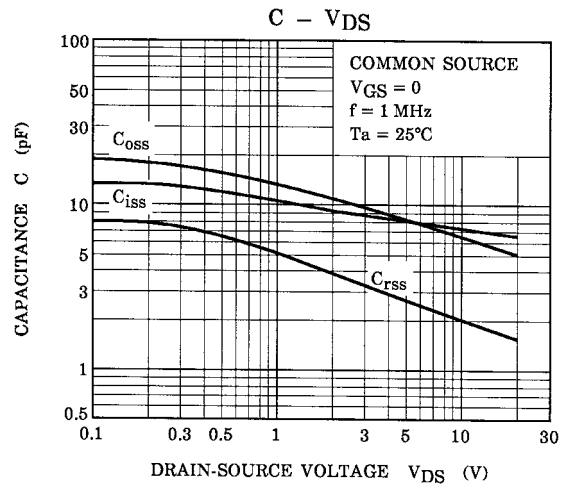
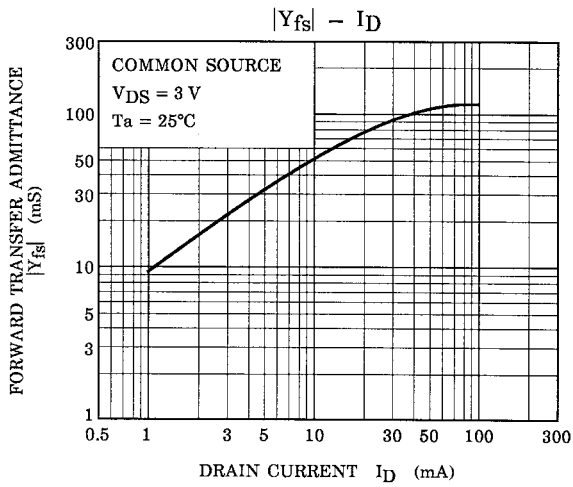


(Q1,Q2 Common)

Switching Time Test Circuit



(Q1,Q2 Common)



* : Total Rating