

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

HN1K03FU

HIGH SPEED SWITCHING APPLICATIONS.

ANALOG SWITCH APPLICATIONS.

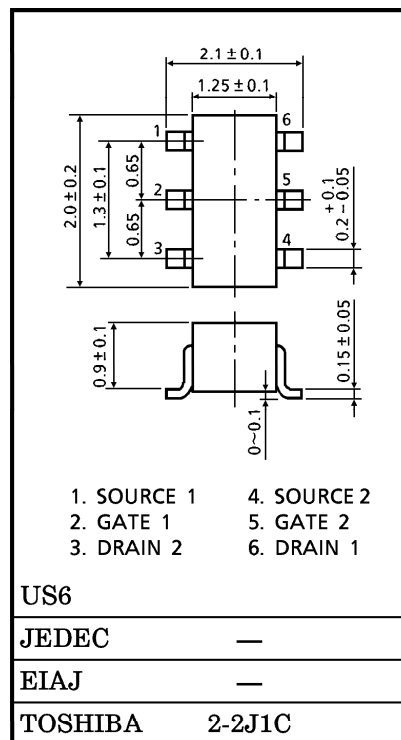
- High Input Impedance
- Low Gate Threshold Voltage : $V_{th} = 0.5 \sim 1.5 \text{ V}$
- Excellent Switching Times : $t_{on} = 0.16 \mu\text{s}$ (typ.)
 $t_{off} = 0.15 \mu\text{s}$ (typ.)
- Small Package
- Enhancement-Mode

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

Unit in mm



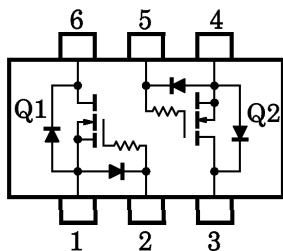
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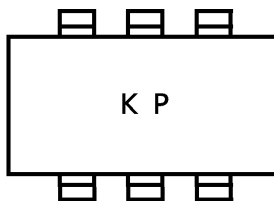
ELECTRICAL CHARACTERISTICS (Ta = 25°C) (Q1, Q2 COMMON)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current	I_{GSS}	$V_{GS} = 10\text{ V}, V_{DS} = 0$	—	—	1	μA
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 100\ \mu\text{A}, V_{GS} = 0$	20	—	—	V
Drain Cut-off Current	I_{DSS}	$V_{DS} = 20\text{ V}, V_{GS} = 0$	—	—	1	μA
Gate Threshold Voltage	V_{th}	$V_{DS} = 3\text{ V}, I_D = 0.1\text{ mA}$	0.5	—	1.5	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 3\text{ V}, I_D = 10\text{ mA}$	25	50	—	mS
Drain-Source ON Resistance	$R_{DS(ON)}$	$I_D = 10\text{ mA}, V_{GS} = 2.5\text{ V}$	—	8	12	Ω
Input Capacitance	C_{iss}	$V_{DS} = 3\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	—	8.5	—	pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = 3\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	—	3.3	—	pF
Output Capacitance	C_{oss}	$V_{DS} = 3\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	—	9.3	—	pF
Switching Time	Turn-on Time	t_{on} $V_{DD} = 3\text{ V}, I_D = 10\text{ mA}$ $V_{GS} = 0\sim 2.5\text{ V}$	—	0.16	—	μs
	Turn-off Time	t_{off} $V_{DD} = 3\text{ V}, I_D = 10\text{ mA}$ $V_{GS} = 0\sim 2.5\text{ V}$	—	0.15	—	μs

EQUIVALENT CIRCUIT (TOP VIEW)

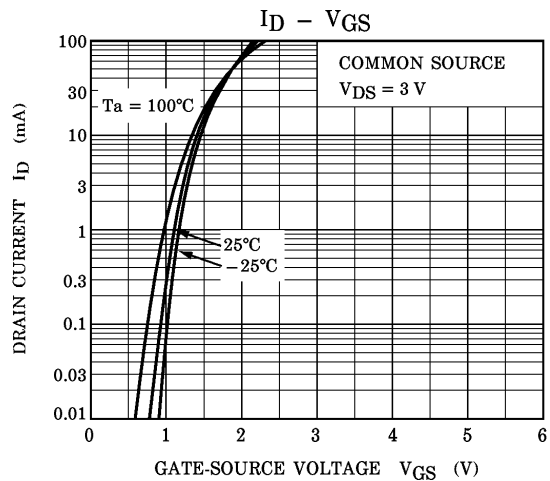
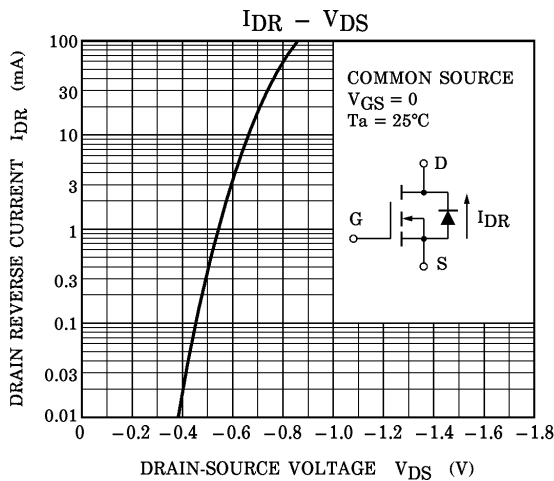
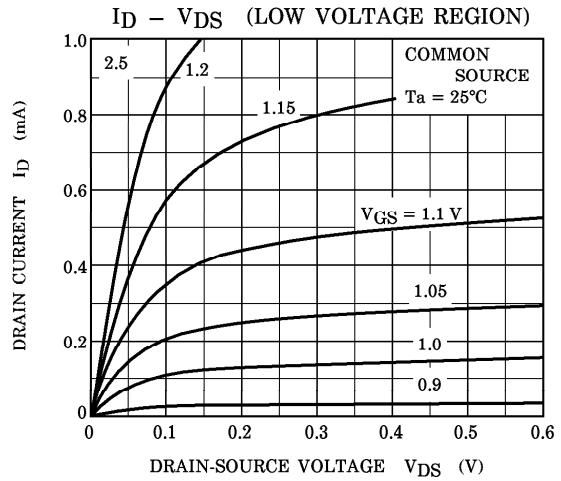
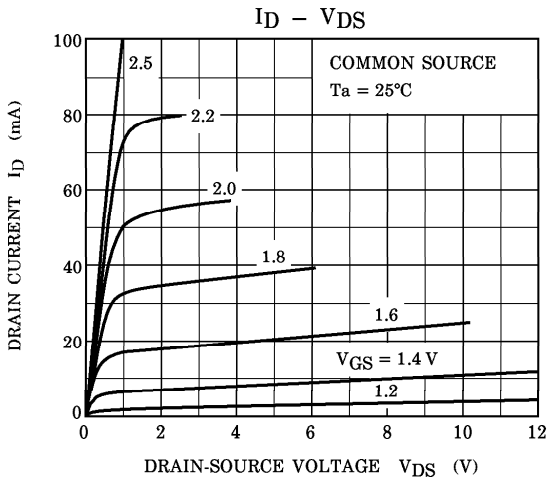
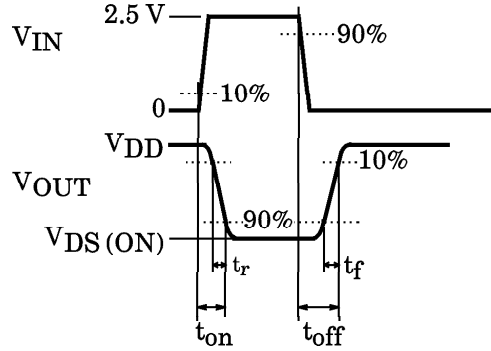
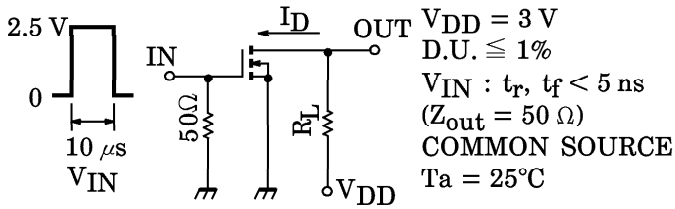


MARKING

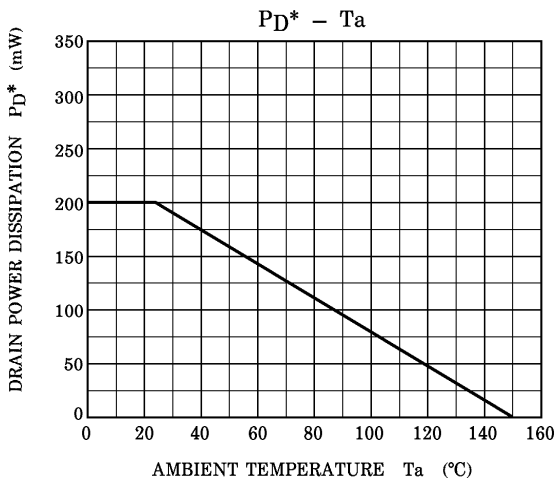
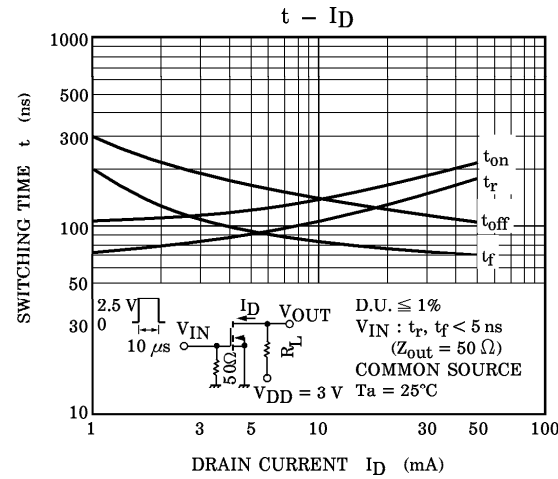
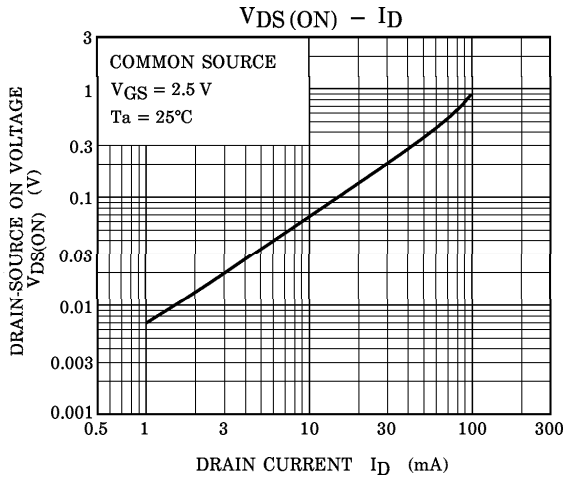
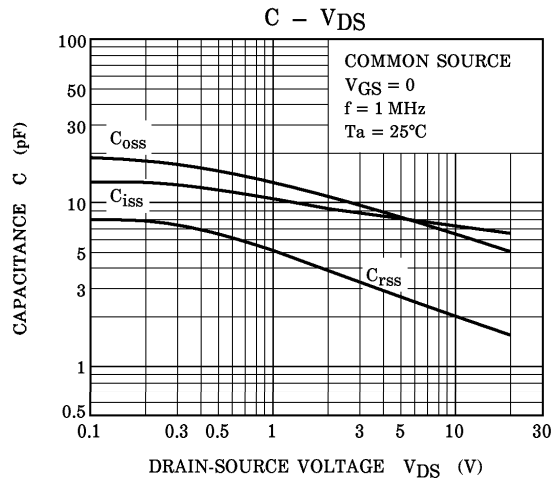
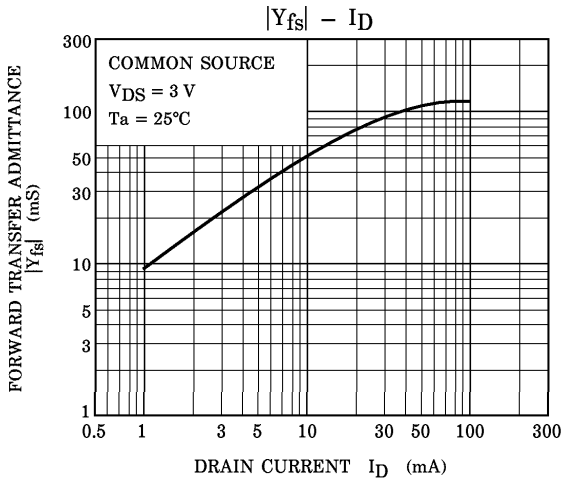


(Q1, Q2 COMMON)

SWITCHING TIME TEST CIRCUIT



(Q1, Q2 COMMON)



* : Total Rating