

HN1L03FU

High Speed Switching Applications
Analog Switch Applications

Unit in mm

Q1, Q2 common

- Low threshold voltage
Q1: $V_{th} = 0.8 \sim 2.5V$ Q2: $V_{th} = -0.5 \sim -1.5V$
- High speed
- Small package

Q1 Maximum Ratings ($T_a = 25^\circ C$)

Characteristic	Symbol	Rating	Unit
Drain-Source voltage	V_{DS}	50	V
Gate-Source voltage	V_{GSS}	10	V
Drain current	I_D	50	mA

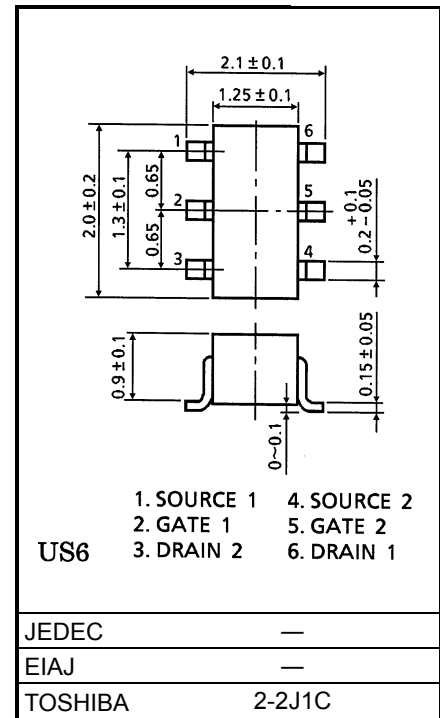
Q2 Maximum Ratings ($T_a = 25^\circ C$)

Characteristic	Symbol	Rating	Unit
Drain-Source voltage	V_{DS}	-20	V
Gate-Source voltage	V_{GSS}	-7	V
Drain current	I_D	-50	mA

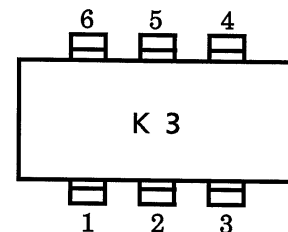
Maximum Ratings (Q1, Q2 Common) ($T_a = 25^\circ C$)

Characteristic	Symbol	Rating	Unit
Drain power dissipation	P_{D^*}	200	mW
Channel temperature	T_{ch}	150	$^\circ C$
Storage temperature range	T_{stg}	-55~150	$^\circ C$

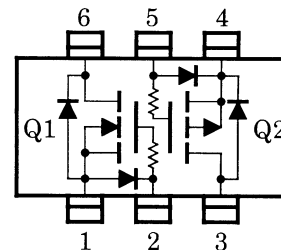
* Total rating



Marking



Equivalent Circuit (Top View)



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Q1 Electrical Characteristics (Ta = 25°C)

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 = 100μA, V _{GS} = 0	50	—	—	V
Drain cut-off current		I _{DSS}	V _{DS} = 50V, V _{GS} = 0	—	—	1	μA
Gate threshold voltage		V _{th}	V _{DS} = 5V, I _D = 0.1mA	0.8	—	2.5	V
Forward transfer admittance		Y _{fs}	V _{DS} = 5V, I _D = 10mA	20	—	—	mS
Drain-Source ON resistance		R _{DS (ON)}	I _D = 10mA, V _{GS} = 4.0V	—	20	50	Ω
Input capacitance		C _{iss}	V _{DS} = 5V, V _{GS} = 0, f = 1MHz	—	6.3	—	pF
Reverse transfer capacitance		C _{rss}	V _{DS} = 5V, V _{GS} = 0, f = 1MHz	—	1.3	—	pF
Output capacitance		C _{oss}	V _{DS} = 5V, V _{GS} = 0, f = 1MHz	—	5.7	—	pF
Switching time	Turn-on time	t _{on}	V _{DD} = 5V, I _D = 10mA, V _{GS} = 0~4.0V	—	0.11	—	μs
	Turn-off time	t _{off}	V _{DD} = 5V, I _D = 10mA, V _{GS} = 0~4.0V	—	0.15	—	μs

Q2 Electrical Characteristics (Ta = 25°C)

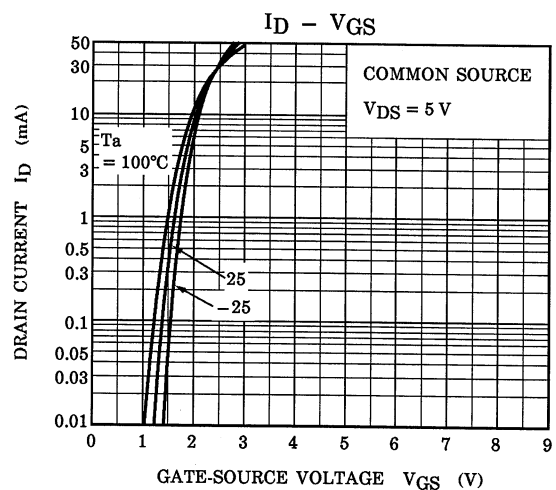
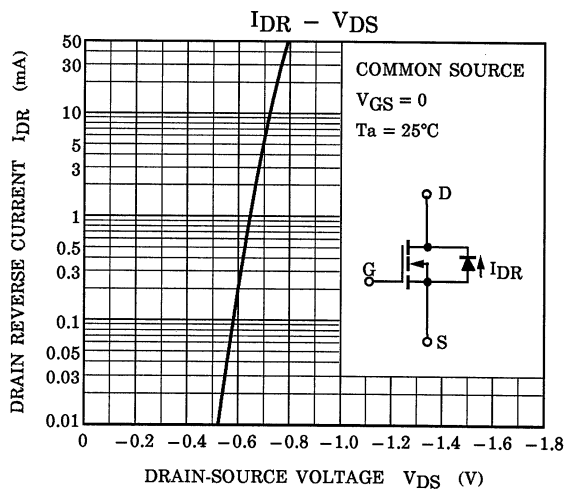
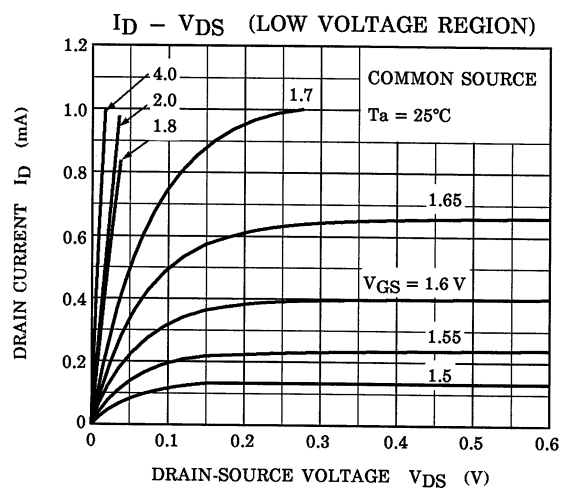
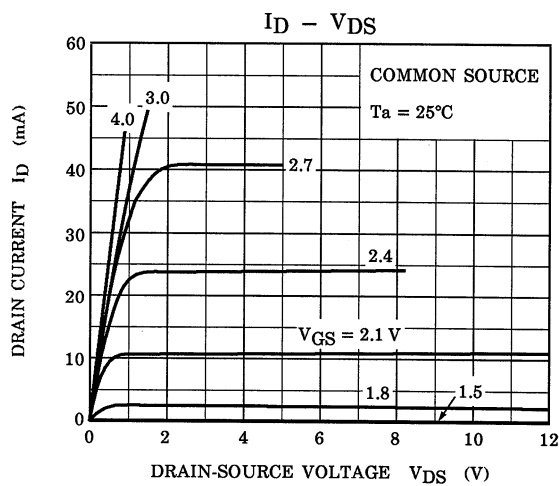
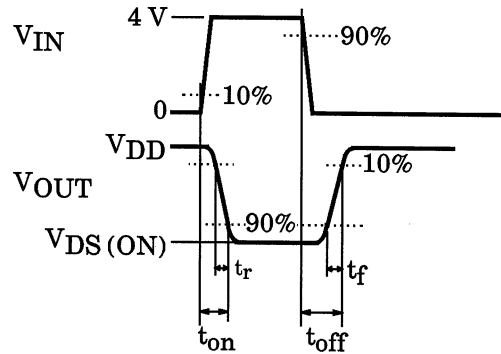
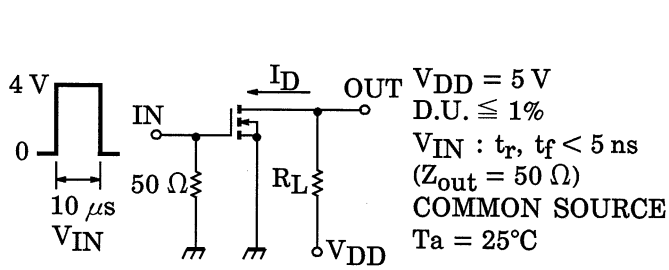
Characteristic		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I _{GSS}	V _{GS} = -7V, V _{DS} = 0	—	—	-1	μA
Drain-Source breakdown voltage		V _(BR) DSS	I _D = -100μA, V _{GS} = 0	-20	—	—	V
Drain cut-off current		I _{DSS}	V _{DS} = -20V, V _{GS} = 0	—	—	-1	μA
Gate threshold voltage		V _{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

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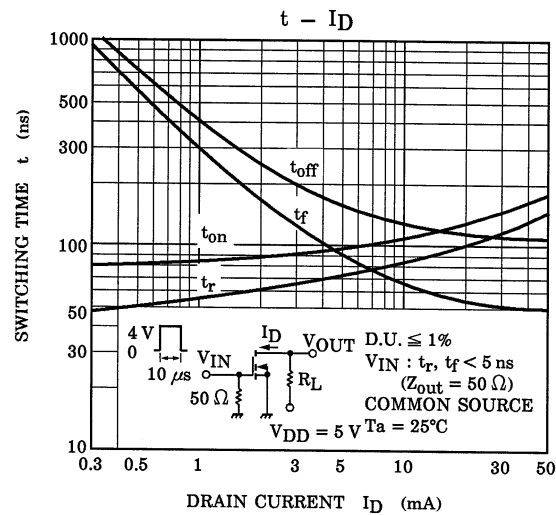
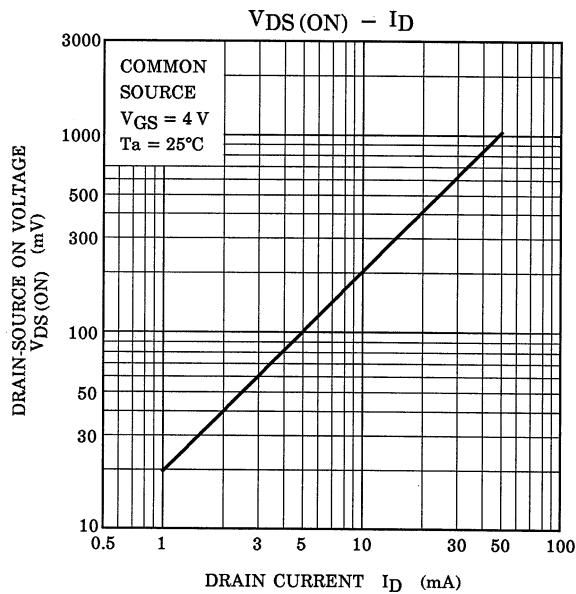
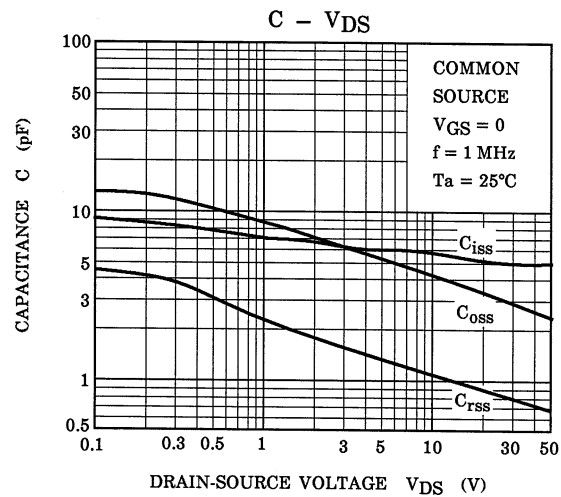
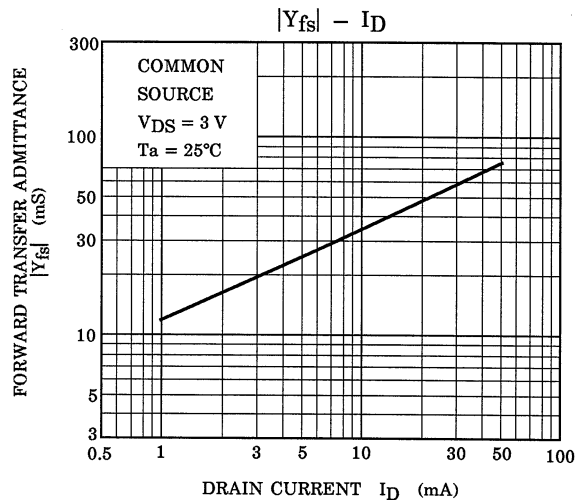
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Q1 (Nch MOS FET)

Switching Time Test Circuit

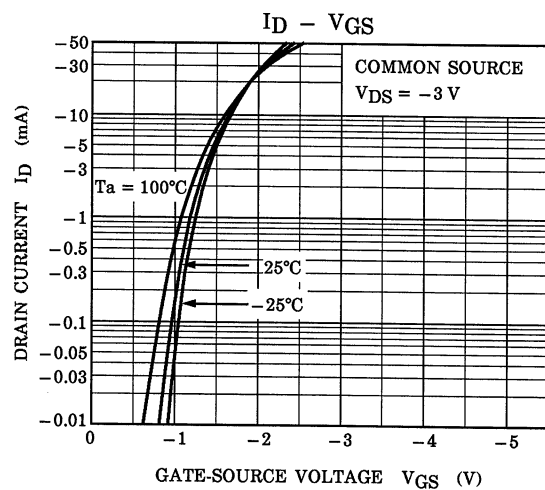
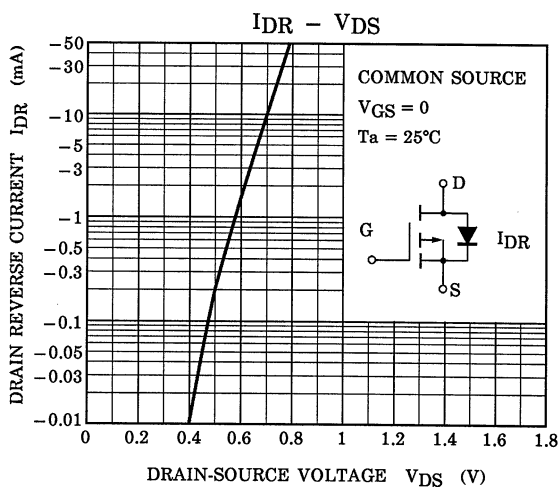
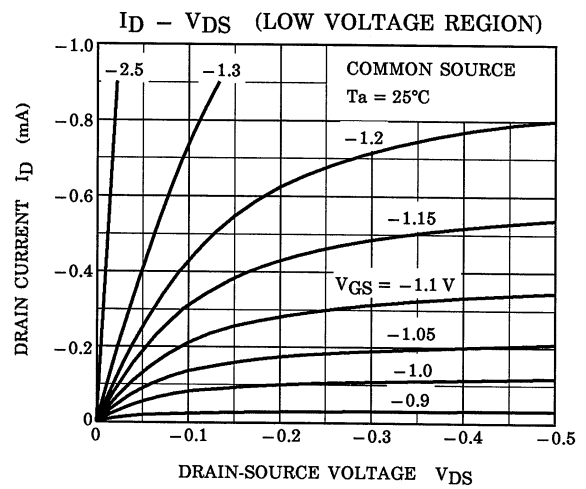
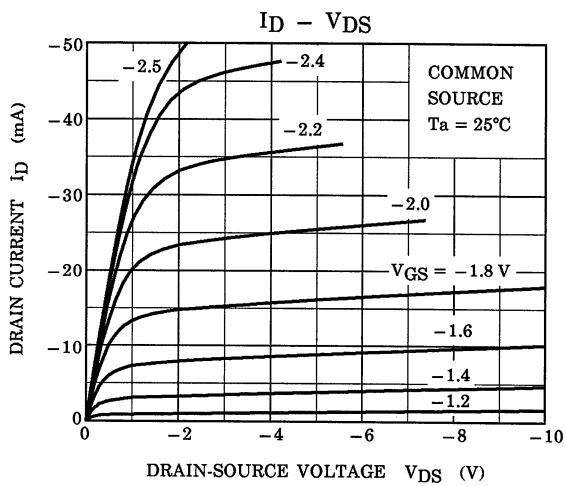
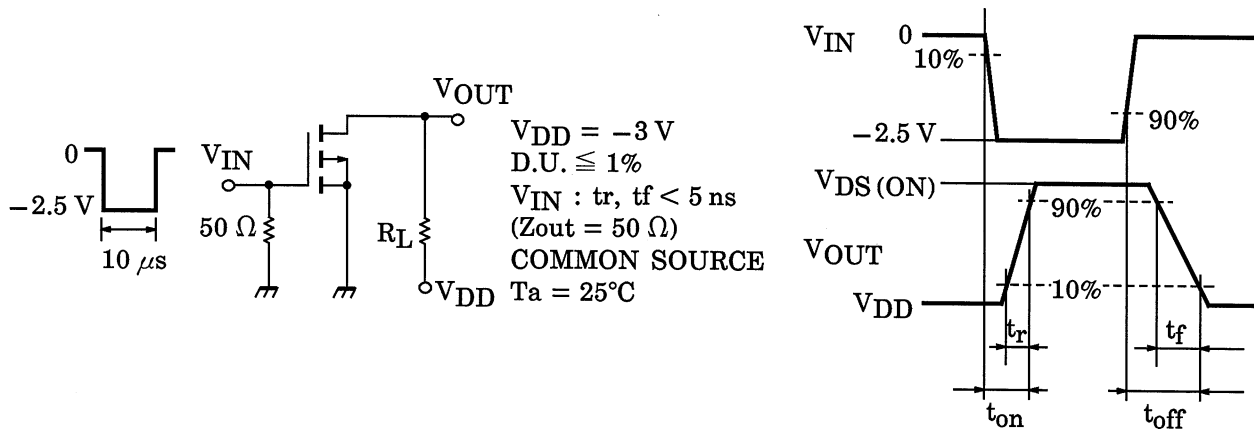


Q1 (Nch MOS FET)

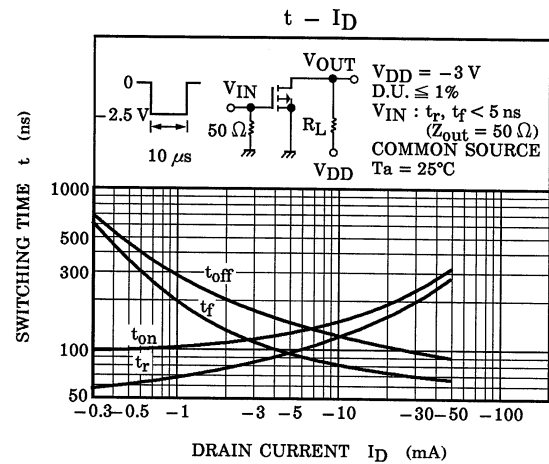
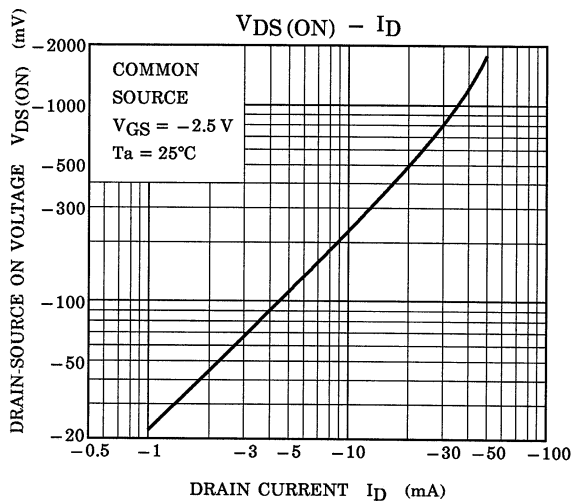
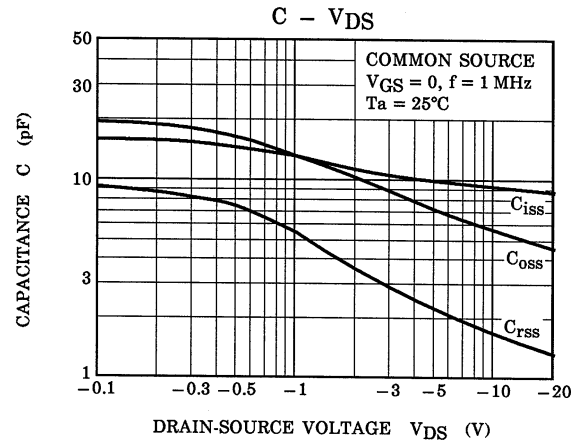
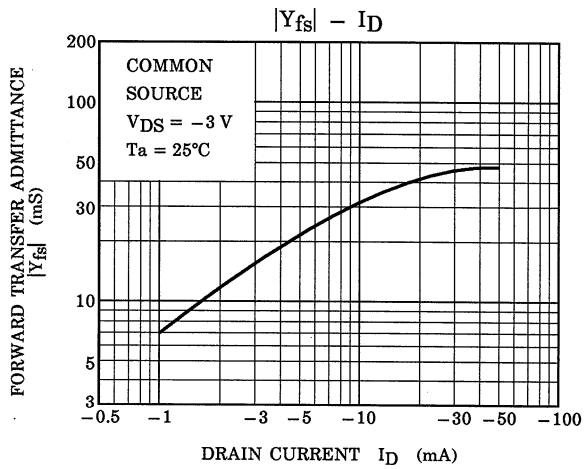


Q2 (Pch MOS FET)

Switching Time Test Circuit



Q2 (Pch MOS FET)



(Q1, Q2 common)

