Unit: mm

Preliminary

TOSHIBA Multi Chip Discrete Device

HN7G01FU

Power Management Switch Application
Driver Circuit Application
Interface Circuit Application

Q1 (transistor): 2SA1955 equivalent
Q2 (MOS-FET): 2SK1830 equivalent

Q1 (transistor) Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-15	V
Collector-emitter voltage	V _{CEO}	-12	V
Emitter-base voltage	V _{EBO}	-5	V
Collector current	IC	-400	mA
Base current	Ι _Β	-50	mA

Q2 (MOS-FET) Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	20	V
Gate-source voltage	V _{GSS}	10	٧
Drain current	I _D	50	mA

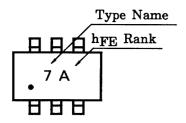
Weight: 6.8 mg (typ.)

Q1, Q2 Common Ratings (Ta = 25°C)

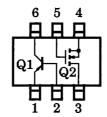
Characteristics	Symbol	Rating	Unit
Power dissipation	P _C (Note 1)	200	mW
Junction temperature	Tj	125	°C
Storage temperature range	T _{stg}	−55~150	°C

Note 1: Total rating

Marking



Pin Assignment (top view)



Q1 (transistor) Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	I _{CBO}	$V_{CB} = -15 \text{ V}, I_E = 0$	_	_	-0.1	μΑ
Emitter cut-off current	I _{EBO}	$V_{EB} = -5 \text{ V}, I_C = 0$			-0.1	mA
DC current gain	h _{FE} (Note 2)	$V_{CE} = -2 \text{ V}, I_{C} = -10 \text{ mA}$	300		1000	
Collector-emitter saturation voltage	V _{CE} (sat) (1)	$I_C = -10 \text{ mA}, I_B = -0.5 \text{ mA}$		-15	-30	mV
Conector-entitler saturation voltage	V _{CE} (sat) (2)	$I_C = -200 \text{ mA}, I_B = -10 \text{ mA}$		-110	-250	111 V
Base-emitter saturation voltage	V _{BE (sat)}	$I_C = -200 \text{ mA}, I_B = -10 \text{ mA}$	_	-0.87	-1.2	V

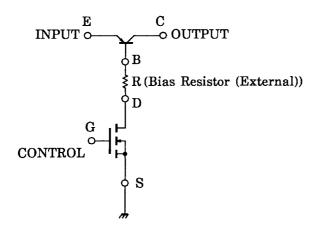
Note 2: h_{FE} classification A: 300~600, B: 500~1000

Q2 (MOS-FET) Electrical Characteristics (Ta = 25°C)

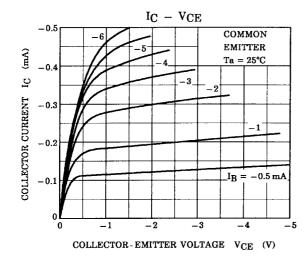
Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Gate leakage current	I _{GSS}	$V_{GS} = 10 \text{ V}, V_{DS} = 0$	_	_	1	μΑ
Drain-source breakdown voltage	V (BR) DSS	$I_D = 100 \ \mu A, \ V_{GS} = 0$	20	_	_	V
Drain current	I _{DSS}	$V_{DS} = 20 V, V_{GS} = 0$	_	_	1	μΑ
Gate threshold voltage	V_{th}	$V_{DS} = 3 \text{ V}, I_D = 0.1 \text{ mA}$	0.5	_	1.5	V
Forward transfer admittance	Y _{fs}	$V_{DS} = 3 \text{ V}, I_D = 10 \text{ mA}$	20	_	_	mS
Drain-source ON resistance	R _{DS (ON)}	$I_D = 10$ mA, $V_{GS} = 2.5$ V	_	20	40	Ω

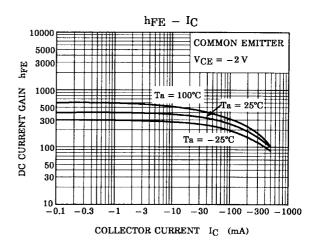
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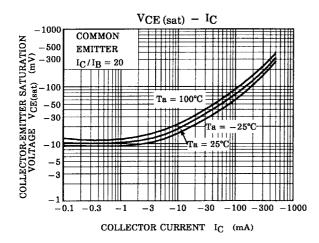
Application Example (power management switch)

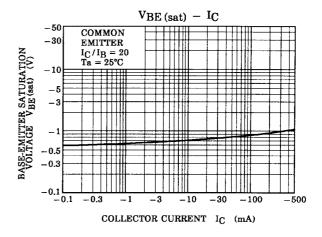


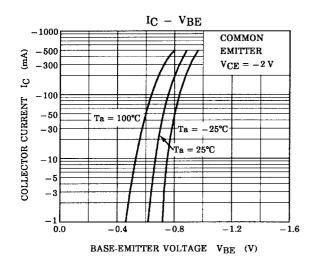
Transistor



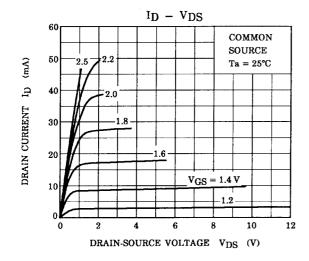


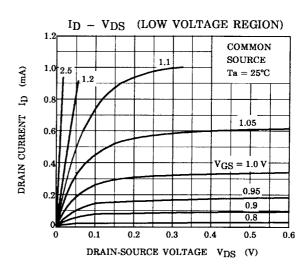


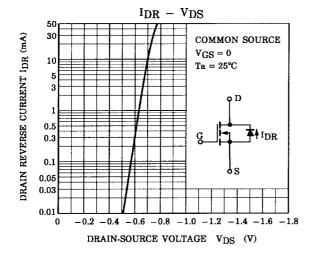


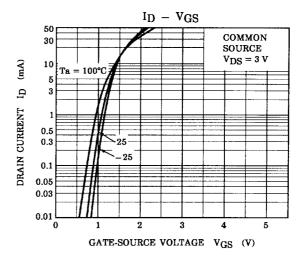


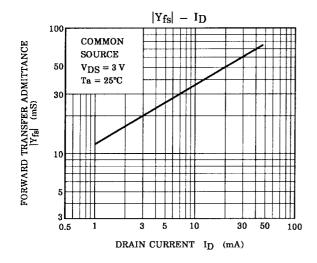
MOS-FET

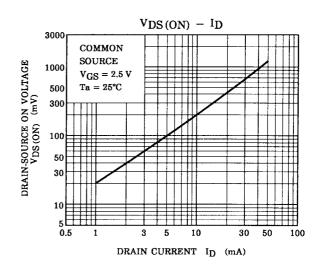












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