

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

HN3C61FU

Ultra High Speed Switching Application
Computer, Counter Applications.

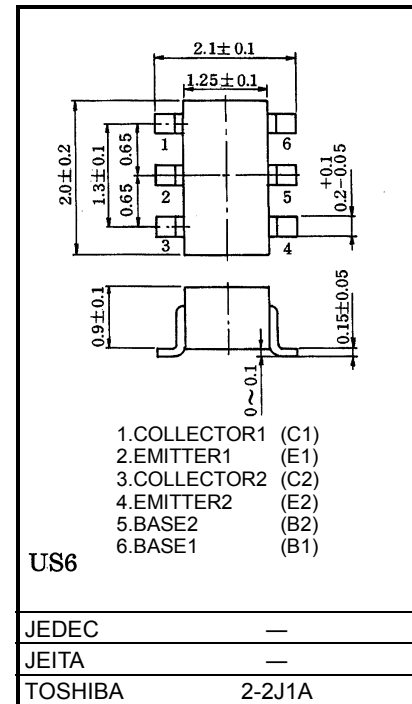
Unit: mm

High Transition Frequency : $f_T = 400\text{MHz(Typ.)}$
 Low Saturation Voltage : $V_{CE(sat)} = 0.3\text{V(Max.)}$
 High Speed Switching Time : $t_{stg} = 15\text{ns(Typ.)}$

Maximum Ratings (Ta = 25°C) (Q1, Q2 Common)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	40	V
Collector-emitter voltage	V_{CEO}	15	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	200	mA
Base current	I_B	40	mA
Collector power dissipation	P_C^*	200	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55~150	°C

*Total rating. Power dissipation per element should not exceed 130mW.



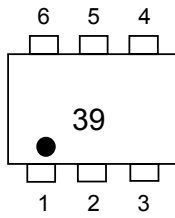
Weight: 6.8mg(typ.)

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

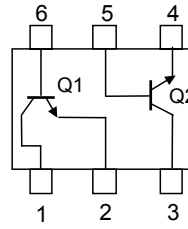
Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	—	$V_{CB} = 40\text{V}, I_E = 0$	—	—	0.1	μA
Emitter cut-off current	I_{EBO}	—	$V_{EB} = 5\text{V}, I_C = 0$	—	—	0.1	μA
DC current gain	$h_{FE(1)}$	—	$V_{CE} = 1\text{V}, I_C = 10\text{mA}$	40	—	240	
	$h_{FE(1)}$	—	$V_{CE} = 1\text{V}, I_C = 100\text{mA}$	20	—	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	$I_C = 20\text{mA}, I_B = 1\text{mA}$	—	—	0.3	V
Base-Emitter Saturation voltage	$V_{BE(sat)}$	—	$I_C = 20\text{mA}, I_B = 1\text{mA}$	—	—	1.0	V
Transition frequency	f_T	—	$V_{CE} = 10\text{V}, I_C = 10\text{mA}$	200	400	—	MHz
Collector output capacitance	C_{ob}	—	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	—	4	—	pF
Switching Time	Turn-on Time	t_{on}	(Note 1)	—	70	—	ns
	Storage Time	t_{stg}		—	15	—	
	Turn-off Time	t_{off}		—	30	—	

Note 1 : Total rating

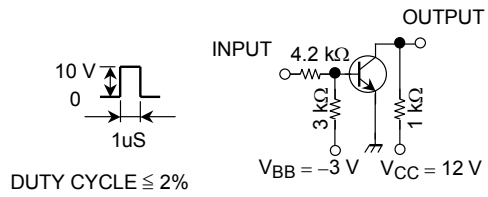
Marking



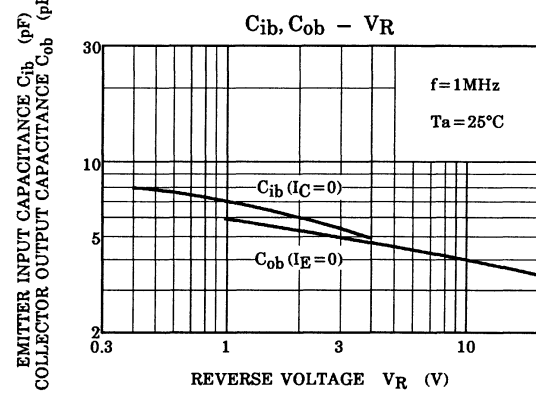
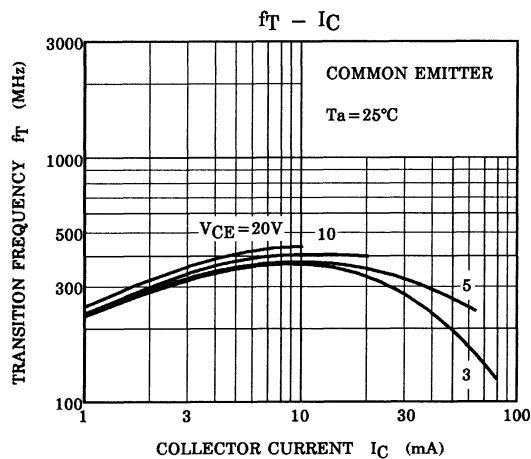
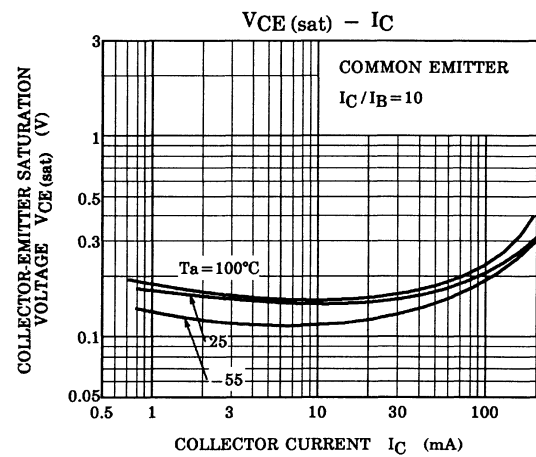
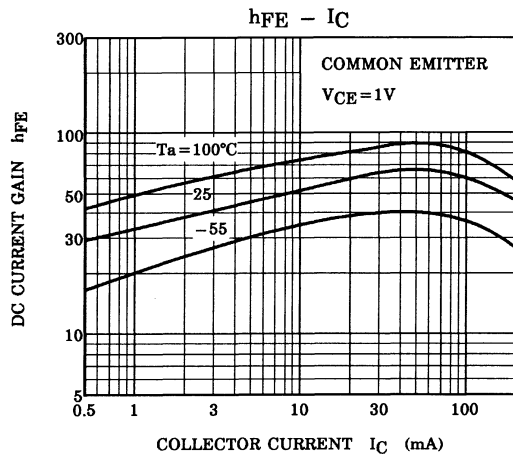
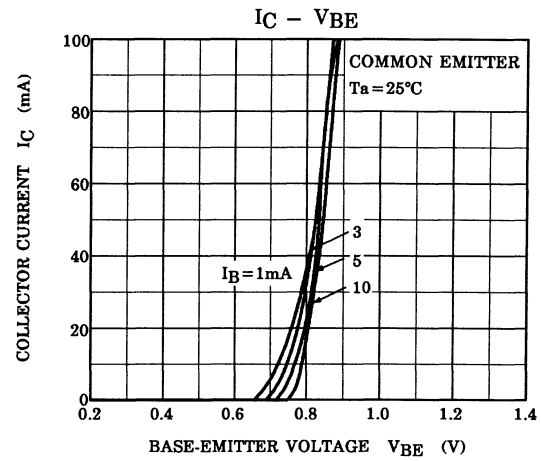
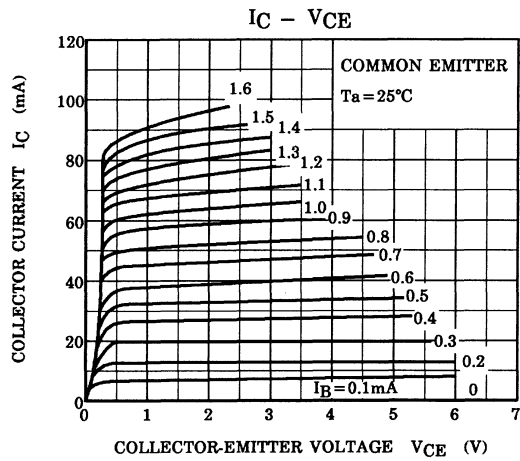
Equivalent Circuit (Top View)



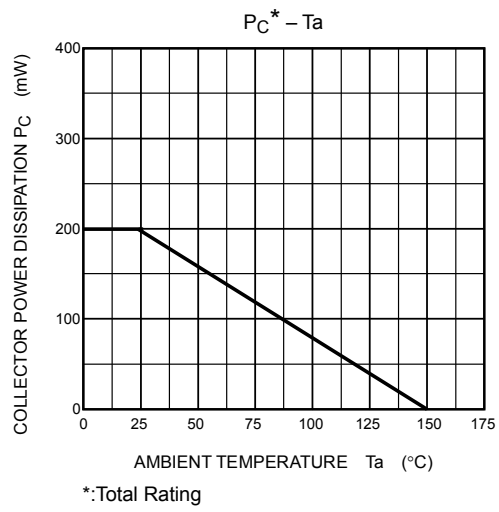
Note 1 : Switching Time Test Circuit



(Q1, Q2 Common)



(Q1,Q2 Common)



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