Unit: mm

TOSHIBA Transistor Silicon Npn Epitaxial Type (PCT Process)

HN1C03FU

For Muting and Switching Applications

- Including two devices in US6 (ultra super mini type with 6 leads)
- High emitter-base voltage: VEBO = 25V (min)
- High reverse h_{FE}: reverse h_{FE} = 150 (typ.)(V_{CE} = -2V, I_C = -4mA)
- Low on resistance: $RON = 1\Omega$ (typ.)(IB = 5mA)

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

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V _{CBO}	50	V
Collector-emitter voltage	V _{CEO}	20	٧
Emitter-base voltage	V _{EBO}	25	V
Collector current	IC	300	mA
Base current	ΙΒ	60	mA
Collector power dissipation	P _C *	200	mW
Junction temperature	Tj	150	°C
Storage temperature range	T _{stg}	-55 to 150	°C

2.1±0.1
1.25±0.1
1.EMITTER1 (E1)
2.BASE 1 (B1)
3.COLLECTOR2 (C2)
4.EMITTER2 (E2)
5.BASE2 (B2)
6.COLLECTOR1 (C1)

JEDEC —

JEITA —

TOSHIBA 2-2J1A

Weight: 6.8 mg (typ.)

Note: Using continuously under heavy loads (e.g. the application of high

temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

* Total rating

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

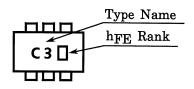
Characteristics Sy		Symbol	Test Condition	Min	Тур.	Max	Unit
Collector cu	ut-off current	I _{CBO}	V _{CB} = 50V, I _E = 0	_	_	0.1	μΑ
Emitter cut-	-off current	I _{EBO}	V _{EB} = 25V, I _C = 0	_	_	0.1	μA
DC current	gain	h _{FE} (Note1)	V _{CE} = 2V, I _C = 4mA	200	_	1200	
Collector-e	mitter saturation	V _{CE (sat)}	I _C = 30mA, I _B = 3mA	_	0.042	0.1	V
Base-emitte	er voltage	V _{BE}	V _{CE} = 2V, I _C = 4mA	_	0.61	_	V
Transition frequency		f _T	V_{CE} = 6V, I_C = 4mA	_	30	_	MHz
Collector output capacitance		C_{ob}	V _{CB} = 10V, I _E = 0, f = 1MHz	_	4.8	7	pF
Switching time	Turn-on time	t _{on}	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	_	160	_	
	Storage time	t _{stg}		_	500	_	ns
	Fall time	t _f		_	130	_	

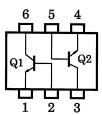
Note1: hFE Classification

A: 200 to 700, B: 350 to 1200

Marking

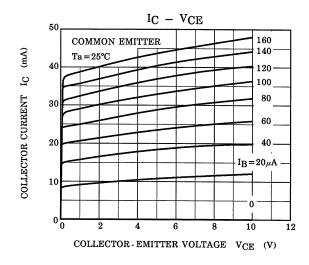
Equivalent Circuit (top view)

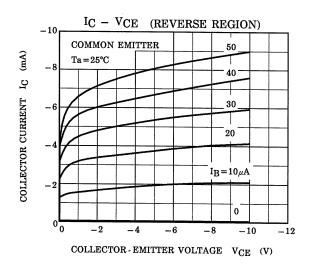


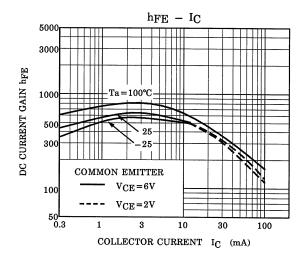


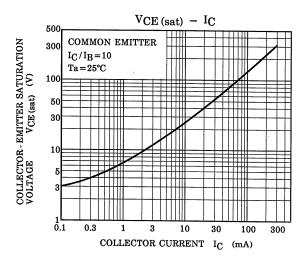
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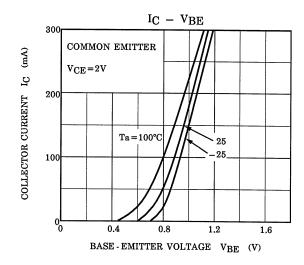
(Q1,Q2 Common)

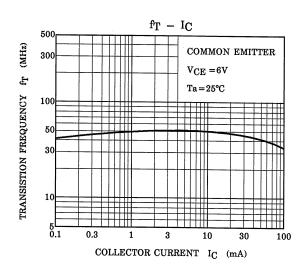




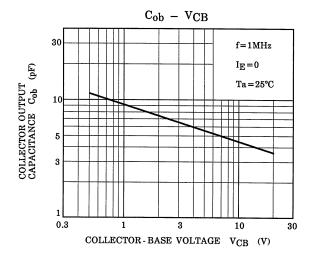


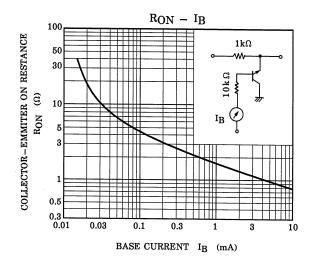


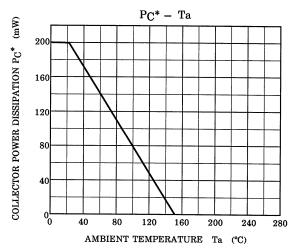




(Q1,Q2 Common)







*: Total Rating

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