2SA673A(K)

Silicon PNP Epitaxial

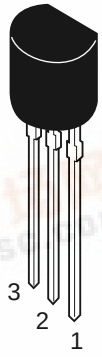
HITACHI

Application

- Low frequency amplifier
- Medium speed switching

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	–50	V
Collector to emitter voltage	V_{CEO}	–50	V
Emitter to base voltage	V_{EBO}	–4	V
Collector current	I_C	–0.5	A
Collector power dissipation	P_C	0.4	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	–50	—	—	V	I_C = –10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	–50	—	—	V	I_C = –1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	–4	—	—	V	I_E = –10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	–0.5	µA	V_{CB} = –20 V, I_E = 0
Emitter cutoff current	I_{EBO}	—	—	–0.5	µA	V_{EB} = –3 V, I_C = 0
Base to emitter voltage	V_{BE}	—	–0.64	—	V	V_{EB} = –3 V, I_C = –10 mA
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	–0.2	–0.6	V	I_C = –150 mA, I_B = –15 mA*[2]
Base to emitter saturation voltage	$V_{BE(sat)}$	—	–0.87	—	V	I_C = –150 mA, I_B = –15 mA*[2]
DC current transfer ratio	h_{FE}*[1]	60	—	320		V_{CE} = –3 V, I_C = –10 mA
	h_{FE}	10	—	—		V_{CE} = –3 V, I_C = –500 mA*[2]
Gain bandwidth product	f_T	—	120	—	MHz	V_{CE} = –3 V, I_C = –10 mA
Turn on time	t_{on}	—	0.3	—	µs	V_{CC} = –10.3 V
Turn off time	t_{off}	—	0.6	—	µs	I_C = 10 I_{B1} = –10 I_{B2} = –10 mA
Storage time	t_{stg}	—	0.4	—	µs	V_{CC} = –5 V, I_C = I_{B1} = I_{B2} = –20 mA

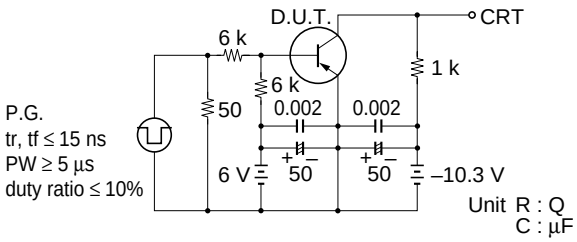
Notes: 1. The 2SA673A(K) is grouped by h_{FE} as follows.
2. Pulse test

B	C	D
60 to 120	100 to 200	160 to 320

See 2SA673A except for the above – mentioned characteristic curves.

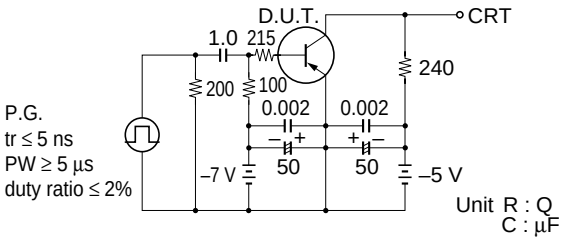
Switching Time Test Circuit

t_{on}, t_{off} Test Circuit

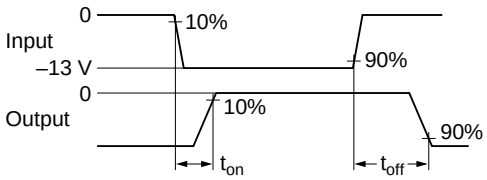


Switching Time Test Circuit

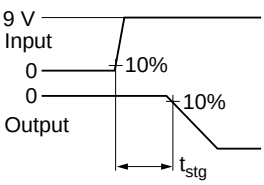
t_{stg} Test Circuit



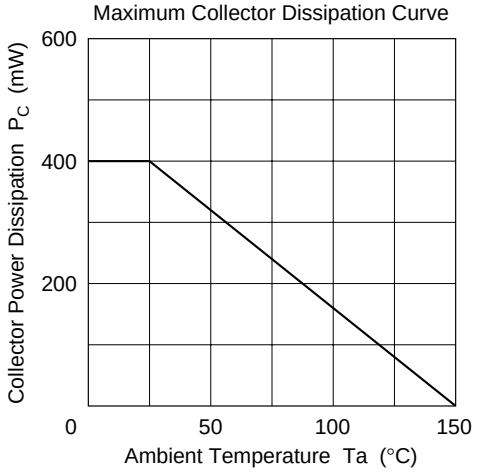
Response Waveform



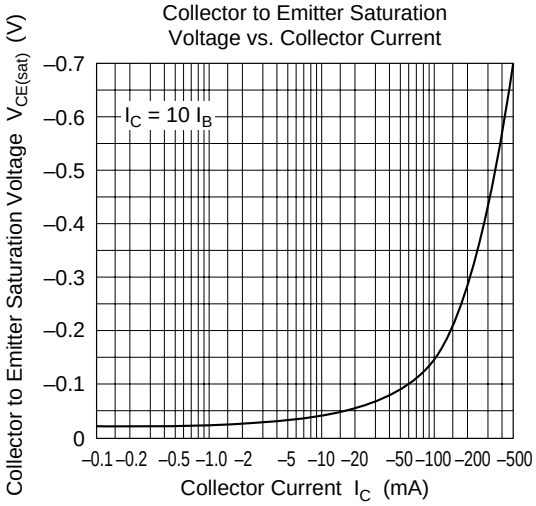
Response Waveform



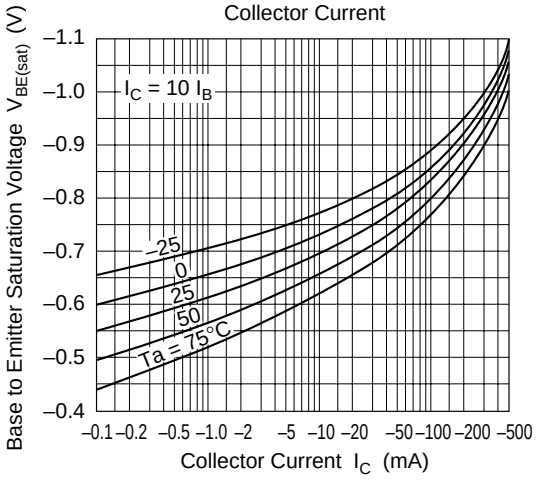
Maximum Collector Dissipation Curve



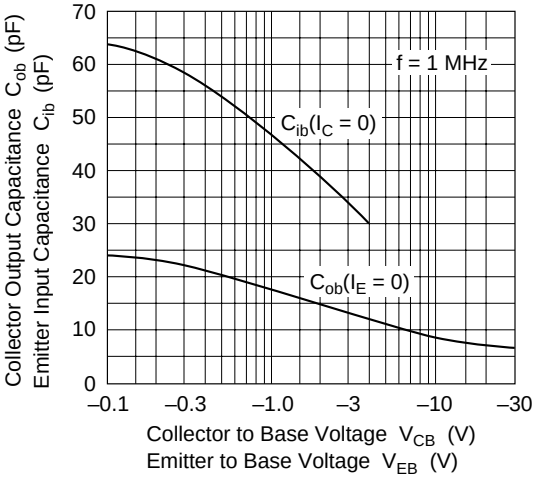
Collector to Emitter Saturation Voltage vs. Collector Current

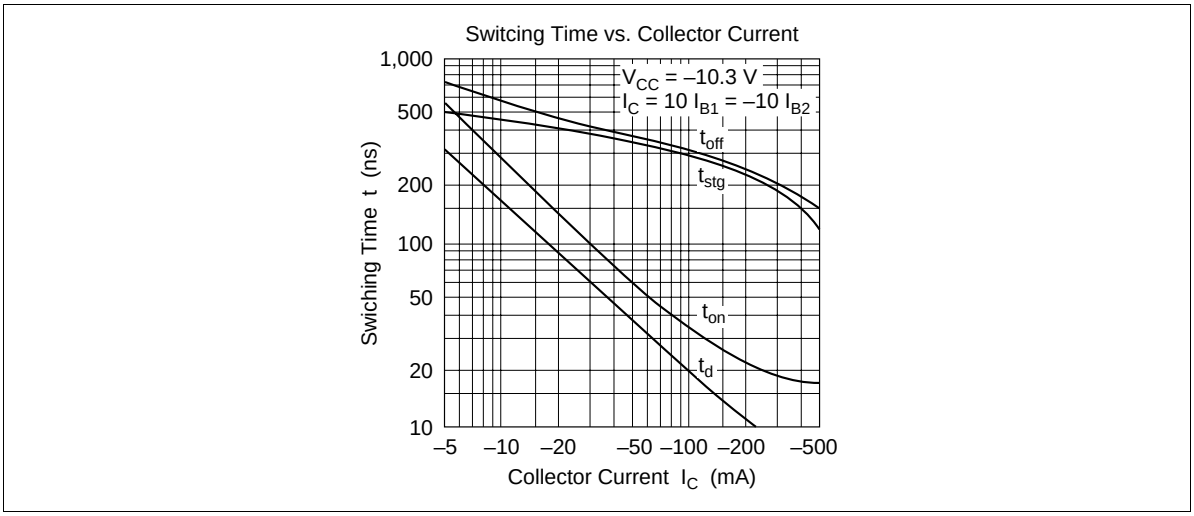


Base to Emitter Saturation Voltage vs. Collector Current

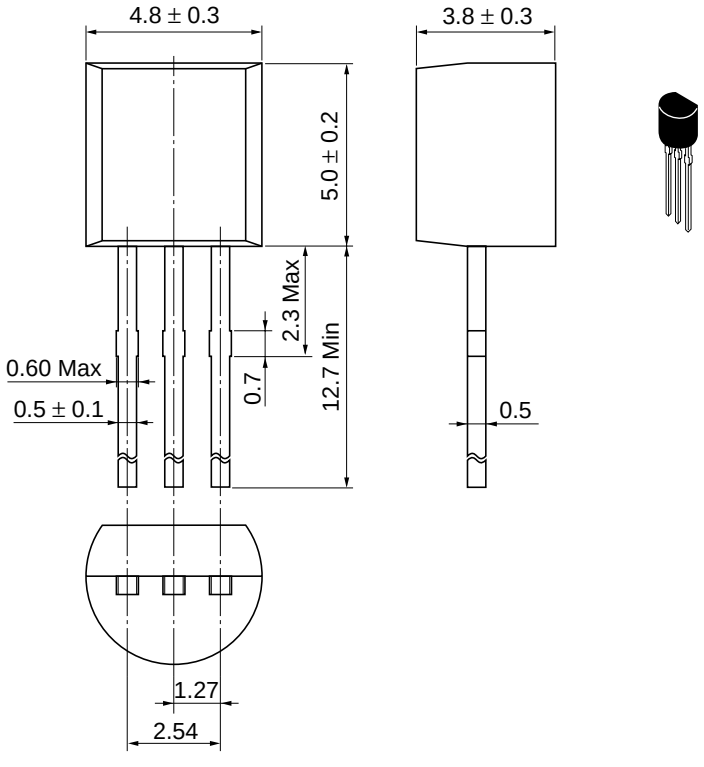


Input and Output Capacitance vs. voltage




Switcing Time vs. Collector Current
1,000
500
200
100
50
20
10
Swiching Time t (ns)
V_{CC} = –10.3 V
I_C = 10 I_{B1} = –10 I_{B2}
t_{off}
t_{stg}
t_{on}
t_d
–5
–10
–20
–50
–100
–200
–500
Collector Current I_C (mA)

Unit: mm



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