
2SA778(K), 2SA778A(K)

Silicon PNP Epitaxial

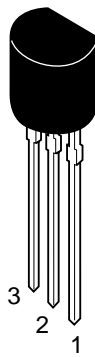
HITACHI

Application

High voltage medium speed switching

Outline

TO-92 (1)



- 1. Emitter
- 2. Collector
- 3. Base

2SA778(K), 2SA778A(K)

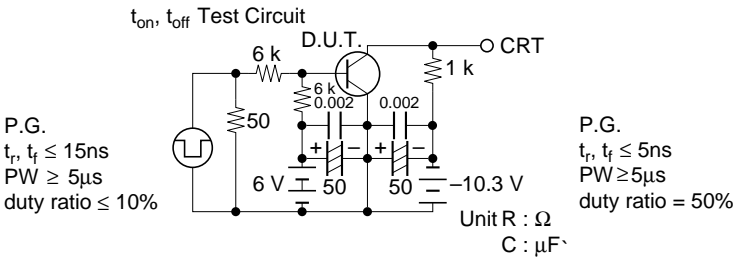
Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	2SA778(K)	2SA778A(K)	Unit
Collector to base voltage	V _{CBO}	−150	−180	V
Collector to emitter voltage	V _{CEO}	−150	−180	V
Emitter to base voltage	V _{EBO}	−5	−5	V
Collector current	I _C	−50	−50	mA
Collector power dissipation	P _C	200	200	mW
Junction temperature	T _j	150	150	°C
Storage temperature	T _{stg}	−55 to +150	−55 to +150	°C

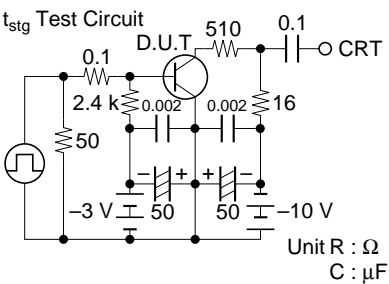
Electrical Characteristics (Ta = 25°C)

Item	Symbol	2SA778(K)			2SA778A(K)			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	V _{(BR)CBO}	−150	—	—	−180	—	—	V	I _C = −50 μA, I _E = 0
Collector to emitter breakdown voltage	V _{(BR)CER}	−150	—	—	−180	—	—	V	I _C = −50 μA, R _{BE} = 30 kΩ
Collector cutoff current	I _{CBO}	—	—	−1.0	—	—	—	μA	V _{CB} = −100 V, I _E = 0
		—	—	—	—	—	−1.0	μA	V _{CB} = −150 V, I _E = 0
Emitter cutoff current	I _{EBO}	—	—	−1.0	—	—	−1.0	μA	V _{EB} = −5 V, I _C = 0
DC current transfer ratio	h _{FE}	30	100	—	40	100	200		V _{CE} = −3 V, I _E = −15 mA
Collector to emitter saturation voltage	V _{CE(sat)}	—	−0.3	−1.0	—	−0.3	−1.0	V	I _C = −15 mA, I _B = −1 mA
Base to emitter saturation voltage	V _{BE(sat)}	—	−0.77	−1.0	—	−0.77	−1.0	V	I _C = −15 mA, I _B = −1 mA
Collector output capacitance	Cob	—	—	10	—	—	10	pF	V _{CB} = −10 V, I _E = 0, f = 1 MHz
Gain bandwidth product	f _T	—	50	—	—	50	—	MHz	V _{CE} = −3 V, I _C = −15 mA
Turn on time	t _{on}	—	135	—	—	135	—	ns	V _{CC} = −10.3 V
Turn off time	t _{off}	—	1.7	—	—	1.7	—	μs	I _C = 10 I _{B1} = −10 I _{B2} = −10 mA
Storage time	t _{stg}	—	—	1.0	—	—	1.0	μs	V _{CC} = −10 V, I _C = −17 mA, I _{B1} = −1mA, I _{B2} = −12 mA

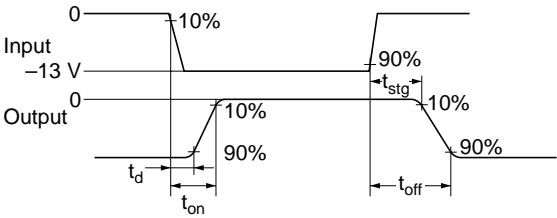
Switching Time Test Circuit



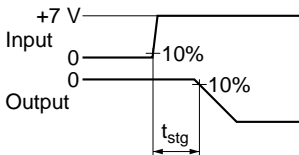
Switching Time Test Circuit

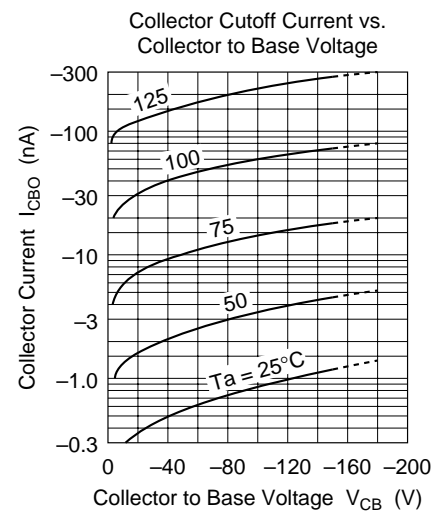
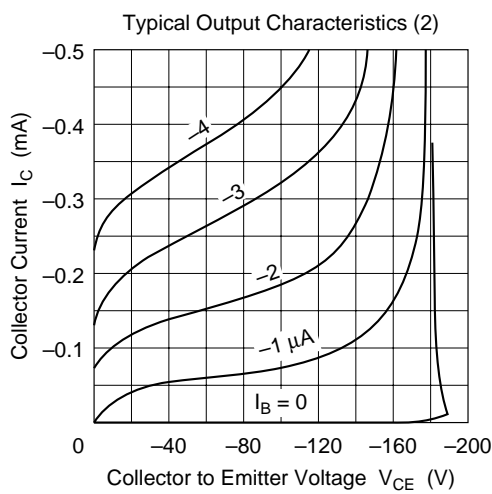
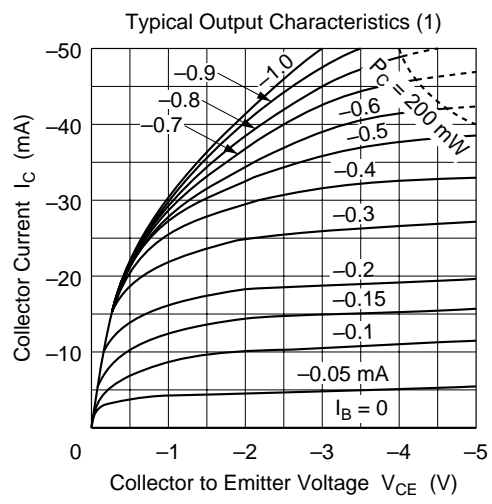
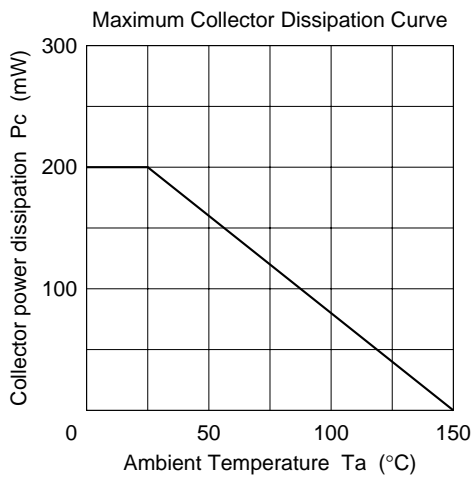


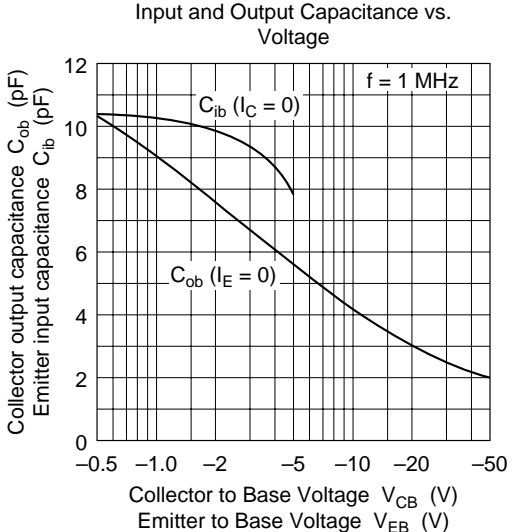
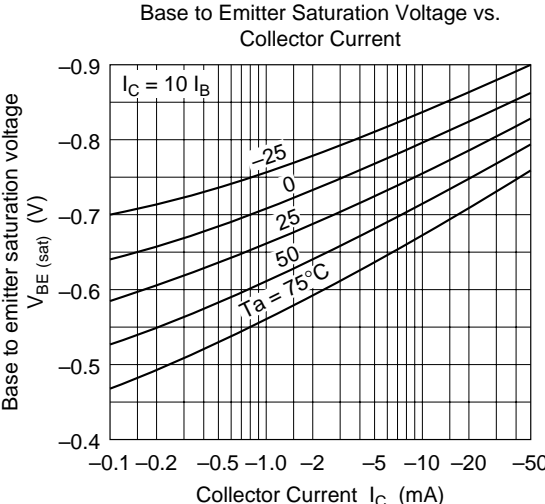
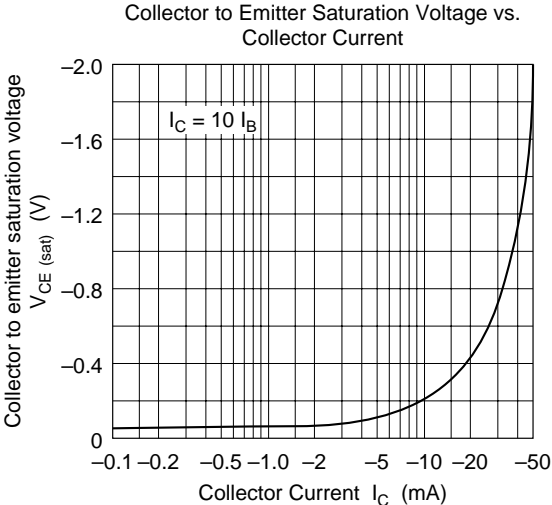
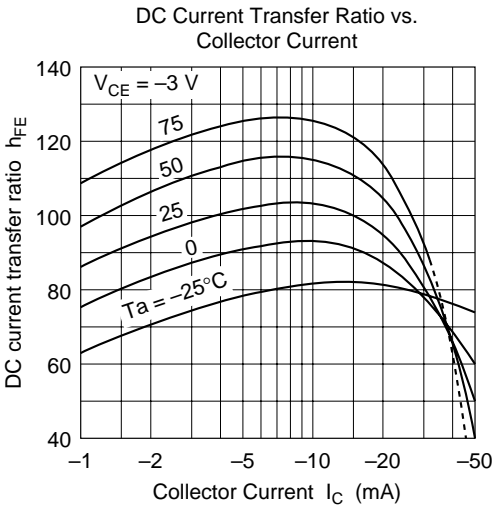
Response Waveform

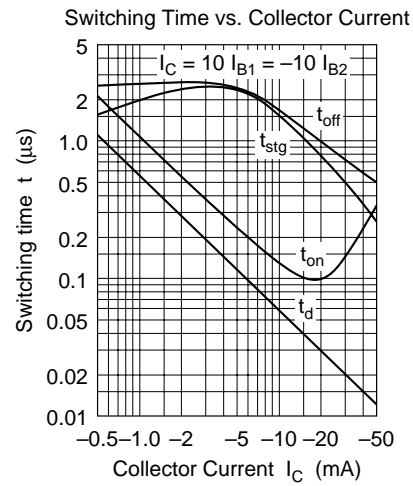
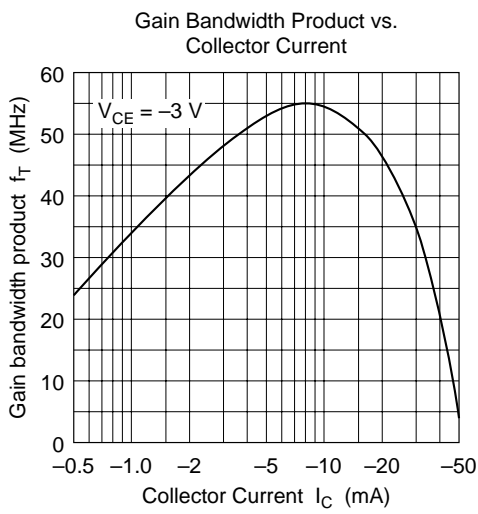


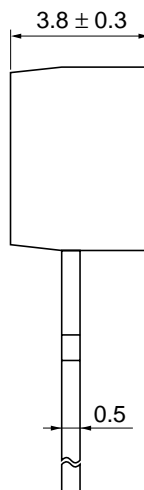
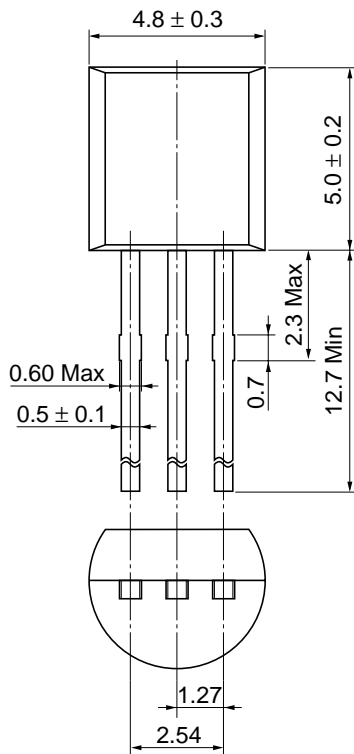
Response Waveform











Hitachi Code	TO-92 (1)
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.25 g

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