2SC1881(K)

Silicon NPN Triple Diffused

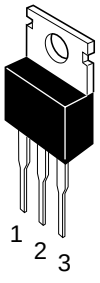
HITACHI

Application

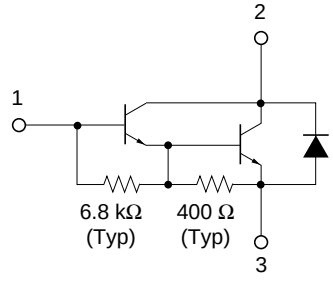
High gain amplifier power switching

Outline

TO-220AB



1. Base
2. Collector (Flange)
3. Emitter



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	60	V
Collector to emitter voltage	V_{CEO}	60	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	3	A
Collector peak current	$I_{C(peak)}$	6	A
Collector power dissipation	P_C*[1]	30	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. Value at T_C = 25°C.

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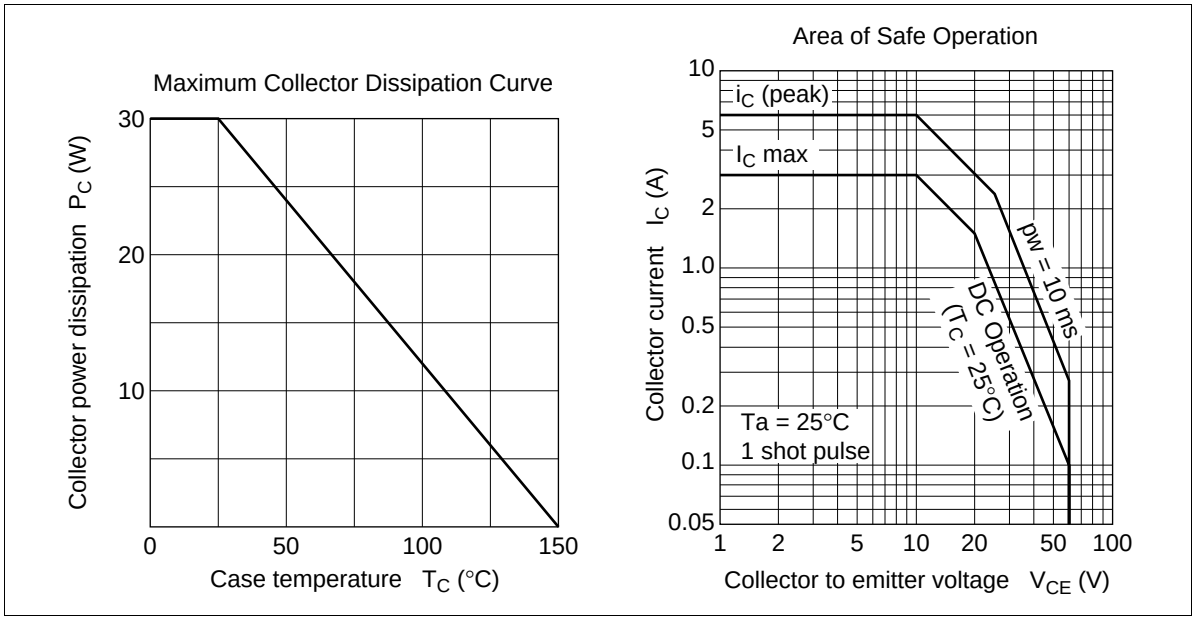
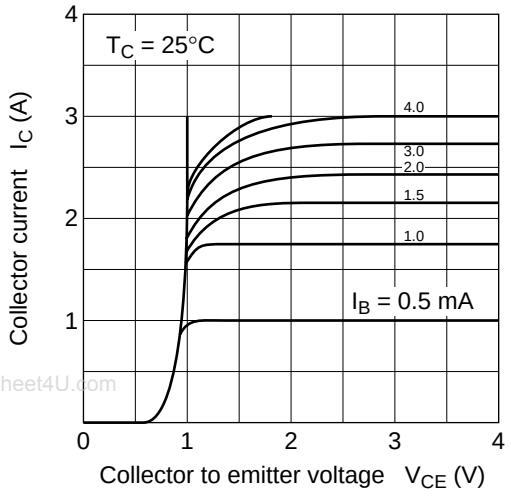
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	60	—	—	V	I_C = 50 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	I_E = 50 mA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	0.2	mA	V_{CB} = 60 V, I_E = 0
	I_{CEO}	—	—	0.4	mA	V_{CE} = 30 V, R_{BE} = ∞
DC current transfer ratio	h_{FE}	1000	—	—		V_{CE} = 1.5 V, I_C = 1.5 A*[1]
		500	—	—		V_{CE} = 1.5 V, I_C = 2.5 A*[1]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.2	V	I_C = 2.5 A, I_B = 20 mA*[1]
Turn on time	t_{on}	—	1	—	µs	V_{CC} = 11 V, I_C = 2 A,
Turn off time	t_{off}	—	5	—	µs	I_{B1} = –I_{B2} = 8 mA

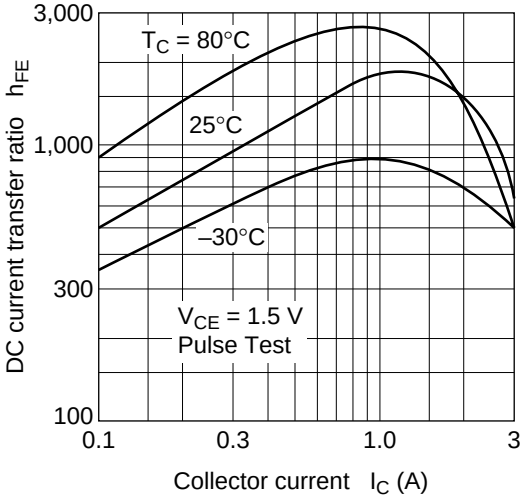
Note: 1. Pulse test.



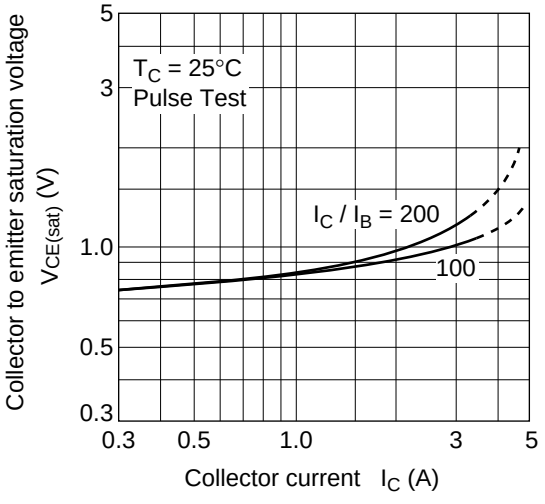
Typical Output Characteristics



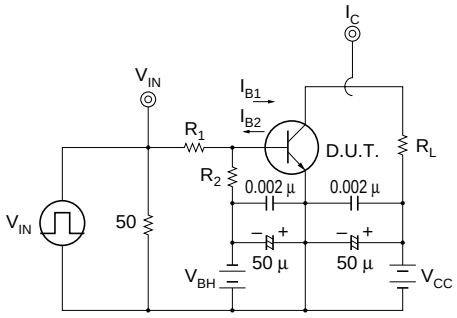
DC Current Transfer Ratio vs. Collector Current



Collector to Emitter Saturation Voltage vs. Collector Current



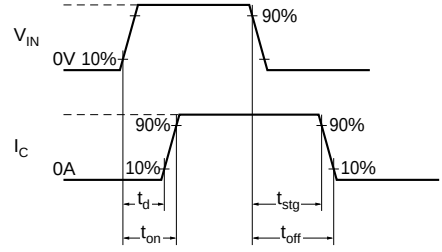
Switching Time Test Circuit



t_r, $t_f \leq 10$ ns
pw ≥ 100 µs
duty ratio ≤ 10%

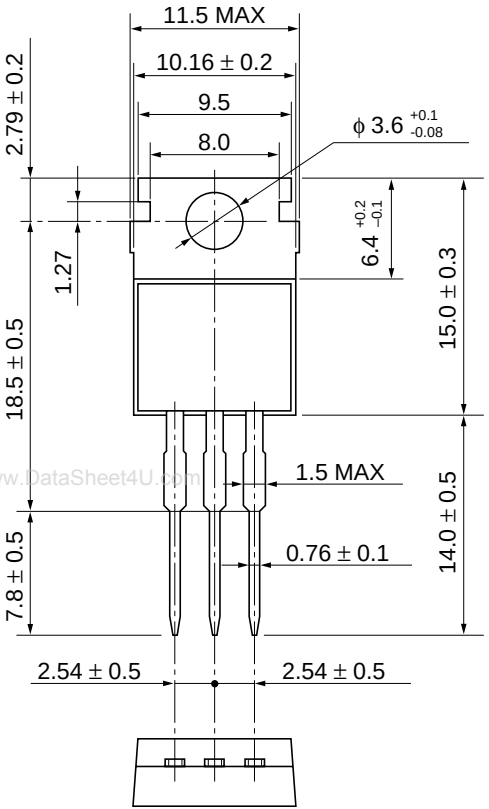
Unit R : Ω
C : F

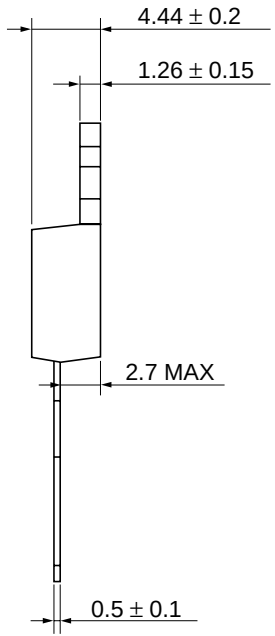
Response Waveform

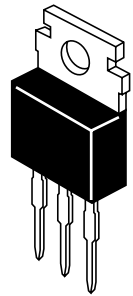


I_C	I_{B1}	I_{B2}	V_{CC}	V_{BB}	V_{IN}	R_L	R_1	R_2
A	mA	mA	V	V	V	Ω	Ω	Ω
2	8	–8	11	–4	7.2	5	620	910

Unit: mm







Hitachi Code	TO-220AB
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.8 g

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