HITACHI

2SC1881(K)

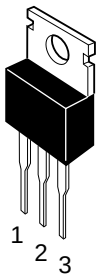
Silicon NPN Triple Diffused
High Gain Amplifier Power Switching

Absolute Maximum Ratings (Ta = 25°C)

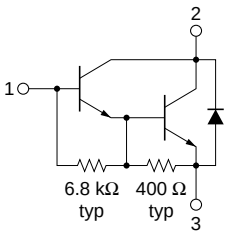
Item	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	60	V
Collector to emitter voltage	V_{CEO}	60	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	3	A
Collector peak current	$i_{C(peak)}$	6	A
Collector power dissipation	P_C*1	30	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg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

Note: 1. Value at T_C = 25°C.

TO-220AB



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



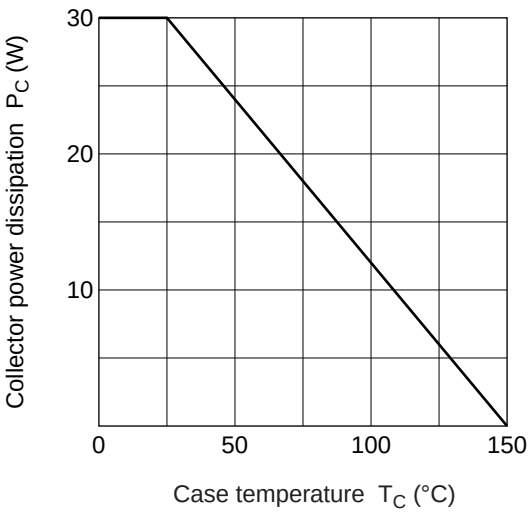
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test condition
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	—	—		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, I_{B1} = –I_{B2} = 8 mA
Turn off time	t_{off}	—	5	—	µs	

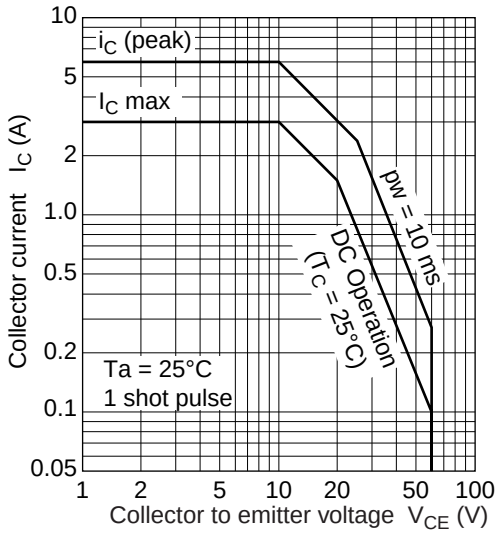
Note: 1. Pulse Test.

2SC1881Ⓚ

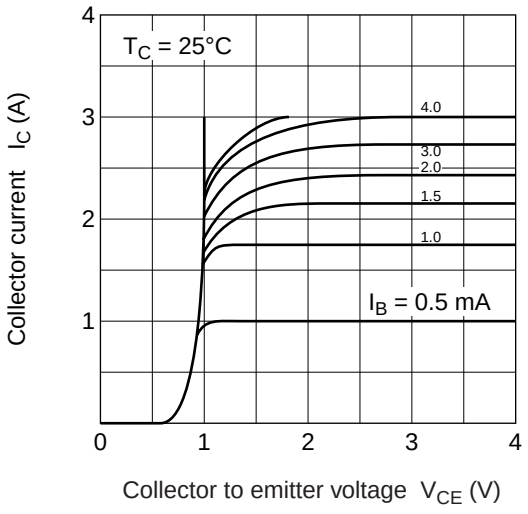
Maximum Collector Dissipation Curve



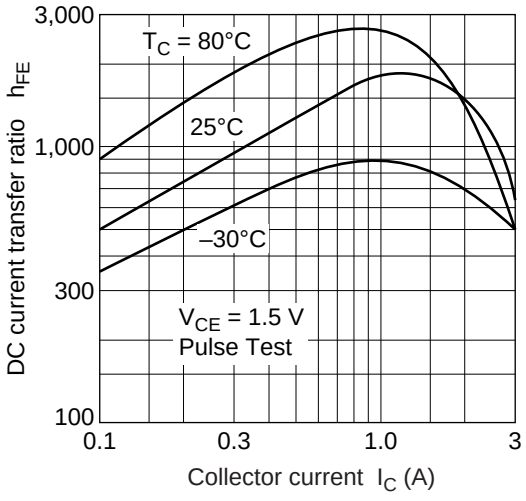
Area of Safe Operation



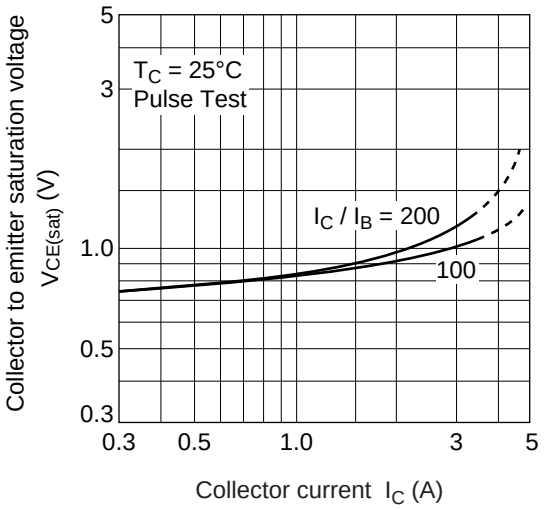
Typical Output Characteristics



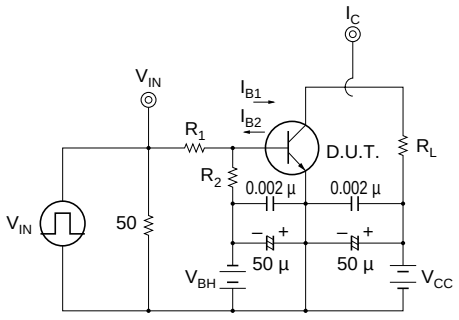
DC Current Transfer Ratio
vs. Collector Current



Collector to Emitter Saturation Voltage
vs. Collector Current



Switching Time Test Circuit



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

Unit R : Ω
C : F

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

Response Waveform