

2SC1881(K)

Silicon NPN Triple Diffused

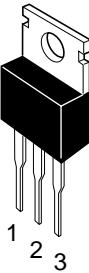
HITACHI

Application

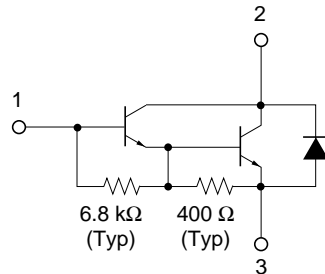
High gain amplifier power switching

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	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

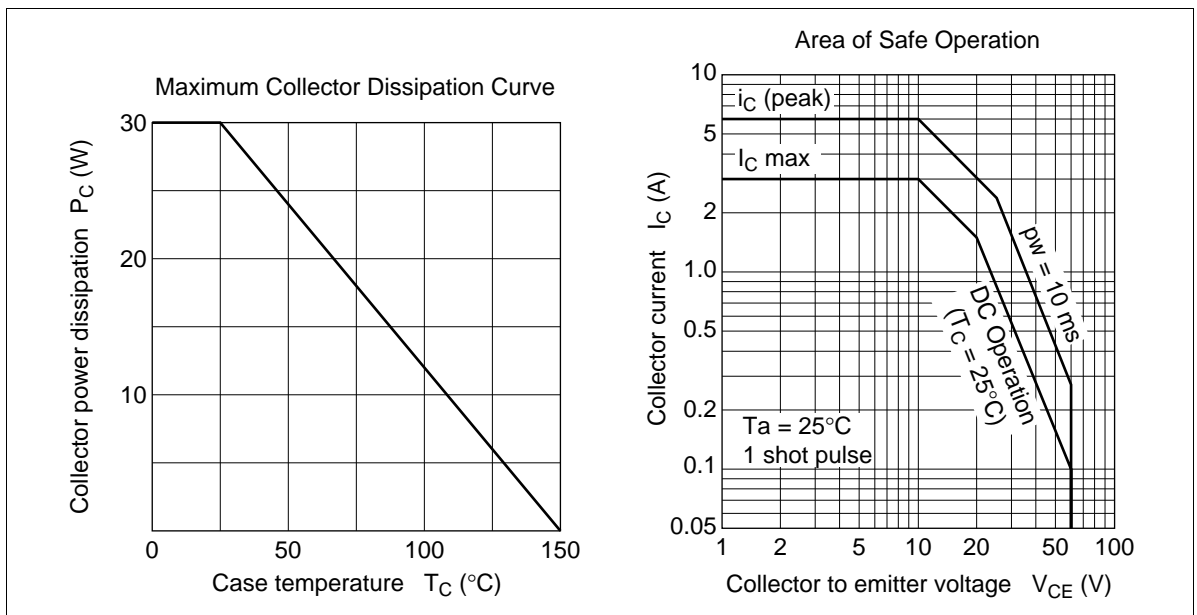
Note: 1. Value at $T_c = 25^\circ\text{C}$.

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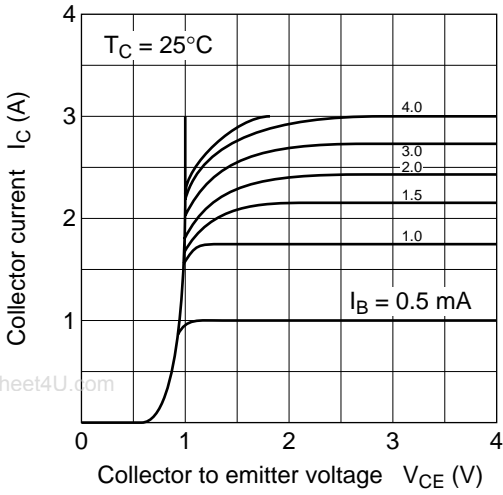
Electrical Characteristics (Ta = 25°C)

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

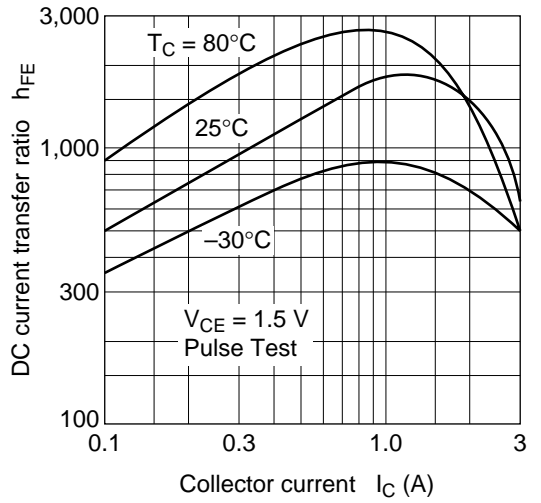
Note: 1. Pulse test.



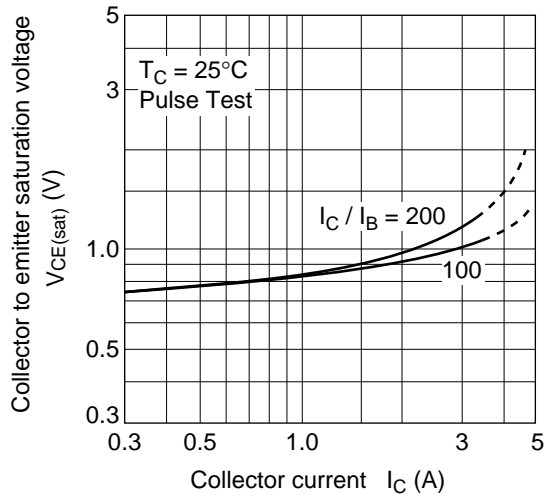
Typical Output Characteristics



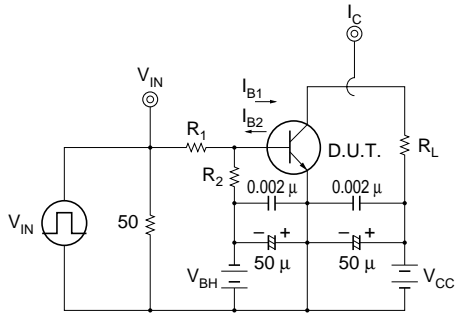
DC Current Transfer Ratio vs. Collector Current



Collector to Emitter Saturation Voltage vs. Collector Current



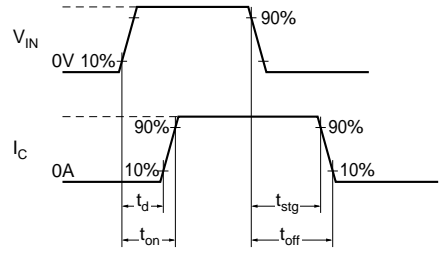
Switching Time Test Circuit



$t_r, t_f \leq 10 \text{ ns}$
 $\text{pw} \geq 100 \mu\text{s}$
 $\text{duty ratio} \leq 10\%$

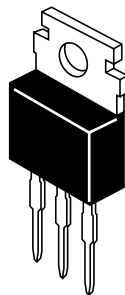
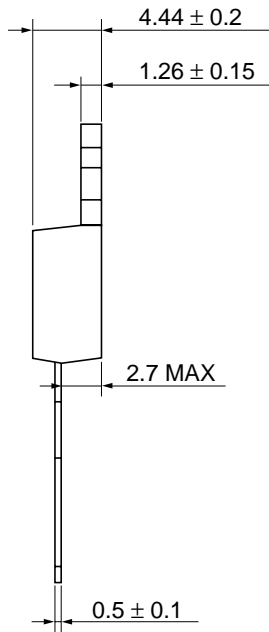
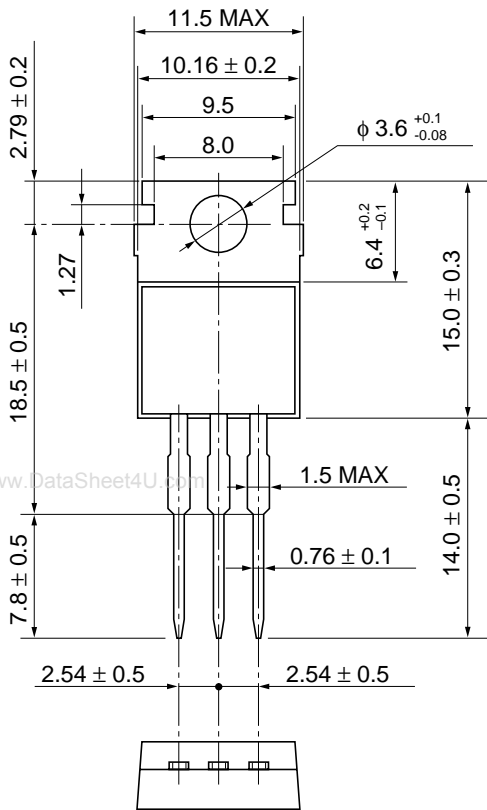
Unit R : Ω
 C : F

Response Waveform



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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



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JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.8 g

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