
2SD2030, 2SD2031

Silicon NPN Epitaxial

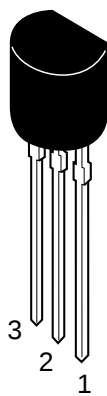
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Application

Low frequency high voltage amplifier

Outline

TO-92 (1)



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

2SD2030, 2SD2031

Absolute Maximum Ratings (Ta = 25°C)

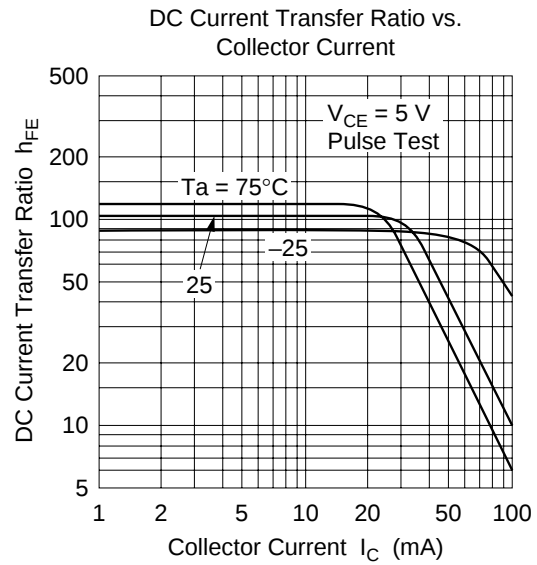
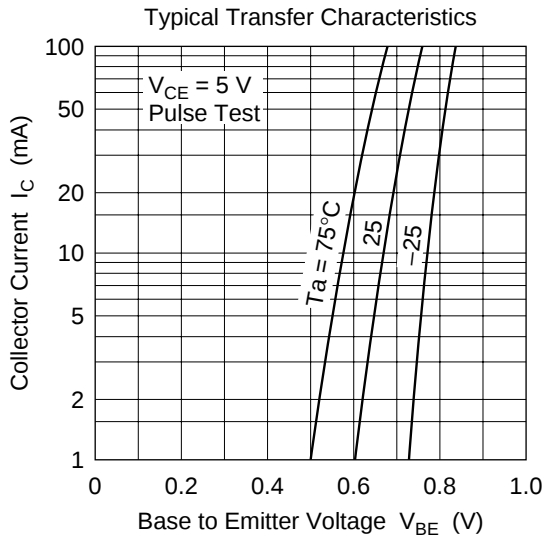
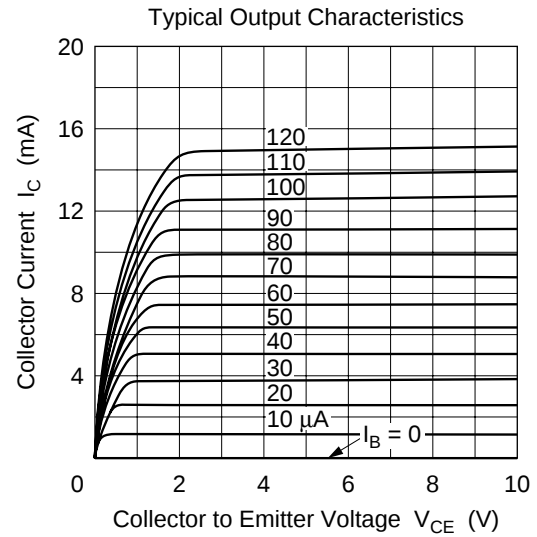
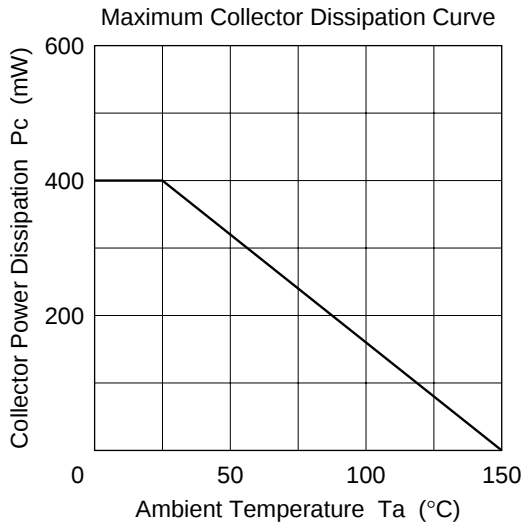
Item	Symbol	2SD2030	2SD2031	Unit
Collector to base voltage	V_{CBO}	160	200	V
Collector to emitter voltage	V_{CEO}	160	200	V
Emitter to base voltage	V_{EBO}	5	5	V
Collector current	I_C	100	100	mA
Collector power dissipation	P_C	400	400	mW
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	–55 to +150	–55 to +150	°C

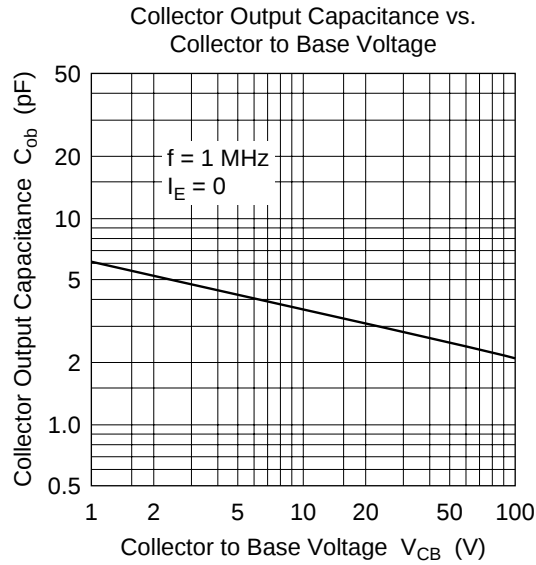
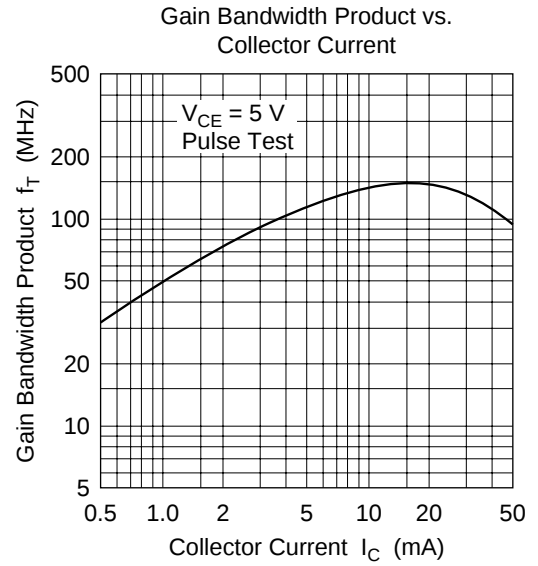
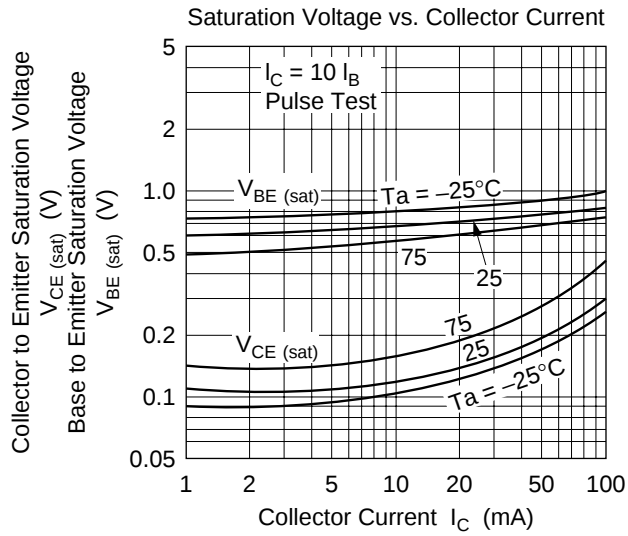
Electrical Characteristics (Ta = 25°C)

Item		Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	2SD2030	$V_{(BR)CBO}$	160	—	—	V	$I_C = 10 \mu A, I_E = 0$
	2SD2031		200				
Collector to emitter breakdown voltage	2SD2030	$V_{(BR)CEO}$	160	—	—	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
	2SD2031		200				
Emitter to base breakdown voltage		$V_{(BR)EBO}$	5	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	2SD2030	I_{CBO}	—	—	10	μA	$V_{CB} = 140 \text{ V}, I_E = 0$
	2SD2031						$V_{CB} = 160 \text{ V}, I_E = 0$
DC current transfer ratio		h_{FE1}^{*1}	60	—	200		$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$
		h_{FE2}	30	—	—		$V_{CE} = 5 \text{ V}, I_C = 1 \text{ mA}$
Base to emitter voltage		V_{BE}	—	—	1.5	V	$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$
Collector to emitter saturation voltage		$V_{CE(sat)}$	—	—	0.5	V	$I_C = 30 \text{ mA}, I_B = 3 \text{ mA}$
Gain bandwidth product		f_T	—	140	—	MHz	$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$
Collector output capacitance		C_{ob}	—	3.8	—	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$

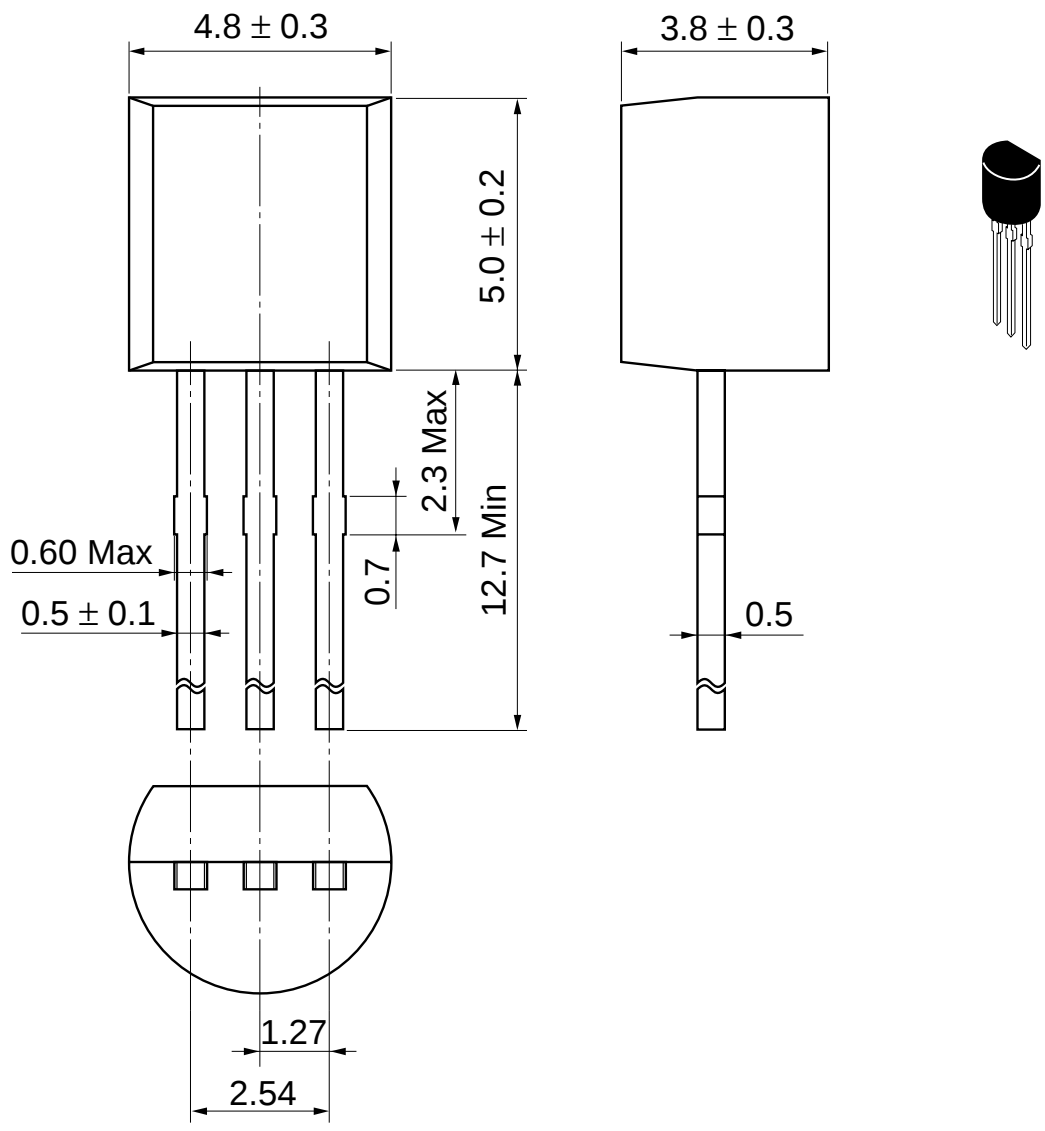
Note: 1. The 2SD2030 and 2SD2031 are grouped by h_{FE1} as follows.

Grade	B	C
h_{FE1}	60 to 120	100 to 200





Unit: mm



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

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