

2SD2177

Silicon NPN epitaxial planer type

For low-frequency output amplification

Complementary to 2SB1434

■ Features

- Low collector to emitter saturation voltage $V_{CE(sat)}$
- Complementary pair with 2SB1434
- Allowing supply with the radial taping

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	50	V
Collector to emitter voltage	V_{CEO}	50	V
Emitter to base voltage	V_{EBO}	5	V
Peak collector current	I_{CP}	3	A
Collector current	I_C	2	A
Collector power dissipation *	P_C	1	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Note) *: Printed circuit board: Copper foil area of 1 cm² or more, and the board thickness of 1.7 mm for the collector portion

■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 20\text{ V}, I_E = 0$			0.1	μA
Collector to base voltage	V_{CBO}	$I_C = 10\text{ }\mu\text{A}, I_E = 0$	50			V
Collector to emitter voltage	V_{CEO}	$I_C = 1\text{ mA}, I_B = 0$	50			V
Emitter to base voltage	V_{EBO}	$I_E = 10\text{ }\mu\text{A}, I_C = 0$	5			V
Forward current transfer ratio *1	h_{FE1} *2	$V_{CE} = 2\text{ V}, I_C = 200\text{ mA}$	120		340	
	h_{FE2}	$V_{CE} = 2\text{ V}, I_C = 1\text{ A}$	80			
Collector to emitter saturation voltage *1	$V_{CE(sat)}$	$I_C = 1\text{ A}, I_B = 50\text{ mA}$		0.15	0.3	V
Base to emitter saturation voltage *1	$V_{BE(sat)}$	$I_C = 1\text{ A}, I_B = 50\text{ mA}$		0.85	1.2	V
Transition frequency	f_T	$V_{CB} = 10\text{ V}, I_E = -50\text{ mA}, f = 200\text{ MHz}$		110		MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$		23	35	pF

Note) *1: Pulse measurement

*2: Rank classification

Rank	R	S	No-rank
h_{FE1}	120 to 240	170 to 340	120 to 340

Product of no-rank is not classified and have no indication for rank.



