

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 (Ta=25°C)

Parameter	Symbol	Ratings	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	°C
Storage temperature	T_{stg}	-55 ~ +150	°C

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

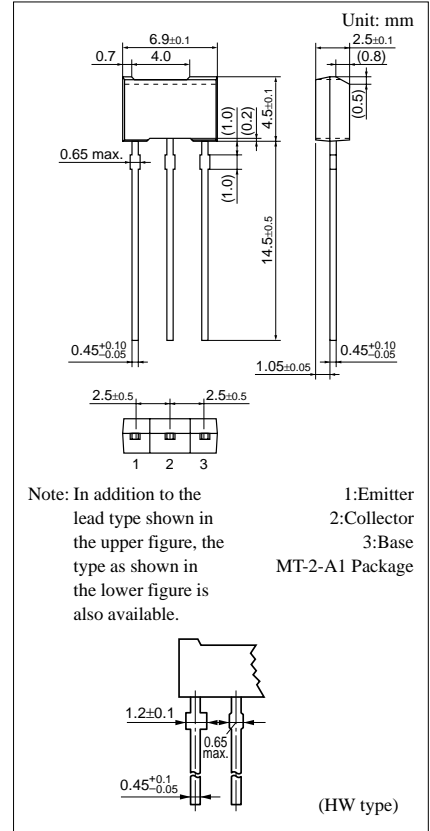
Electrical Characteristics (Ta=25°C)

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

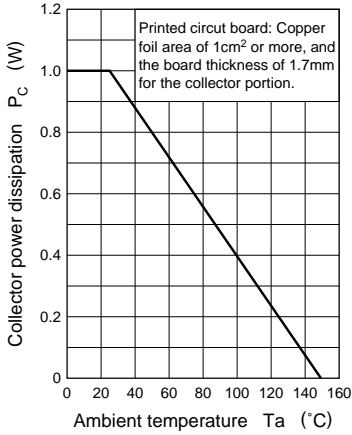
*2 Pulse measurement

*1 h_{FE1} Rank classification

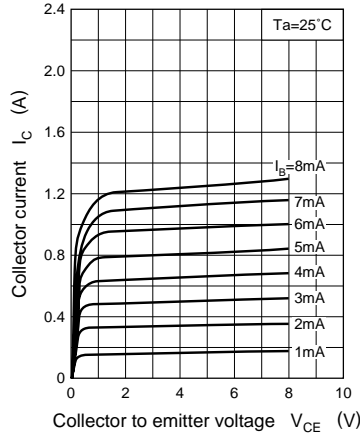
Rank	R	S
h_{FE1}	120 ~ 240	170 ~ 340



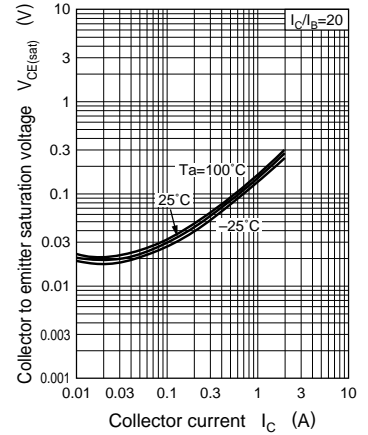
$P_C - T_a$



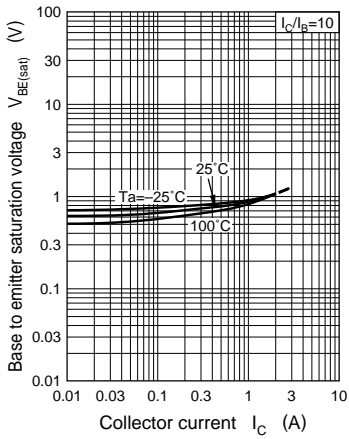
$I_C - V_{CE}$



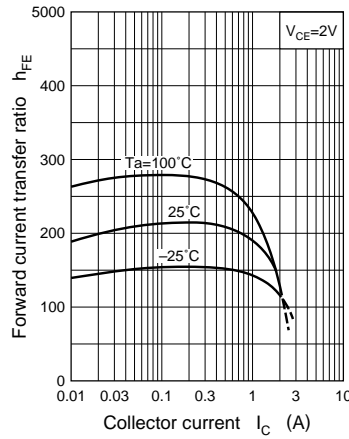
$V_{CE(sat)} - I_C$



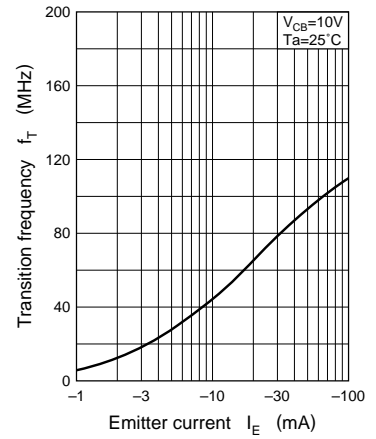
$V_{BE(sat)} - I_C$



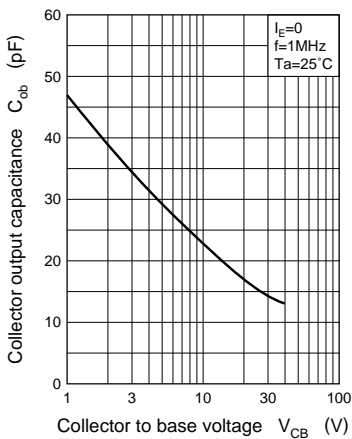
$h_{FE} - I_C$



$f_T - I_E$



$C_{ob} - V_{CB}$



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