

# 2SD2177A

Silicon NPN epitaxial planer type

For low-frequency output amplification

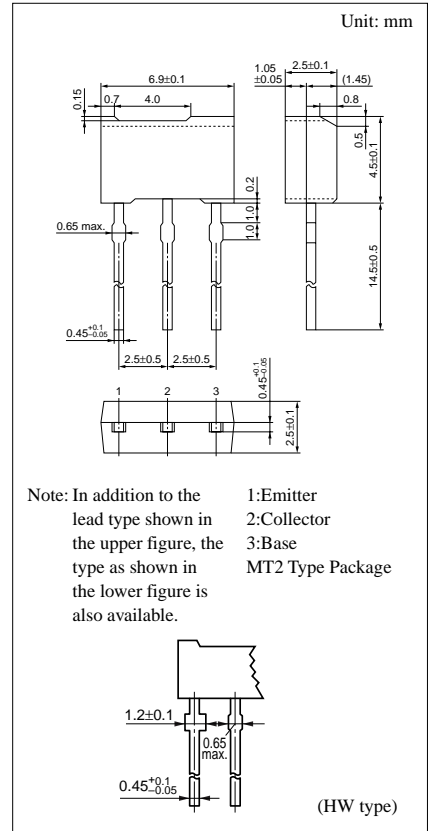
## ■ Features

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

## ■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	60	V
Collector to emitter voltage	$V_{CEO}$	60	V
Emitter to base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	2	A
Peak collector current	$I_{CP}$	3	A
Collector power dissipation	$P_C^{*1}$	1	W
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 ~ +150	°C

\*1 Printed circuit board: Copper foil area of 1cm<sup>2</sup> or more, and the board thickness of 1.7mm for the collector portion



## ■ Electrical Characteristics (Ta=25°C)

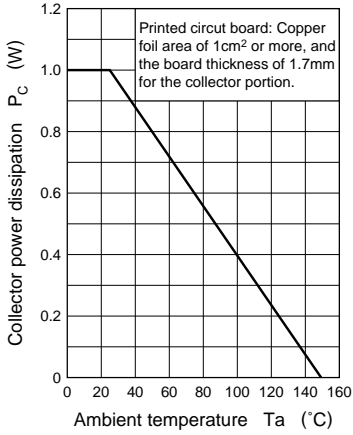
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 20V, I_E = 0$			0.1	μA
Collector to base voltage	$V_{CBO}$	$I_C = 10\mu A, I_E = 0$	60			V
Collector to emitter voltage	$V_{CEO}$	$I_C = 1mA, I_B = 0$	60			V
Emitter to base voltage	$V_{EBO}$	$I_E = 10\mu A, I_C = 0$	5			V
Forward current transfer ratio	$h_{FE1}^{*1}$	$V_{CE} = 2V, I_C = 200mA$	120		340	
	$h_{FE2}^{*1}$	$V_{CE} = 2V, I_C = 1A^{*2}$	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

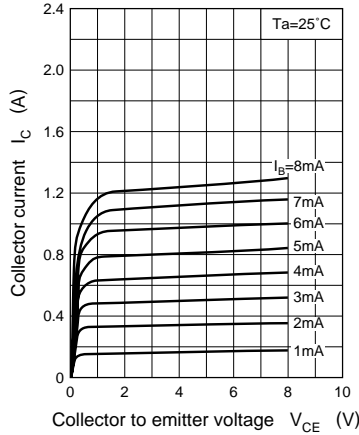
\*1  $h_{FE1}$  Rank classification

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

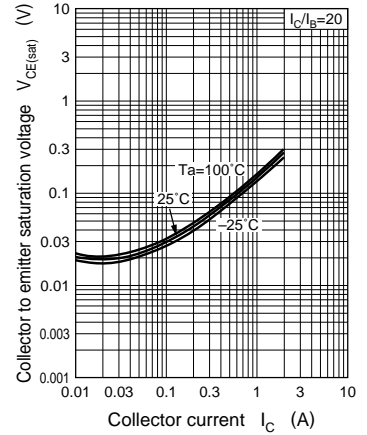
$P_C - T_a$



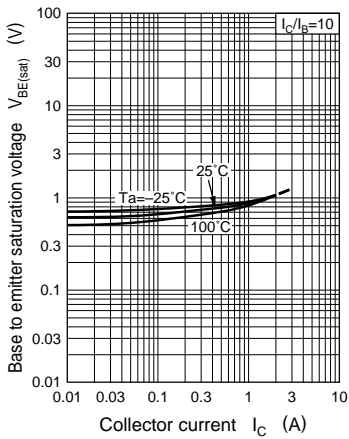
$I_C - V_{CE}$



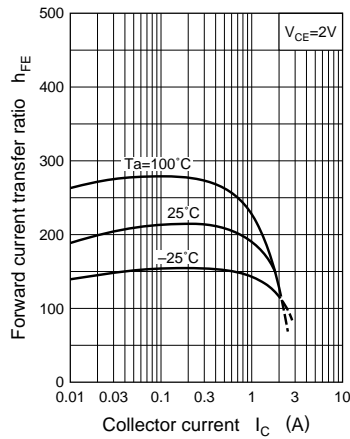
$V_{CE(sat)} - I_C$



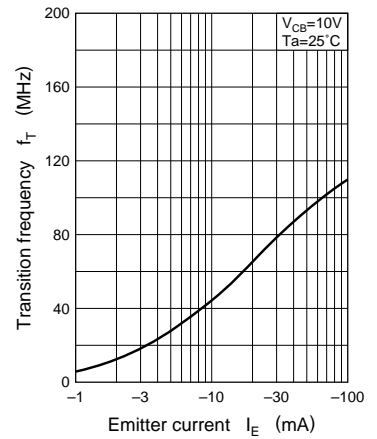
$V_{BE(sat)} - I_C$



$h_{FE} - I_C$



$f_T - I_E$



$C_{ob} - V_{CB}$

