

Transistor

**Panasonic**

# 2SD2210

Silicon NPN epitaxial planer type

For low-voltage output amplification

For muting

For DC-DC converter

## Features

- Low collector to emitter saturation voltage  $V_{CE(sat)}$ .
- Low ON resistance  $R_{on}$ .
- High forward current transfer ratio  $h_{FE}$ .

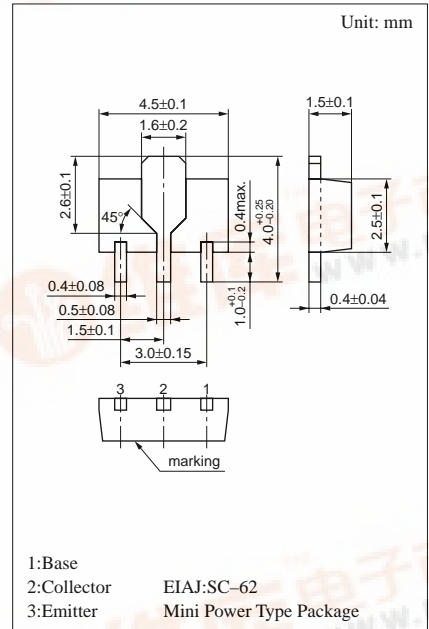
## Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rated	Unit
Collector to base voltage	$V_{CBO}$	25	V
Collector to emitter voltage	$V_{CEO}$	20	V
Emitter to base voltage	$V_{EBO}$	12	V
Peak collector current	$I_{CP}$	1	A
Collector current	$I_C$	0.5	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 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	$I_{CBO}$	$V_{CB} = 25V, I_E = 0$			1	μA
Collector to base voltage	$V_{CBO}$	$I_C = 10\mu A, I_E = 0$	25			V
Collector to emitter voltage	$V_{CEO}$	$I_C = 1mA, I_B = 0$	20			V
Emitter to base voltage	$V_{EBO}$	$I_E = 10\mu A, I_C = 0$	12			V
Forward current transfer ratio	$h_{FE1}^{*1}$	$V_{CE} = 2V, I_C = 0.5A^{*2}$	200		800	
	$h_{FE2}$	$V_{CE} = 2V, I_C = 1A^{*2}$	60			
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 0.5A, I_B = 20mA$		0.13	0.4	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 0.5A, I_B = 50mA$			1.2	V
Transition frequency	$f_T$	$V_{CB} = 10V, I_E = -50mA, f = 200MHz$		200		MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$		10		pF
ON resistance	$R_{on}^{*3}$			1.0		Ω



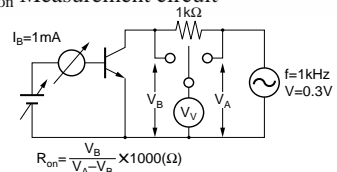
Marking symbol : IK

\*1  $h_{FE1}$  Rank classification

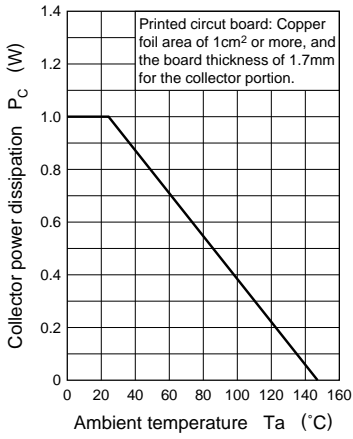
Rank	R	S	T
$h_{FE}$	200 ~ 350	300 ~ 500	400 ~ 800
Marking Symbol	IKR	IKS	IKT

\*2 Pulse measurement

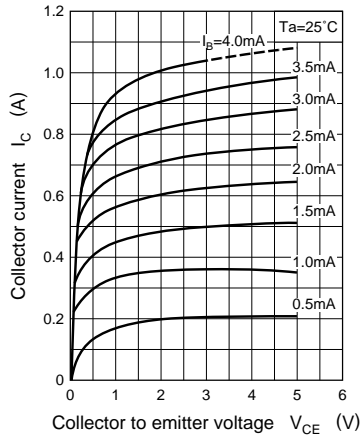
\*3  $R_{on}$  Measurement circuit



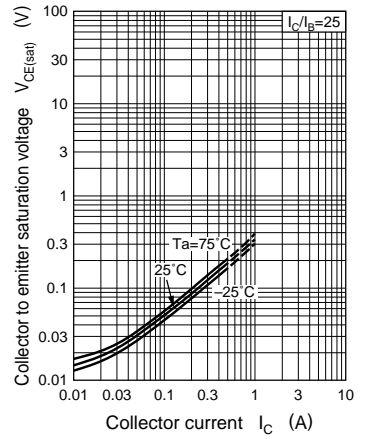
$P_C - T_a$



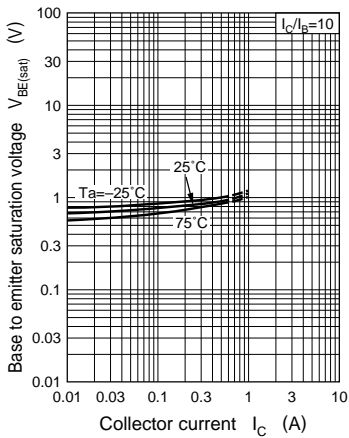
$I_C - V_{CE}$



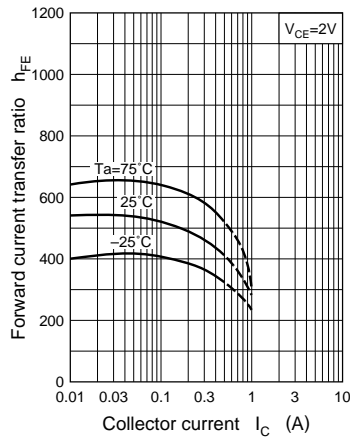
$V_{CE(sat)} - I_C$



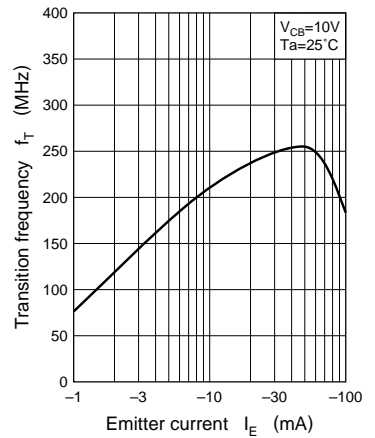
$V_{BE(sat)} - I_C$



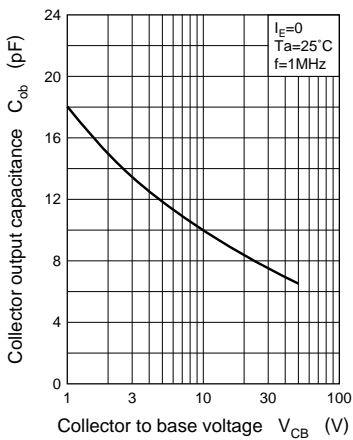
$h_{FE} - I_C$



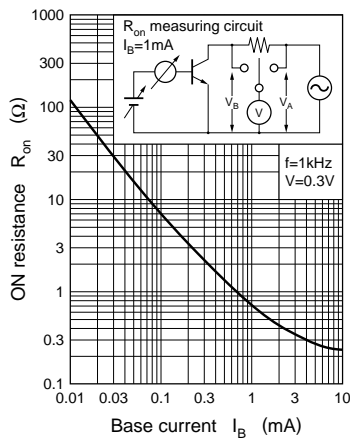
$f_T - I_E$



$C_{ob} - V_{CB}$



$R_{on} - I_B$



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