

# 2SD2321

## Silicon NPN epitaxial planer type

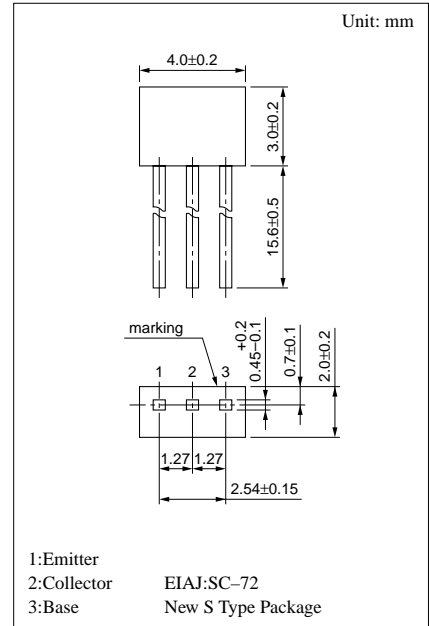
For low-frequency power amplification

### ■ Features

- Low collector to emitter saturation voltage  $V_{CE(sat)}$ .
- Satisfactory operation performances at high efficiency with the low-voltage power supply.

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

Parameter	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	40	V
Collector to emitter voltage	$V_{CEO}$	20	V
Emitter to base voltage	$V_{EBO}$	7	V
Collector current	$I_C$	5	A
Peak collector current	$I_{CP}$	8	A
Collector power dissipation	$P_C$	400	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 ~ +150	°C



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

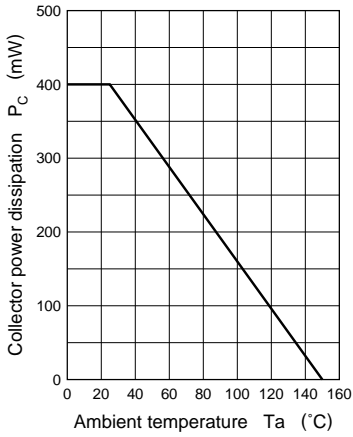
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 10V, I_E = 0$			0.1	$\mu A$
	$I_{CEO}$	$V_{CE} = 10V, I_B = 0$			1.0	$\mu A$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 7V, I_C = 0$			0.1	$\mu A$
Collector to emitter voltage	$V_{CEO}$	$I_C = 1mA, I_B = 0$	20			V
Emitter to base voltage	$V_{EBO}$	$I_E = 10\mu A, I_C = 0$	7			V
Forward current transfer ratio	$h_{FE1}^{*1}$	$V_{CE} = 2V, I_C = 0.5A^{*2}$	230		600	
	$h_{FE2}$	$V_{CE} = 2V, I_C = 2A^{*2}$	150			
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3A, I_B = 0.1A^{*2}$		0.28	1.0	V
Transition frequency	$f_T$	$V_{CB} = 6V, I_E = -50mA, f = 200MHz$		150		MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 20V, I_E = 0, f = 1MHz$		26	50	pF

\*2 Pulse measurement

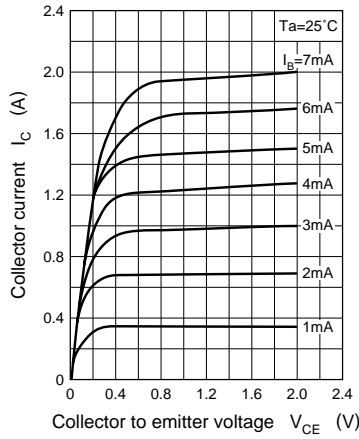
\*1  $h_{FE1}$  Rank classification

Rank	Q	R
$h_{FE1}$	230 ~ 380	340 ~ 600

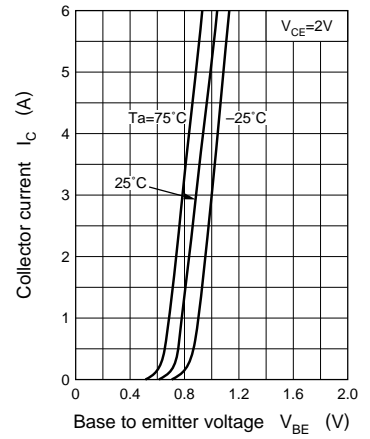
$P_C - T_a$



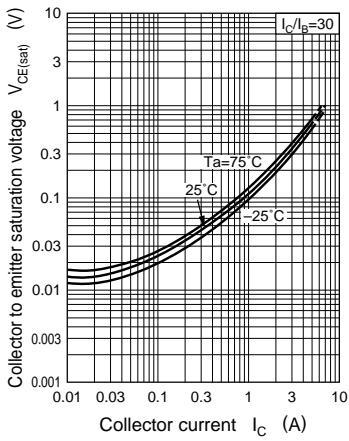
$I_C - V_{CE}$



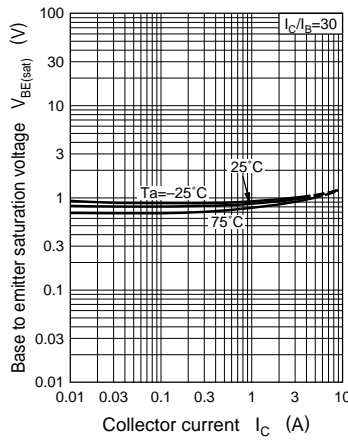
$I_C - V_{BE}$



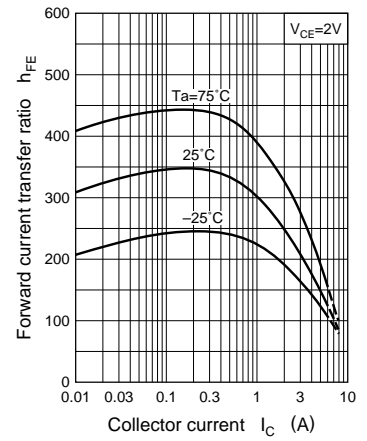
$V_{CE(sat)} - I_C$



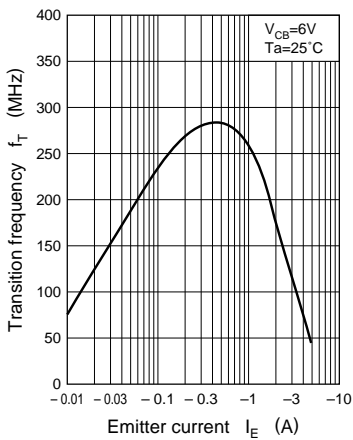
$V_{BE(sat)} - I_C$



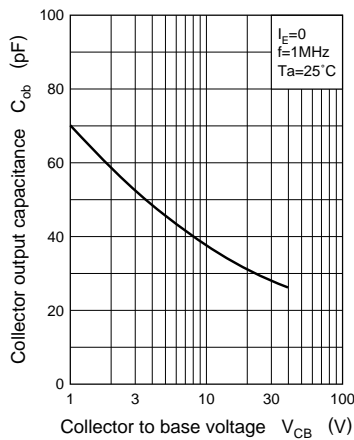
$h_{FE} - I_C$



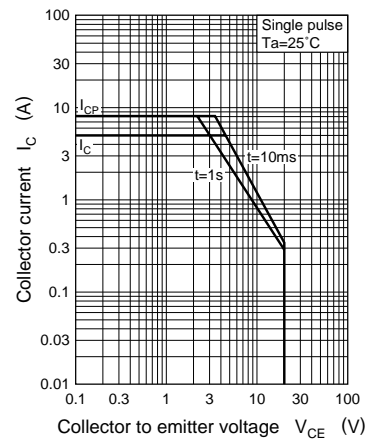
$f_T - I_E$



$C_{ob} - V_{CB}$



Area of safe operation (ASO)



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