# 2SD1302

### Silicon NPN epitaxial planar type

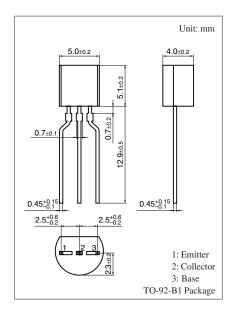
For low-voltage output amplification For muting For DC-DC converter

#### Features

- $\bullet$  Low collector-emitter saturation voltage  $V_{\mbox{CE(sat)}}$
- Low ON resistance Ron
- High forward current transfer ratio h<sub>FE</sub>

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

Parameter	Symbol	Rating	Unit		
Collector-base voltage (Emitter open)	V <sub>CBO</sub>	25	V		
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	20	V		
Emitter-base voltage (Collector open)	V <sub>EBO</sub>	12	V		
Collector current	I <sub>C</sub>	0.5	А		
Peak collector current	I <sub>CP</sub>	1	А		
Collector power dissipation	P <sub>C</sub>	600	mW		
Junction temperature	Tj	150	°C		
Storage temperature	T <sub>stg</sub>	-55 to +150	°C		



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

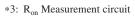
Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Collector-base voltage (Emitter open)	V <sub>CBO</sub>	$I_{C} = 10 \ \mu A, I_{E} = 0$	25			V
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	$I_{\rm C} = 1  {\rm mA},  I_{\rm B} = 0$	20			V
Emitter-base voltage (Collector open)	V <sub>EBO</sub>	$I_E = 10 \ \mu A, \ I_C = 0$	12			V
Collector-base cutoff current (Emitter open)	I <sub>CBO</sub>	$V_{CB} = 25 \text{ V}, I_E = 0$			100	nA
Forward current transfer ratio *1	h <sub>FE1</sub> *2	$V_{CE} = 2 V, I_C = 0.5 A$	200		800	
	h <sub>FE2</sub>	$V_{CE} = 2 V, I_C = 1 A$	60			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	$I_{\rm C} = 0.5 \text{ A}, I_{\rm B} = 20 \text{ mA}$		0.13	0.40	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	$I_{\rm C} = 0.5 \text{ A}, I_{\rm B} = 50 \text{ mA}$			1.2	V
Transition frequency	f <sub>T</sub>	$V_{CB} = 10 \text{ V}, I_E = -50 \text{ mA}, f = 200 \text{ MHz}$		200		MHz
Collector output capacitance	C <sub>ob</sub>	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		10		pF
(Common base, input open circuited)						
ON resistanse *3	R <sub>on</sub>			1.0		Ω

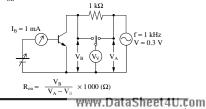
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*1: Pulse measurement

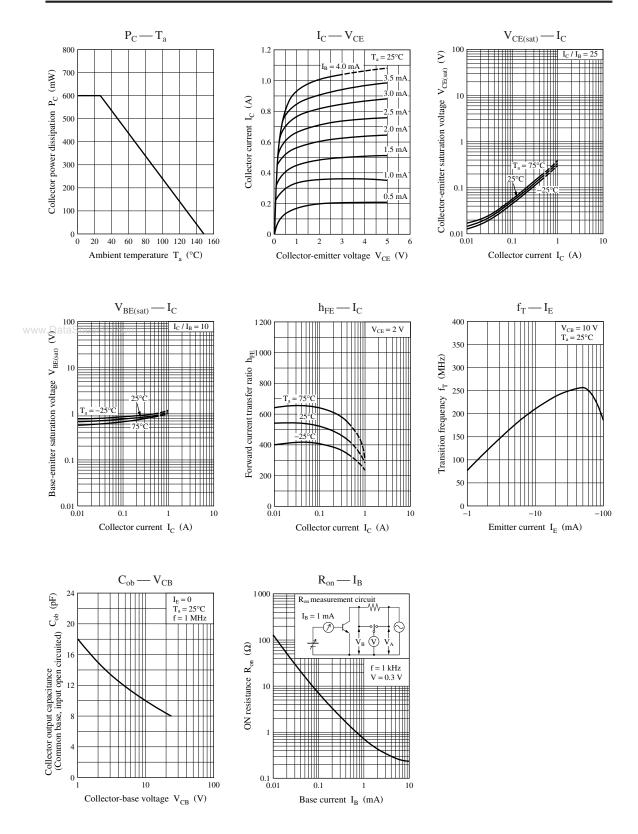
\*2: Rank classification

Rank	R	S	Т	
$h_{\rm FE1}$	200 to 350	300 to 500	400 to 800	





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