

# Low Frequency Transistor (20V, 3A)

## 2SD2150 / 2SC4115S / 2SD2264

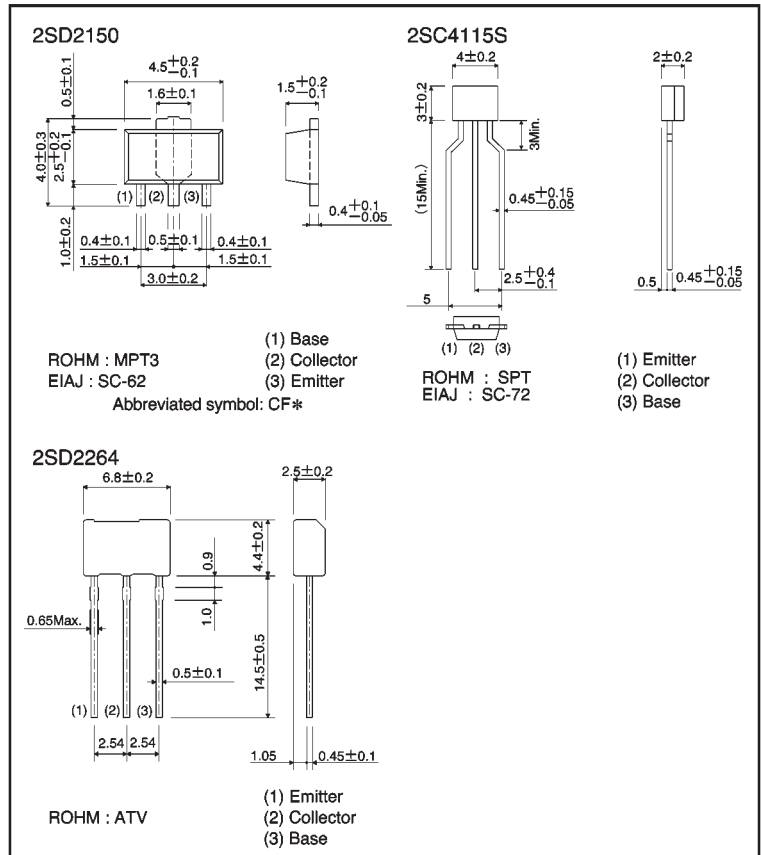
●Features

- 1) Low  $V_{CE(sat)}$ ,  
 $V_{CE(sat)} = 0.2V$  (Typ.)  
( $I_C / I_B = 2A / 0.1A$ )
- 2) Excellent current gain characteristics.
- 3) Complements the  
2SB1424 / 2SA1585S.

●Structure

Epitaxial planar type  
NPN silicon transistor

●External dimensions (Units: mm)



\* Denotes  $h_{FE}$

● Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V <sub>CB0</sub>	40	V
Collector-emitter voltage		V <sub>CE0</sub>	20	V
Emitter-base voltage		V <sub>EB0</sub>	6	V
Collector current		I <sub>c</sub>	3	A (DC)
			5	A (Pulse) *1
Collector power dissipation	2SD2150	P <sub>c</sub>	0.5	W
	2SC4115S		0.3	
	2SD2264		1	
Junction temperature		T <sub>j</sub>	150	°C
Storage temperature		T <sub>stg</sub>	-55~+150	°C

\*1 Single pulse P<sub>w</sub>=10ms

\*2 Printed circuit board, 1.7mm thick, collector copper plating 100mm<sup>2</sup> or larger.

● Electrical characteristics (Ta = 25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage		BV <sub>CB0</sub>	40	—	—	V	I <sub>c</sub> =50 μA
Collector-emitter breakdown voltage		BV <sub>CE0</sub>	20	—	—	V	I <sub>c</sub> =1mA
Emitter-base breakdown voltage		BV <sub>EB0</sub>	6	—	—	V	I <sub>E</sub> =50 μA
Collector cutoff current		I <sub>cB0</sub>	—	—	0.1	μA	V <sub>CB</sub> =30V
Emitter cutoff current		I <sub>EB0</sub>	—	—	0.1	μA	V <sub>EB</sub> =5V
Collector-emitter saturation voltage		V <sub>CE(sat)</sub>	—	0.2	0.5	V	I <sub>c</sub> /I <sub>B</sub> =2A/0.1A *
DC current transfer ratio	2SD2150	h <sub>FE</sub>	180	—	560	—	V <sub>CE</sub> =2V, I <sub>c</sub> =0.1A
	2SC4115S		120	—	560		
	2SD2264		180	—	390		
Transition frequency		f <sub>T</sub>	—	290	—	MHz	V <sub>CE</sub> =2V, I <sub>E</sub> =-0.5A, f=100MHz
Output capacitance		C <sub>ob</sub>	—	25	—	pF	V <sub>CE</sub> =10V, I <sub>E</sub> =0A, f=1MHz

\* Measured using pulse current.

● Packaging specifications and h<sub>FE</sub>

Type	h <sub>FE</sub>	Package	Taping		
		Code	T100	TP	TV2
		Basic ordering unit (pieces)	1000	5000	2500
2SD2150	RS	○	—	—	—
2SC4115S	QRS	—	○	—	—
2SD2264	R	—	—	○	—

h<sub>FE</sub> values are classified as follows :

Item	Q	R	S
h <sub>FE</sub>	120~270	180~390	270~560

●Electrical characteristic curves

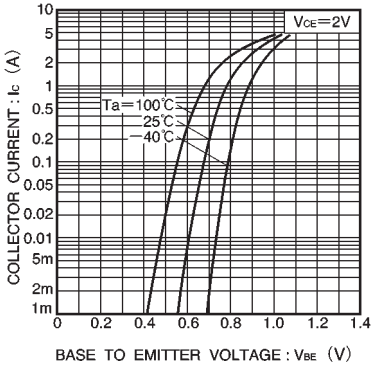


Fig.1 Grounded emitter propagation characteristics

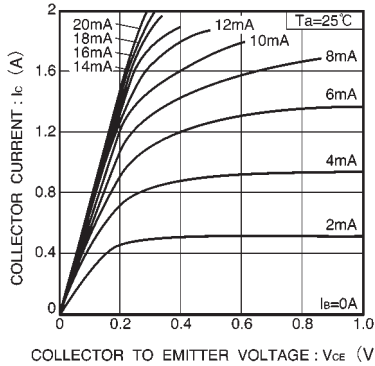


Fig.2 Grounded emitter output characteristics ( I )

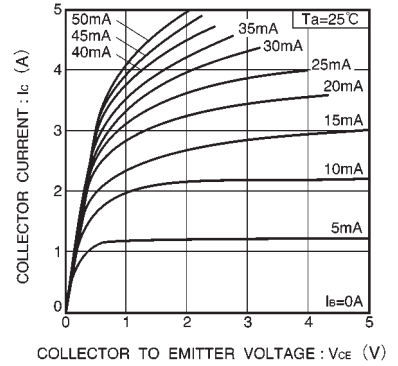


Fig.3 Grounded emitter output characteristics ( II )

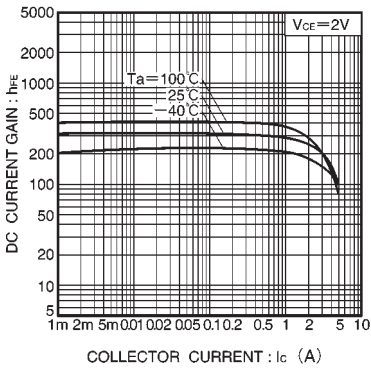


Fig.4 DC current gain vs. collector current

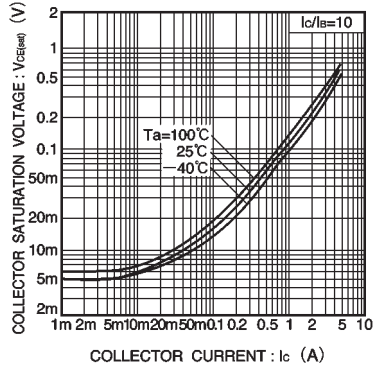


Fig.5 Collector-emitter saturation voltage vs. collector current ( I )

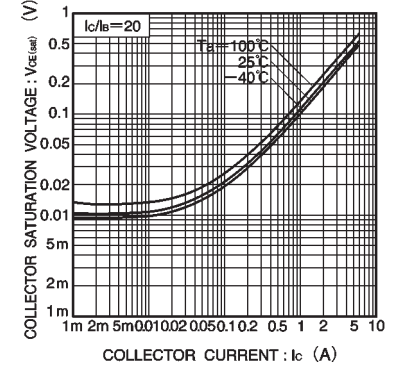


Fig.6 Collector-emitter saturation voltage vs. collector current ( II )

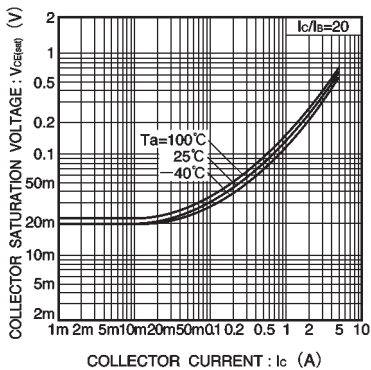


Fig.7 Collector-emitter saturation voltage vs. collector current ( III )

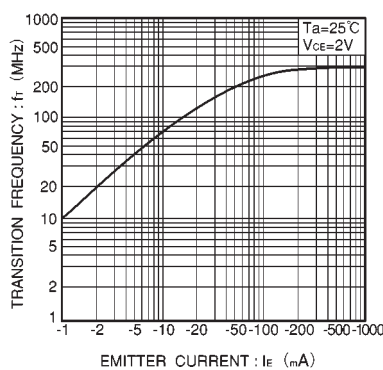


Fig.8 Gain bandwidth product vs. emitter current

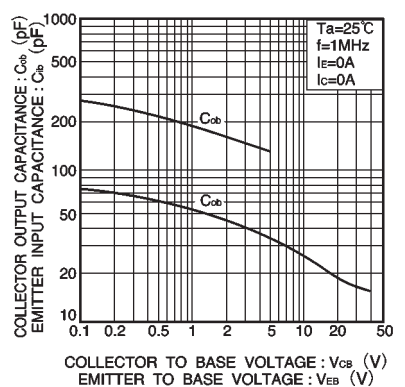


Fig.9 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage