

# Low Frequency Transistor (20V, 3A)

## 2SD2150

### ●Features

1) Low  $V_{CE(sat)}$ .

$$V_{CE(sat)} = 0.2V(\text{Typ.})$$

$$(I_c / I_B = 2A / 0.1A)$$

2) Excellent current gain characteristics.

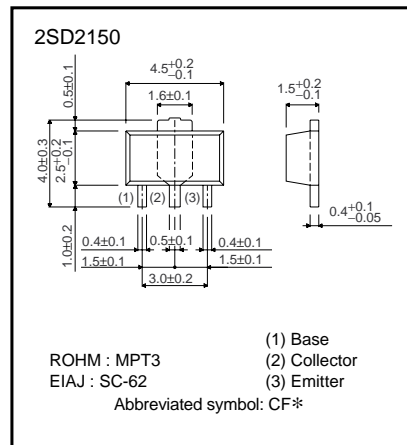
3) Complements the 2SB1424.

### ●Structure

Epitaxial planar type

NPN silicon transistor

### ●External dimensions (Unit : mm)



\* Denotes hFE

### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	40	V
Collector-emitter voltage	$V_{CEO}$	20	V
Emitter-base voltage	$V_{EBO}$	6	V
Collector current	$I_c$	3	A (DC)
		5	A (Pulse) *1
Collector power dissipation	$P_C$	0.5	W
		2	W *2
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

\*1 Single pulse  $P_w=10ms$

\*2 Mounted on a 40×40×0.7mm Ceramic substrate.

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●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> =50μA
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> =50μA
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	h <sub>FE</sub>	120	–	560	–	V <sub>CE</sub> =2V, I <sub>C</sub> =0.1A
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
		Basic ordering unit (pieces)	1000
2SD2150	RS		○

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

Item	R	S
h <sub>FE</sub>	180 to 390	270 to 560

●Electrical characteristic curves

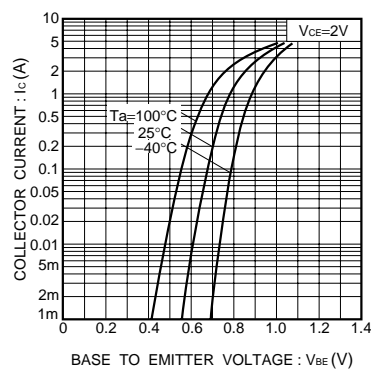


Fig.1 Grounded emitter propagation characteristics

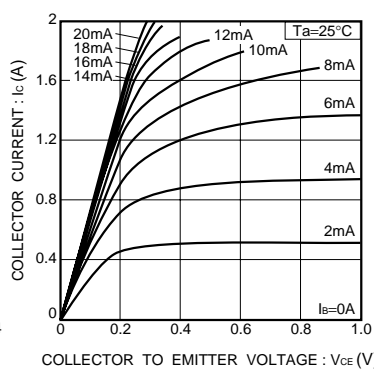


Fig.2 Grounded emitter output characteristics ( I )

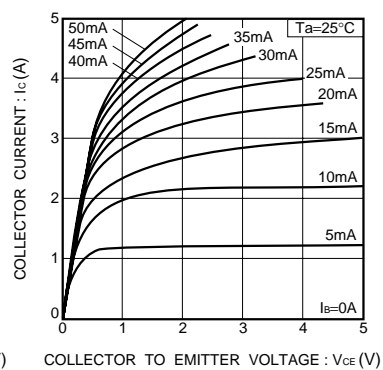


Fig.3 Grounded emitter output characteristics (II)

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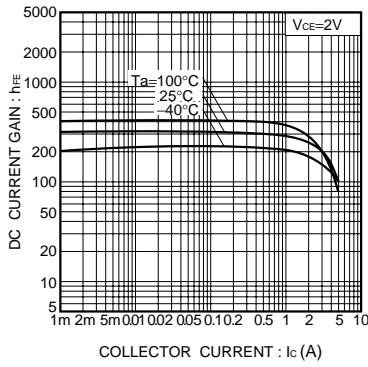


Fig.4 DC current gain vs. collector current

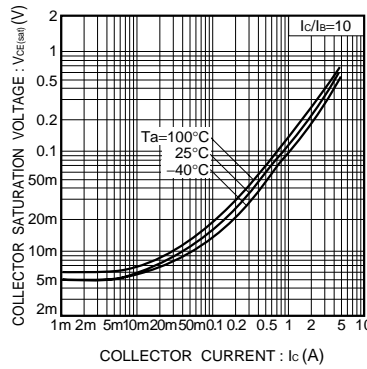


Fig.5 Collector-emitter saturation voltage vs. collector current ( I )

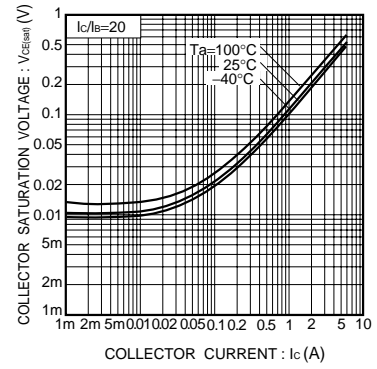


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

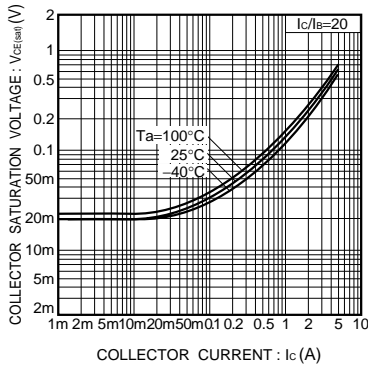


Fig.7 Collector-emitter saturation voltage vs. collector current ( III )

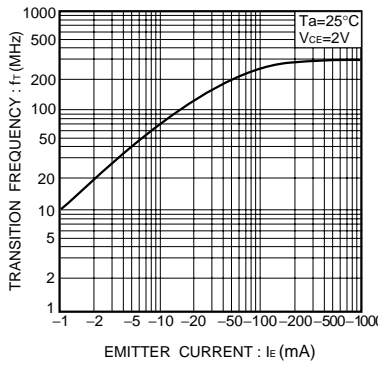


Fig.8 Gain bandwidth product vs. emitter current

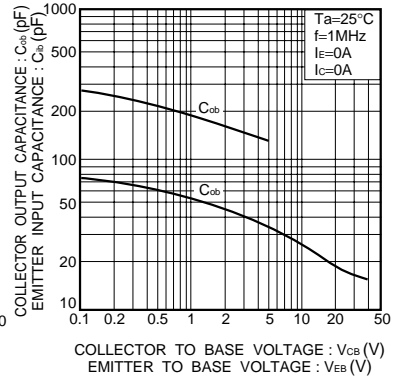


Fig.9 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

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