

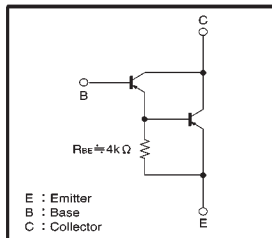
High-gain Amplifier Transistor (−32V, −0.3A)

2SB852K / 2SA830S

●Features

- 1) Darlington connection for high DC current gain.
- 2) Built-in 4 kΩ resistor between base and emitter.
- 3) Complements the 2SD1383K / 2SD1645S.

●Circuit diagram



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	−40	V
Collector-emitter voltage	V _{CEs}	−32	V *
Emitter-base voltage	V _{EB0}	−6	V
Collector current	I _c	−0.3	A
Collector power dissipation	2SB852K	0.2	W
	2SA830S	0.3	
Junction temperature	T _J	150	°C
Storage temperature	T _{stg}	−55~+150	°C

* R_{BE}=0Ω

●Packaging specifications and hfe

Type	2SB852K	2SA830S
Package	SMT3	SPT
h _{FE}	B	B
Marking	U*	—
Code	T146	TP
Basic ordering unit (pieces)	3000	5000

* Denotes h_{FE}

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	−40	—	—	V	I _c =−100 μA
Collector-emitter breakdown voltage	BV _{CEs}	−32	—	—	V	I _c =−1mA, R _{BE} =0
Emitter-base breakdown voltage	BV _{EB0}	−6	—	—	V	I _e =−100 μA
Collector cutoff current	I _{cBO}	—	—	1	μA	V _{CB} =−24V
Emitter cutoff current	I _{eBO}	—	—	1	μA	V _{EB} =−4.5V
DC current transfer ratio	h _{FE}	5000	—	—	—	V _{CE} /I _c =−5V/−0.1A
Collector-emitter saturation voltage	V _{CE(sat)}	—	—	−1.5	V	I _c /I _e =−200mA/−0.4mA *
Transition frequency	f _T	—	200	—	MHz	V _{CE} =−5V, I _e =−10mA, f=100MHz *
Output capacitance	C _{ob}	—	3	—	pF	V _{CB} =−10V, I _e =0A, f=1MHz

*1 Measured using pulse current.

*2 Transition frequency of the device.

(96-118-B20)

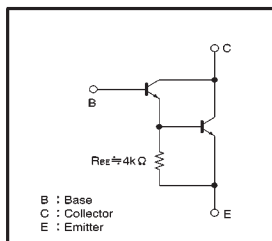
High-gain Amplifier Transistor (32V, 0.3A)

2SD1383K / 2SC1645S

●Features

- 1) Darlington connection for high DC current gain.
- 2) Built-in 4 kΩ resistor between base and emitter.
- 3) Complements the 2SD852K / 2SA830S.

●Circuit diagram



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	40	V
Collector-emitter voltage	V _{CEs}	32	V *
Emitter-base voltage	V _{EB0}	6	V
Collector current	I _c	0.3	A (DC)
		1.5	A (Pulse) *1
Collector power dissipation	P _c	0.2	W
Junction temperature	T _J	150	°C
Storage temperature	T _{stg}	−55~+150	°C

*1 Single pulse P_w=10ms *2 R_{BE}=0Ω

●Packaging specifications and hfe

Type	2SD1383K	2SC1645S
Package	SMT3	SPT
h _{FE}	B	B
Marking	W*	—
Code	T146	TP
Basic ordering unit (pieces)	3000	5000

* Denotes h_{FE}

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	40	—	—	V	I _c =100 μA
Collector-emitter breakdown voltage	BV _{CEs}	32	—	—	V	I _c =−1mA, R _{BE} =0Ω
Emitter-base breakdown voltage	BV _{EB0}	6	—	—	V	I _e =100 μA
Collector cutoff current	I _{cBO}	—	—	1	μA	V _{CB} =24V
Emitter cutoff current	I _{eBO}	—	—	1	μA	V _{EB} =4.5V
DC current transfer ratio	h _{FE}	5000	—	—	—	V _{CE} /I _c =5V/0.1A
Collector-emitter saturation voltage	V _{CE(sat)}	—	—	1.5	V	I _c /I _e =200mA/0.4mA *
Transition frequency	f _T	—	250	—	MHz	V _{CE} =5V, I _e =−10mA, f=100MHz *
Output capacitance	C _{ob}	—	5	—	pF	V _{CB} =10V, I _e =0A, f=1MHz

*1 Measured using pulse current.

*2 Transition frequency of the device.

(96-205-D20)