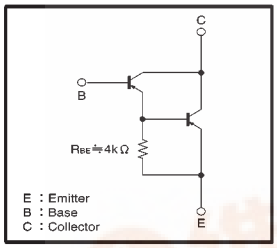
High-gain Amplifier Transistor (−32V, −0.3A)

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℃)

Parameter		Symbol	Limits	Unit	
Collector-base voltage		VCBO	−40	V	
Collector-emitter voltage		VCES	−32	V	✻
Emitter-base voltage		VEBO	−6	V	
Collector current		IC	−0.3	A	
Collector power dissipation	2SB852K	PC	0.2	W	
	2SA830S		0.3		
Junction temperature		Tj	150	℃	
Storage temperature		Tstg	−55～+150	℃	

✻ RBE=0Ω

●Packaging specifications and hFE

Type	2SB852K	2SA830S
Package	SMT3	SPT
hFE	B	B
Marking	U✻	—
Code	T146	TP
Basic ordering unit (pieces)	3000	5000

✻ Denotes hFE

●Electrical characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	−40	—	—	V	IC=−100 μA
Collector-emitter breakdown voltage	BVCES	−32	—	—	V	IC=−1mA , RBE=0
Emitter-base breakdown voltage	BVEBO	−6	—	—	V	IE=−100 μA
Collector cutoff current	ICBO	—	—	1	μA	VCB=−24V
Emitter cutoff current	IEBO	—	—	1	μA	VEB=−4.5V
DC current transfer ratio	hFE	5000	—	—	—	VCE/IC=−5V/−0.1A
Collector-emitter saturation voltage	VCE(sat)	—	—	−1.5	V	IC/IB=−200mA/−0.4mA ✻1
Transition frequency	fT	—	200	—	MHz	VCE=−5V , IE=−10mA , f=100MHz ✻2
Output capacitance	Cob	—	3	—	pF	VCB=−10V , IE=0A , f=1MHz

✻1 Measured using pulse current. ✻2 Transition frequency of the device.

(96-118-B20)

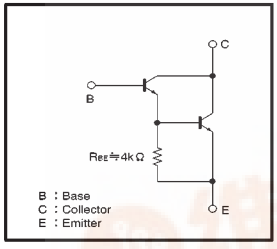
High-gain Amplifier Transistor (32V, 0.3A)

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℃)

Parameter	Symbol	Limits	Unit	
Collector-base voltage	VCBO	40	V	
Collector-emitter voltage	VCES	32	V	✻2
Emitter-base voltage	VEBO	6	V	
Collector current	IC	0.3	A (DC)	
		1.5	A (Pulse)	✻1
Collector power dissipation	PC	0.2	W	
Junction temperature	Tj	150	℃	
Storage temperature	Tstg	−55～+150	℃	

✻1 Single pulse Pw=10ms ✻2 RBE=0Ω

●Packaging specifications and hFE

Type	2SD1383K	2SC1645S
Package	SMT3	SPT
hFE	B	B
Marking	W✻	—
Code	T146	TP
Basic ordering unit (pieces)	3000	5000

✻ Denotes hFE

●Electrical characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	40	—	—	V	IC=100 μA
Collector-emitter breakdown voltage	BVCES	32	—	—	V	IC=−1mA , RBE=0Ω
Emitter-base breakdown voltage	BVEBO	6	—	—	V	IE=100 μA
Collector cutoff current	ICBO	—	—	1	μA	VCB=24V
Emitter cutoff current	IEBO	—	—	1	μA	VEB=4.5V
DC current transfer ratio	hFE	5000	—	—	—	VCE/IC=5V/0.1A
Collector-emitter saturation voltage	VCE(sat)	—	—	1.5	V	IC/IB=200mA/0.4mA ✻1
Transition frequency	fT	—	250	—	MHz	VCE=5V , IE=−10mA , f=100MHz ✻2
Output capacitance	Cob	—	5	—	pF	VCB=10V , IE=0A , f=1MHz

✻1 Measured using pulse current. ✻2 Transition frequency of the device.

(96-205-D20)