

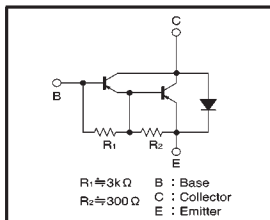
## Power Transistor (−80V, −4A)

2SB1474 / 2SB1342

## ●Features

- 1) Darlington connection for a high  $h_{FE}$ .
- 2) Built-in resistor between base and emitter.
- 3) Built-in damper diode.
- 4) Complements the 2SD1933.

## ●Circuit diagram



## ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	−80	—	—	V	$I_C = -50\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	−80	—	—	V	$I_C = -1mA$
Collector cutoff current	$I_{CBO}$	—	—	−100	$\mu A$	$V_{CE} = -80V$
Emitter cutoff current	$I_{EBO}$	—	—	−3	mA	$V_{EB} = -5V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	−1	−1.5	V	$I_C/I_E = -2A/-4mA$ *1
DC current transfer ratio	$h_{FE}$	1000	5000	10000	—	$V_{CE}/I_C = -3V/-2A$ *1
Transition frequency	$f_T$	—	12	—	MHz	$V_{CE} = -5V, I_E = 0.5A, f = 10MHz$ *2
Output capacitance	$C_{ob}$	—	45	—	pF	$V_{CE} = -10V, I_E = 0A, f = 1MHz$

\*1 Measured using pulse current.

\*2 Transition frequency of the device

(94S-181-B400)

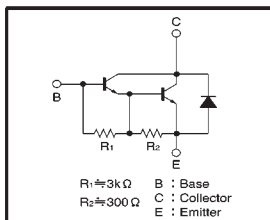
## Power Transistor (80V, 4A)

2SD1933

## ●Features

- 1) Darlington connection for a high  $h_{FE}$ .
- 2) Built-in resistor between base and emitter.
- 3) Built-in damper diode.
- 4) Complements the 2SB1342.

## ●Circuit diagram



## ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	$BV_{CEO}$	80	—	—	V	$I_C = 1mA$
Collector-base breakdown voltage	$BV_{CBO}$	80	—	—	V	$I_C = 50\mu A$
Collector cutoff current	$I_{CBO}$	—	—	100	$\mu A$	$V_{CE} = 80V$
Emitter cutoff current	$I_{EBO}$	—	—	3	mA	$V_{EB} = 5V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	1.5	V	$I_C/I_E = 2A/4mA$ *1
DC current transfer ratio	$h_{FE}$	1000	—	10000	—	$V_{CE}/I_C = 3V/2A$ *1
Transition frequency	$f_T$	—	40	—	MHz	$V_{CE} = 5V, I_E = -0.2A, f = 10MHz$ *2
Output capacitance	$C_{ob}$	—	35	—	pF	$V_{CE} = 10V, I_E = 0A, f = 1MHz$

\*1 Measured using pulse current.

\*2 Transition frequency of the device

(94L-906-D400)

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

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	−80	V
Collector-emitter voltage	$V_{CES}$	−80	V
Emitter-base voltage	$V_{EBO}$	−7	V
Collector current	$I_C$	−4	A (DC)
		−6	A *
		1	W
Collector power dissipation	2SB1474	10	W (Tc=25°C)
		2	W
		30	W (Tc=25°C)
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	−55~+150	°C

\* Single pulse,  $P_w = 100ms$ 

## ●Packaging specifications and hFE

Type	2SB1474	2SB1342
Package	CPT3	TO-220FP
$h_{FE}$	1k~10k	1k~10k
Code	TL	—
Basic ordering unit (pieces)	2500	500

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

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	80	V
Collector-emitter voltage	$V_{CES}$	80	V
Emitter-base voltage	$V_{EBO}$	7	V
Collector current	$I_C$	4	A (DC)
		6	A (Pulse) *
		2	W
Collector power dissipation	$P_C$	30	W (Tc=25°C)
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	−55~+150	°C

\* Single pulse,  $P_w = 100ms$ 

## ●Packaging specifications and hFE

Type	2SD1933
Package	TO-220FP
$h_{FE}$	1k~10k
Code	—
Basic ordering unit (pieces)	500