

# Power Transistor (−15V, −1A)

## 2SB1590K

**●Features**

- 1) Low saturation voltage,  $V_{CE(sat)} = -0.3(\text{Max.})$  at  $I_C / I_E = -0.4A / -20mA$ .
- 2)  $I_C = -1A$
- 3) Complements the 2SD2444K.

**●Packaging specifications and  $h_{FE}$** 

Type	2SB1590K
Package	SMT3
$h_{FE}$	Q
Marking	BK*
Code	T146
Basic ordering unit (pieces)	3000

\* Denotes  $h_{FE}$ **●Absolute maximum ratings ( $T_a=25^\circ\text{C}$ )**

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	−15	V
Collector-emitter voltage	$V_{CEO}$	−15	V
Emitter-base voltage	$V_{EBO}$	−6	V
Collector current	$I_C$	−1	A (DC)
Collector power dissipation	$P_C$	0.2	W
Junction temperature	$T_J$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	−55~+150	$^\circ\text{C}$

**●Electrical characteristics ( $T_a=25^\circ\text{C}$ )**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	−15	—	—	V	$I_C = -50 \mu\text{A}$
Collector-emitter breakdown voltage	$BV_{CEO}$	−15	—	—	V	$I_C = -1\text{mA}$
Emitter-base breakdown voltage	$BV_{EBO}$	−6	—	—	V	$I_E = -50 \mu\text{A}$
Collector cutoff current	$I_{CBO}$	—	—	−0.5	$\mu\text{A}$	$V_{CB} = -12\text{V}$
Emitter cutoff current	$I_{EBO}$	—	—	−0.5	$\mu\text{A}$	$V_{EB} = -5\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	−0.3	V	$I_C = -0.4\text{A}$ , $I_E = -20\text{mA}$
DC current transfer ratio	$h_{FE1}$	120	—	270	—	$V_{CE}/I_C = -2\text{V}/-0.5\text{A}$
DC current transfer ratio	$h_{FE2}$	80	—	—	—	$V_{CE} = -2\text{V}$ , $I_C = -800\text{mA}$
Transition frequency	$f_T$	—	200	—	MHz	$V_{CE} = -2\text{V}$ , $I_C = 50\text{mA}$ , $f = 100\text{MHz}$
Output capacitance	$C_{ob}$	—	15	—	pF	$V_{CB} = -10\text{V}$ , $I_E = 0\text{A}$ , $f = 1\text{MHz}$

(96-150-B218)

# Power Transistor (15V, 1A)

## 2SD2444K

**●Features**

- 1) Low saturation voltage,  $V_{CE(sat)} = 0.3\text{V}(\text{Max.})$  at  $I_C / I_E = 0.4\text{A} / 20\text{mA}$ .
- 2)  $I_C = 1\text{A}$
- 3) Complements the 2SB1590K.

**●Packaging specifications and  $h_{FE}$** 

Type	2SD2444K
Package	SMT3
$h_{FE}$	R
Marking	BS*
Code	T146
Basic ordering unit (pieces)	3000

\* Denotes  $h_{FE}$ **●Absolute maximum ratings ( $T_a=25^\circ\text{C}$ )**

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	15	V
Collector-emitter voltage	$V_{CEO}$	15	V
Emitter-base voltage	$V_{EBO}$	6	V
Collector current	$I_C$	1	A (DC)
Collector power dissipation	$P_C$	0.2	W
Junction temperature	$T_J$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	−55~+150	$^\circ\text{C}$

**●Electrical characteristics ( $T_a=25^\circ\text{C}$ )**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	15	—	—	V	$I_C = 50 \mu\text{A}$
Collector-emitter breakdown voltage	$BV_{CEO}$	15	—	—	V	$I_C = 1\text{mA}$
Emitter-base breakdown voltage	$BV_{EBO}$	6	—	—	V	$I_E = 50 \mu\text{A}$
Collector cutoff current	$I_{CBO}$	—	—	0.5	$\mu\text{A}$	$V_{CB} = 12\text{V}$
Emitter cutoff current	$I_{EBO}$	—	—	0.5	$\mu\text{A}$	$V_{EB} = 5\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.3	V	$I_C = 400\text{mA}$ , $I_E = 20\text{mA}$
DC current transfer ratio	$h_{FE}$	180	—	390	—	$V_{CE}/I_C = 2\text{V}/50\text{mA}$
Transition frequency	$f_T$	—	200	—	MHz	$V_{CE} = 2\text{V}$ , $I_E = -50\text{mA}$ , $f = 100\text{MHz}$
Output capacitance	$C_{ob}$	—	15	—	pF	$V_{CB} = -10\text{V}$ , $I_E = 0\text{A}$ , $f = 1\text{MHz}$

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