

Power Transistor (–15V, –1A)

2SB1590K

●Features

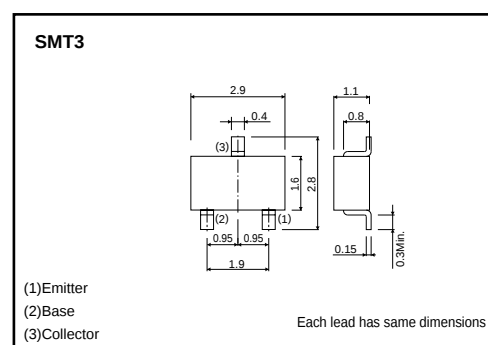
- 1) Low saturation voltage, $V_{CE(sat)} = -0.3V$ (Max.)
at $I_C / I_B = -0.4A / -20mA$.
- 2) $I_C = -1A$
- 3) Complements the 2SD2444K.

●Packaging specification and h_{FE}

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

* Denotes h_{FE}

●External dimensions (Unit : mm)



●Absolute maximum ratings ($T_a=25^\circ C$)

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)
	I_{CP}	–2	A (pw=10ms)
Collector power dissipation	P_C	0.2	W
Junction temperature	T_J	150	$^\circ C$
Storage temperature	T_{stg}	–55 to +150	$^\circ C$

●Electrical characteristics ($T_a=25^\circ C$)

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

Transistors

●Electrical characteristic curves

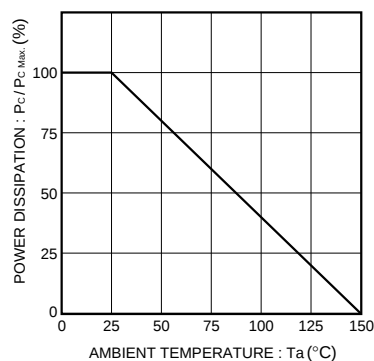


Fig.1 Grounded emitter output characteristics

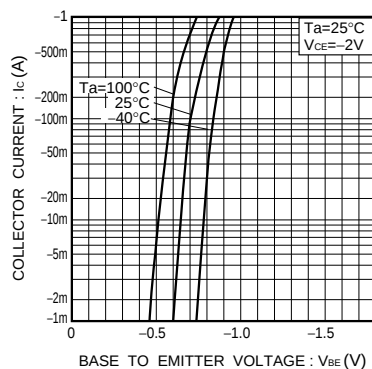


Fig.2 Grounded emitter propagation characteristics

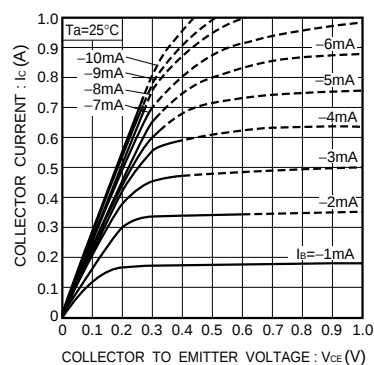


Fig.3 Grounded emitter output characteristics

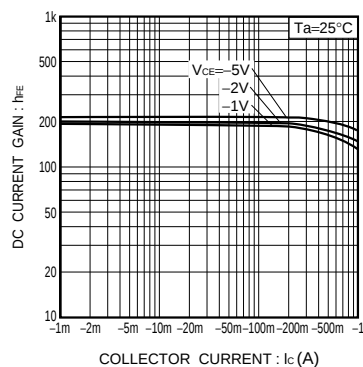


Fig.4 DC current gain vs. collector current (I)

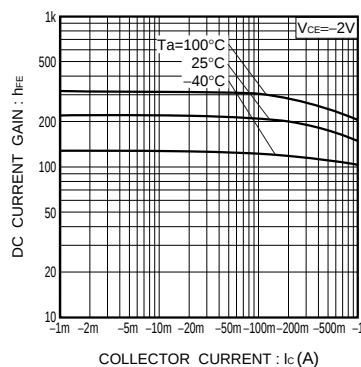


Fig.5 DC collector gain vs. collector current (II)

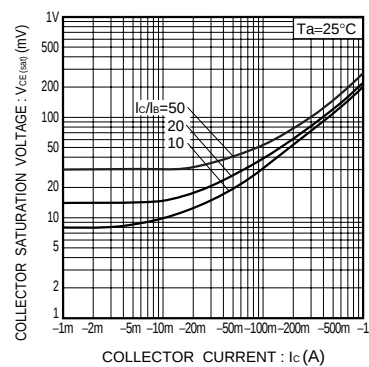


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

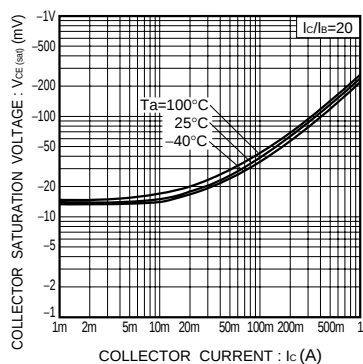


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

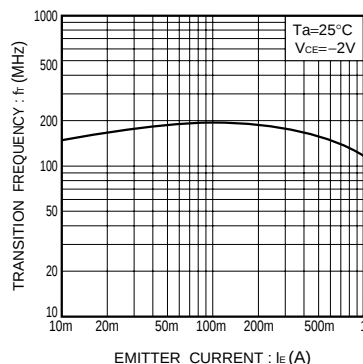


Fig.8 Transition frequency vs. emitter current

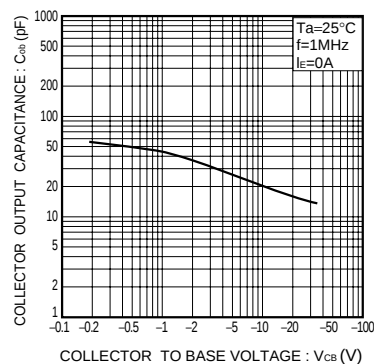


Fig.9 Collector output capacitance vs. collector-base voltage

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