Power Transistor (–15V, –1A)

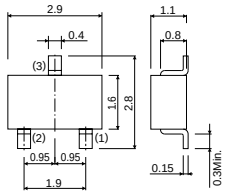
2SB1590K

●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.

●External dimensions (Unit : mm)

SMT3



(1)Emitter
(2)Base
(3)Collector

Each lead has same dimensions

●Packaging specification 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 (Ta=25°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	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	–15	–	–	V	I_C=–50μA
Collector-emitter breakdown voltage	BV_{CEO}	–15	–	–	V	I_C=–1mA
Emitter-base breakdown voltage	BV_{EBO}	–6	–	–	V	I_E=–50μA
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	Cob	–	15	–	pF	V_{CB}=–10V, I_E=0A, f=1MHz

●Electrical characteristic curves

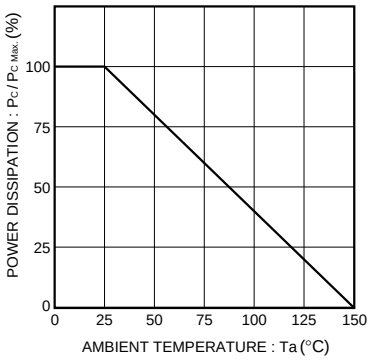


Fig.1 Grounded emitter output characteristics

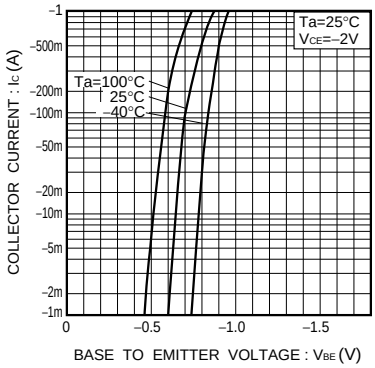


Fig.2 Grounded emitter propagation characteristics

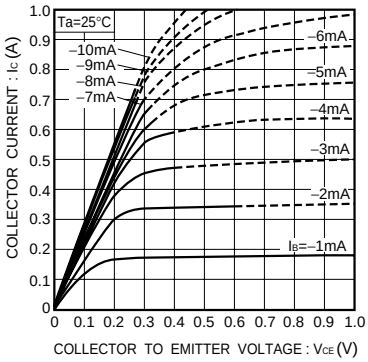


Fig.3 Grounded emitter output characteristics

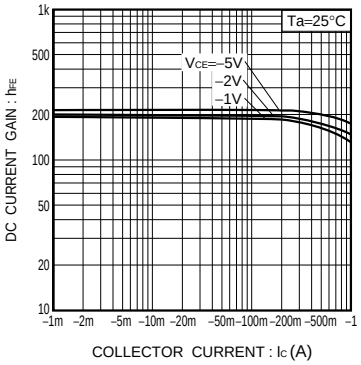


Fig.4 DC current gain vs. collector current (I)

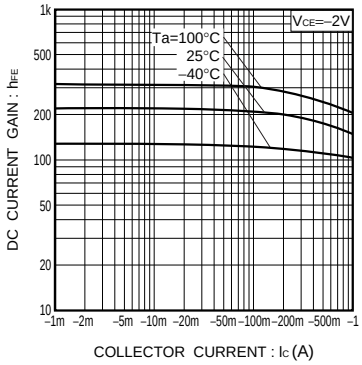


Fig.5 DC collector gain vs. collector current (II)

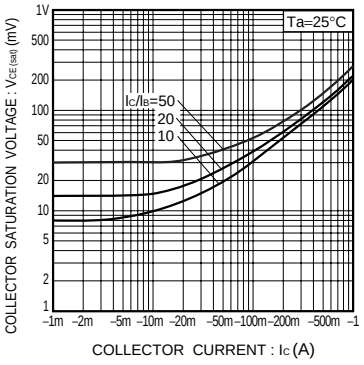


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

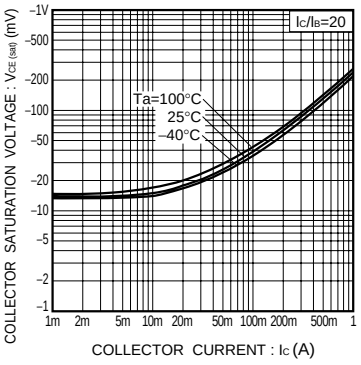


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

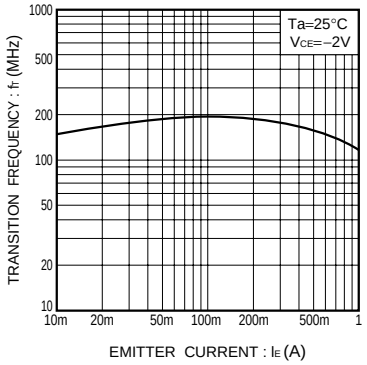


Fig.8 Transition frequency vs. emitter current

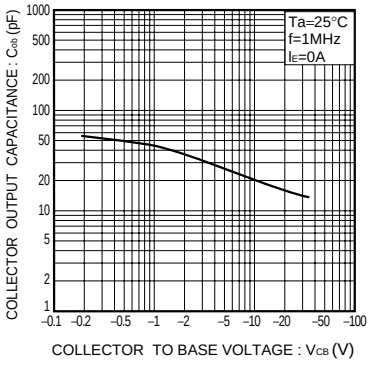


Fig.9 Collector output capacitance vs. collector-base voltage

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