

2SB1519

Preliminary

Silicon PNP Epitaxial
High Voltage Amplifier

Features

- Low saturation voltage
 $V_{CE(sat)} \leq -0.3 \text{ V}$
- Large current capacitance
 $I_C = -2 \text{ A}$

Table 1 Absolute Maximum Ratings
($T_a = 25^\circ\text{C}$)

Item	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	-50	V
Collector to emitter voltage	V_{CEO}	-50	V
Emitter to base voltage	V_{EBO}	-5	V
Collector current	I_C	-2	A
Peak collector current	$i_{C(\text{peak})}^*$	-3	A
Collector power dissipation	P_C^{**}	1	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

* $PW \leq 10 \text{ ms}$, duty cycle $\leq 20\%$

** When using the alumina ceramic board ($12.5 \times 20 \times 0.7 \text{ mm}$)

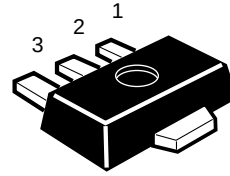
Table 2 Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Item	Symbol	Min	Typ	Max	Unit	Test condition
Collector to base breakdown voltage	$V_{(BR)CBO}$	-50	—	—	V	$I_C = -10 \mu\text{A}$, $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-50	—	—	V	$I_C = -1 \text{ mA}$, $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	-5	—	—	V	$I_C = -10 \mu\text{A}$, $I_E = 0$
Collector cutoff current	I_{CBO}	—	—	-1	μA	$V_{CB} = -40 \text{ V}$, $I_E = 0$
Collector cutoff current	I_{CEO}	—	—	-5	μA	$V_{CE} = -40 \text{ V}$, $R_{BE} = \infty$
Emitter cutoff current	I_{EBO}	—	—	-1	μA	$V_{EB} = -4 \text{ V}$, $I_C = 0$
DC current transfer ratio	h_{FE1}	120	—	300	—	$V_{CE} = -2 \text{ V}$, $I_C = -0.5 \text{ A}^*$
DC current transfer ratio	h_{FE2}	40	—	—	—	$V_{CE} = -2 \text{ V}$, $I_C = -1.5 \text{ A}^*$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	-0.3	V	$I_C = -1 \text{ A}$, $I_B = -50 \text{ mA}^*$
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	-1.2	V	$I_C = -1 \text{ A}$, $I_B = -50 \text{ mA}^*$

* Pulse test

** Marking is "FS".

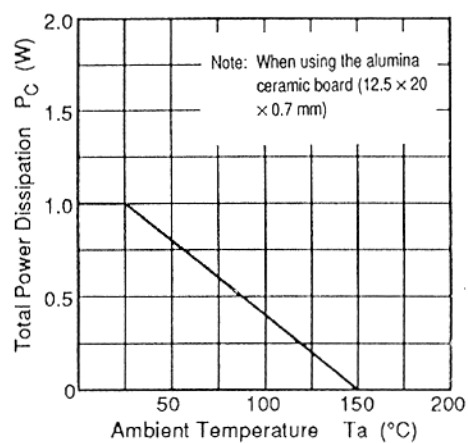
UPAK



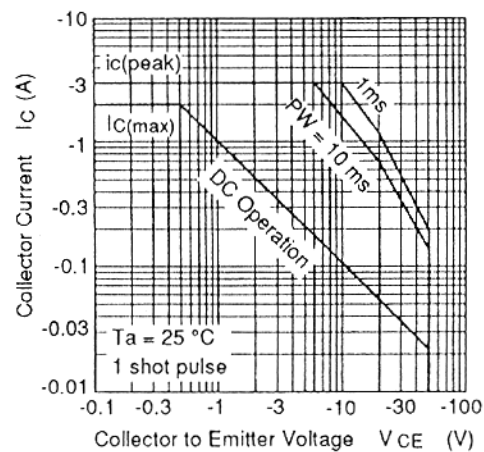
1. Base
2. Collector
3. Emitter

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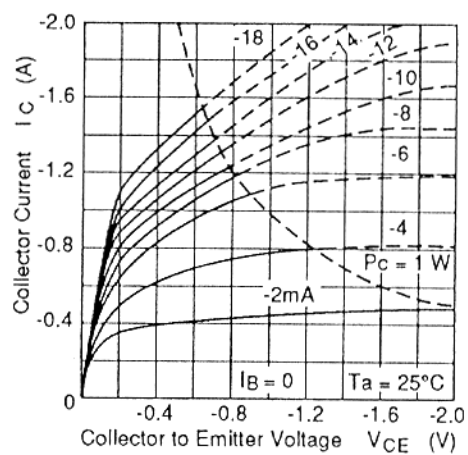
Maximum power dissipation curve



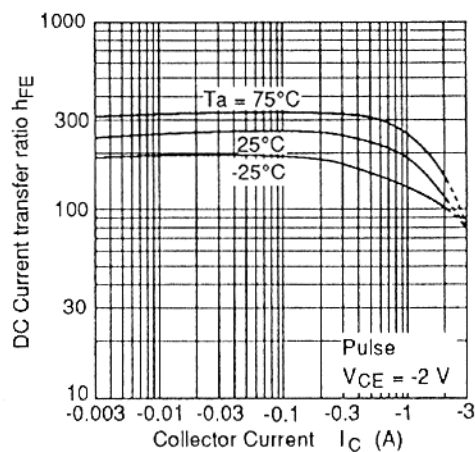
Area of safe operation



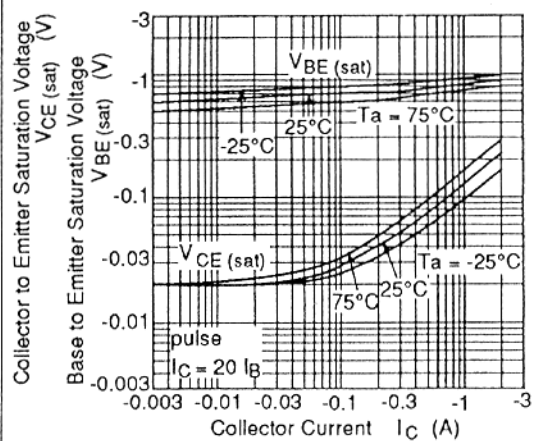
Typical transfer characteristics



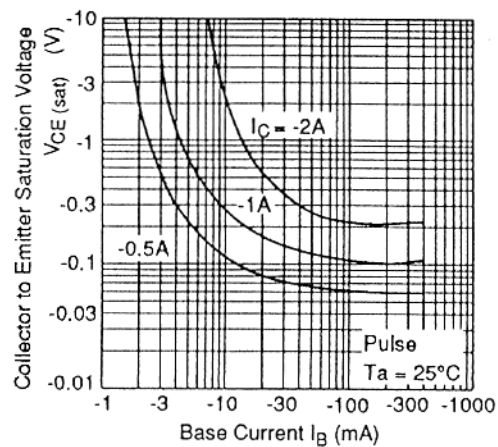
DC current transfer ratio vs. collector current



Saturation voltage vs. collector current



Collector to emitter saturation voltage vs. base current



Typical transfer characteristics

