

High-current gain Power Transistor (−60V, −3A)

2SB1639

●Features

- 1) High DC current gain. (Typ.440 at $V_{CE}/I_C = -4V/-0.5A$)
- 2) Low $V_{CE(sat)}$. (Typ.−0.2V at $I_C/I_B = -2/-0.05A$)
- 3) Complements the 2SD1944.

●Packaging specifications and h_{FE}

Type	2SB1639
Package	TO-220FN
h_{FE}	H
Code	—
Basic ordering unit (pieces)	500

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

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CB0}	−80	V
Collector-emitter voltage	V_{CE0}	−60	V
Emitter-base voltage	V_{EB0}	−6	V
Collector current	I_C	−3	A
Collector power dissipation	P_C	2 30	W W ($T_C=25^{\circ}C$)
Junction temperature	T_J	150	$^{\circ}C$
Storage temperature	T_{stg}	−55~150	$^{\circ}C$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CEO}	−60	—	—	V	$I_C = -1mA$
Collector-base breakdown voltage	BV_{CBO}	−60	—	—	V	$I_C = -50\mu A$
Emitter-base breakdown voltage	BV_{EBO}	−6	—	—	V	$I_E = -50\mu A$
Collector cutoff current	I_{CBO}	—	—	−10	μA	$V_{CB} = -60V$
Emitter cutoff current	I_{EBO}	—	—	−10	μA	$V_{EB} = -6V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	−1	V	$I_C/I_B = -1V/-0.05A$
DC current transfer ratio	h_{FE}	400	—	800	—	$V_{CE} = -4V, I_C = -0.5A$
Transition frequency	f_T	—	60	—	MHz	$V_{CE} = -5V, I_E = -0.5A, f = 30MHz$
Output capacitance	C_{ob}	—	80	—	pF	$V_{CB} = -10V, I_E = 0A, f = 1MHz$

(SPEC-B302)

High-current gain Power Transistor (60V, 3A)

2SD2318/2SD1944

●Features

- 1) High DC current gain.
- 2) Low $V_{CE(sat)}$. (Typ. 0.5V at $I_C/I_B = 2/0.5A$)
- 3) Complements the 2SB1639.

●Packaging specifications and h_{FE}

Type	2SD2318	2SD1944
Package	CPT3	TO-220FP
h_{FE}	UV	HJK
Code	TL	—
Basic ordering unit (pieces)	2500	500

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

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CB0}	80	V
Collector-emitter voltage	V_{CE0}	60	V
Emitter-base voltage	V_{EB0}	6	V
Collector current	I_C	3 4.5	A A (Pulse) *
Collector power dissipation	P_C	1 15 2 30	W W ($T_C=25^{\circ}C$) W W ($T_C=28^{\circ}C$)
Junction temperature	T_J	150	$^{\circ}C$
Storage temperature	T_{stg}	−55~150	$^{\circ}C$

* Single pulse $P_w=100ms$ ●Electrical characteristics ($T_a=25^{\circ}C$)

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}	60	—	—	V	$I_C = 1mA$
Emitter-base breakdown voltage	BV_{EBO}	6	—	—	V	$I_E = 50\mu A$
Collector cutoff current	I_{CBO}	—	—	100	μA	$V_{CB} = 80V$
Emitter cutoff current	I_{EBO}	—	—	100	μA	$V_{EB} = 6V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	1.0	V	$I_C/I_B = 2A/0.05A$ *
Base-emitter saturation voltage	$V_{BE(sat)}$	—	—	1.5	V	$I_C/I_B = 2A/0.05A$ *
DC current transfer ratio	h_{FE}	560 400	— —	1800 2000	—	$V_{CE}/I_C = 4V/0.5A$
Transition frequency	f_T	—	50	—	MHz	$V_{CE} = 5V, I_C = -0.2A, f = 10MHz$ *
Output capacitance	C_{ob}	—	60	—	pF	$V_{CB} = 10V, I_E = 0A, f = 1MHz$

* Measured using pulse current.

(96-244-D302)

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