

Power Transistor (−60V, −3A)

2SB1370

Features

- 1) Low saturation voltage, typically $V_{CE(sat)} = -0.3V$ at $I_C / I_E = -2A / -0.2A$.
- 2) Excellent DC current gain characteristics.
- 3) $P_D = 2W (T_a = 25^\circ C) / 30W (T_c = 25^\circ C)$.
- 4) Wide SOA (safe operating area).

Packaging specifications and hfe

Type	2SB1370
Package	TO-220(FK)
h _{FE}	EF
Code	—
Basic ordering unit (pieces)	520

Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CB}	−60	V
Collector-emitter voltage	V_{CE}	−60	V
Emitter-base voltage	V_{EB}	5	V
Collector current	I_C	−3	A(DC)
	I_{CP}	−6	A(Pulse) *
Collector power dissipation	P_C	2	W
		30	W(T _c = 25°C)
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	−50 to +150	°C

* Single pulse, t_{pw} = 100ms

Electrical characteristics (T_a = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	−60	—	—	V	$I_E = -50 \mu A$
Collector-emitter breakdown voltage	BV_{CEO}	−60	—	—	V	$I_E = -1 mA$
Emitter-base breakdown voltage	BV_{EB}	−5	—	—	V	$I_C = -50 \mu A$
Collector cutoff current	I_{CBO}	—	10	—	μA	$V_{CB} = -50V$
Emitter cutoff current	I_{EBO}	—	−10	—	μA	$V_{EB} = -5V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	−1.5	—	V	$I_C / I_E = 2A / 0.2A$
Base-emitter saturation voltage	$V_{BE(sat)}$	—	−1.5	—	V	$I_C / I_E = -2A / -0.2A$
DC current transfer ratio	h_{FE}	100	—	520	—	$V_{CE} / I_C = -5V / -0.5A$
Transition frequency	f_T	—	10	—	MHz	$V_{CE} = 5V, I_C = 0.5A, f = 0.1 MHz$
Output capacitance	C_{ob}	—	50	—	pF	$V_{CE} = -10V, I_E = 0A, f = 1 MHz$

* Measured using pulse current.

(94L-411-B303)

Power Transistor (−60V, −3A)

2SB1655/2SB1565

Features

- 1) Low saturation voltage, typically $V_{CE(sat)} = -0.3V$ at $I_C / I_E = -2A / -0.2A$.
- 2) Excellent DC current gain characteristics.
- 3) Wide SOA (safe operating area).

Packaging specifications and hfe

Type	2SB1655	2SB1565
Package	TO-220(FK)	TO-220(FN)
h _{FE}	E	EF
Code	—	—
Basic ordering unit (pieces)	520	520

Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CB}	−60	V
Collector-emitter voltage	V_{CE}	−60	V
Emitter-base voltage	V_{EB}	−7	V
Collector current	I_C	−3	A(DC)
	I_{CP}	6	A(Pulse) *
Collector power dissipation	P_C	2	W
		25	W(T _c = 25°C)
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

* Single pulse, t_{pw} = 100ms

Electrical characteristics (T_a = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	−60	—	—	V	$I_E = -50 \mu A$
Collector-emitter breakdown voltage	BV_{CEO}	−60	—	—	V	$I_E = -1 mA$
Emitter-base breakdown voltage	BV_{EB}	−7	—	—	V	$I_C = -50 \mu A$
Collector cutoff current	I_{CBO}	—	10	—	μA	$V_{CB} = -50V$
Emitter cutoff current	I_{EBO}	—	−10	—	μA	$V_{EB} = -7V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	−1.5	—	V	$I_C / I_E = 2A / 0.2A$
Base-emitter saturation voltage	$V_{BE(sat)}$	—	−1.5	—	V	$I_C / I_E = -2A / -0.2A$
DC current transfer ratio	h_{FE}	100	—	520	—	$V_{CE} / I_C = -5V / -0.5A$
Transition frequency	f_T	—	15	—	MHz	$V_{CE} = -5V, I_C = 0.5A, f = 0.1 MHz$
Output capacitance	C_{ob}	—	50	—	pF	$V_{CE} = -10V, I_E = 0A, f = 1 MHz$

* Measured using pulse current.

(94L-456-B349)