

Power Transistor (120V, 7A)

2SD1957

●Features

- 1) High DC current gain. (160~500)
- 2) Low saturation voltage, typically $V_{CE(sat)} = 0.2V$ at $I_C / I_B = 3A / 0.3A$.
- 3) $P_C = 30W$. ($T_C = 25^\circ C$)
- 4) Wide SOA (safe operating area).
- 5) Built-in damper diode.

●Packaging specifications and hFE

Type	2SD1957
Package	TO-220FP
hFE	FG
Code	—
Basic ordering unit (pieces)	500

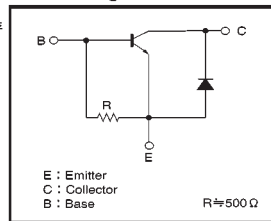
●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	120	—	—	V	$I_C = 50 \mu A$
Collector-emitter breakdown voltage	BV_{CEO}	120	—	—	V	$I_C = 1mA$
Emitter-base breakdown voltage	BV_{EBO}	5	—	—	V	$I_E = 30mA$
Collector cutoff current	I_{CBO}	—	—	10	μA	$V_{CB} = 100V$
Emitter cutoff current	I_{EBO}	—	—	20	mA	$V_{EB} = 4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	0.2	1	V	$I_C / I_B = 3A / 0.3A$ *
Base-emitter saturation voltage	$V_{BE(sat)}$	—	0.9	1.5	V	$I_C / I_B = 3A / 0.3A$ *
DC current transfer ratio	hFE	160	—	500	—	$V_{CE} / I_C = 5V / 1A$
Transition frequency	f_T	—	40	—	MHz	$V_{CE} = 5V$, $I_E = -0.5A$, $f = 10MHz$ *
Output capacitance	C_{ob}	—	100	—	pF	$V_{CB} = 10V$, $I_E = 0A$, $f = 1MHz$
Diode forward current	V_{SCF}	—	—	3	V	$I_D = 7A$ *

* Measured using pulse current.

(94L-919-D301)

●Circuit diagram



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	120	V
Collector-emitter voltage	V_{CEO}	120	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	7	A (DC)
		12	A (Pulse) *
Diode current	I_D	7	A
		2	W
Collector power dissipation	P_C	30	W ($T_C = 25^\circ C$)
		150	$^\circ C$
Junction temperature	T_J	150	$^\circ C$
Storage temperature	T_{stg}	-55 ~ +150	$^\circ C$

* Single pulse $P_w = 100ms$

Power Transistor (60V, 3A)

2SD2061

●Features

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

●Packaging specifications and hFE

Type	2SD2061
Package	TO-220FP
hFE	EF
Code	—
Basic ordering unit (pieces)	500

●Electrical characteristics (Ta=25°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}	5	—	—	V	$I_E = 50 \mu A$
Collector cutoff current	I_{CBO}	—	—	10	μA	$V_{CB} = 60V$
Emitter cutoff current	I_{EBO}	—	—	10	μA	$V_{EB} = 4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	1	V	$I_C / I_B = 2A / 0.2A$ *
Base-emitter saturation voltage	$V_{BE(sat)}$	—	—	1.5	V	$I_C / I_B = 2A / 0.2A$ *
DC current transfer ratio	hFE	100	—	320	—	$V_{CE} / I_C = 5V / 0.5A$
Transition frequency	f_T	—	8	—	MHz	$V_{CE} = 5V$, $I_E = -0.5A$, $f = 5MHz$ *
Output capacitance	C_{ob}	—	70	—	pF	$V_{CB} = 10V$, $I_E = 0A$, $f = 1MHz$

* Measured using pulse current.

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	80	V
Collector-emitter voltage	V_{CEO}	60	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	3	A (DC)
		6	A (Pulse) *
Collector power dissipation	P_C	2	W
		30	W ($T_C = 25^\circ C$)
Junction temperature	T_J	150	$^\circ C$
Storage temperature	T_{stg}	-55 ~ +150	$^\circ C$

* Single pulse $P_w = 100ms$

(94L-1016-D304)