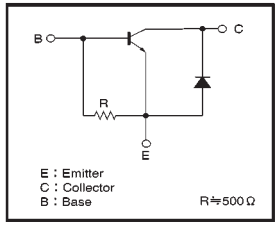
Power Transistor (120V, 7A)

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℃)
4) Wide SOA (safe operating area).
5) Built-in damper diode.

●**Circuit diagram**



E : Emitter
C : Collector
B : Base
R≒500Ω

●**Packaging specifications and h_{FE}**

Type	2SD1957
Package	TO-220FP
h_{FE}	FG
Code	—
Basic ordering unit (pieces)	500

●**Absolute maximum ratings (Ta=25℃)**

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
Collector power dissipation	P_C	2	W
		30	W (T_C=25℃)
Junction temperature	Tj	150	℃
Storage temperature	Tstg	−55～+150	℃

✻ Single pulse Pw=100ms

●**Electrical characteristics (Ta=25℃)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	120	—	—	V	I_C=50μA
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	h_{FE}	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	Cob	—	100	—	pF	V_{CB}=10V, I_E=0A, f=1MHz
Diode forward current	V_{ECF}	—	—	3	V	I_D=7A ✻

✻ Measured using pulse current.

(94L-919–D301)

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℃)
4) Wide SOA (safe operating area).

●**Packaging specifications and h_{FE}**

Type	2SD2061
Package	TO-220FP
h_{FE}	EF
Code	—
Basic ordering unit (pieces)	500

●**Absolute maximum ratings (Ta=25℃)**

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℃)
Junction temperature	Tj	150	℃
Storage temperature	Tstg	−55～+150	℃

✻ Single pulse Pw=100ms

●**Electrical characteristics (Ta=25℃)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	80	—	—	V	I_C=50μA
Collector-emitter breakdown voltage	BV_{CEO}	60	—	—	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	5	—	—	V	I_E=50μA
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		I_C/I_B=2A/0.2A ✻
Base-emitter saturation voltage	$V_{BE(sat)}$	—	—	1.5		I_C/I_B=2A/0.2A ✻
DC current transfer ratio	h_{FE}	100	—	320	—	V_{CE}/I_C=5V/0.5A
Transition frequency	f_T	—	8	—		V_{CE}=5V, I_E=−0.5A, f=5MHz ✻
Output capacitance	Cob	—	70	—	pF	V_{CB}=10V, I_E=0A, f=1MHz

✻ Measured using pulse current.

(94L-1016-D304)