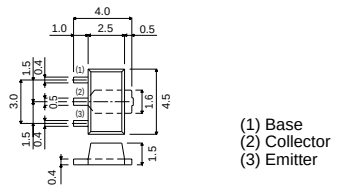
Power Transistor (31±4V, 2A)

2SD2167

●Features

1) Built-in zener diode between collector and base.
2) Zener diode has low voltage dispersion.
3) Strong protection against reverse power surges due to low loads.
4) P_C=2 W (on 40×40×0.7mm ceramic board)

●External dimensions (Unit : mm)



(1) Base
(2) Collector
(3) Emitter

ROHM : MPT3
EIAJ : SC-62

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	31±4	V
Collector-emitter voltage	V_{CEO}	31±4	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	2	A(DC)
		3	A(Pulse) ∗1
Collector power dissipation	P_C	0.5	W
		2	W ∗2
Junction temperature	Tj	150	°C
Storage temperature	Tstg	−55 to +150	°C

∗1 Pw=20ms , duty=1 / 2
∗2 When mounted on a 40 × 40 × 0.7 mm ceramic board.

●Packaging specifications and h_{FE}

Type	2SD2167
Package	MPT3
h_{FE}	NPQ
Marking	DL∗
Code	T100
Basic ordering unit (pieces)	1000

∗Denotes h_{FE}

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	27	–	35	V	I_C = 50μA
Collector-emitter breakdown voltage	BV_{CEO}	27	–	35	V	I_C = 1mA
Emitter-base breakdown voltage	BV_{EBO}	5	–	–	V	I_E = 50μA
Collector cutoff current	I_{CBO}	–	–	1	μA	V_{CB} = 20V
Emitter cutoff current	I_{EBO}	–	–	1	μA	V_{EB} = 5V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	1	V	I_C/I_B = 2A/0.2A ∗
		–	0.25	0.5	V	I_C/I_B = 1A/50mA ∗
DC current transfer ratio	h_{FE}	56	–	270	–	V_{CE}/I_C = 3V/0.5A
Transition frequency	f_T	–	100	–	MHz	V_{CE} = 3V , I_E = −0.5A , f= 30MHz ∗
Output capacitance	Cob	–	25	–	pF	V_{CB} = 10V , I_E = 0A , f = 1MHz

∗ Measured using pulse current.

●Electrical characteristics

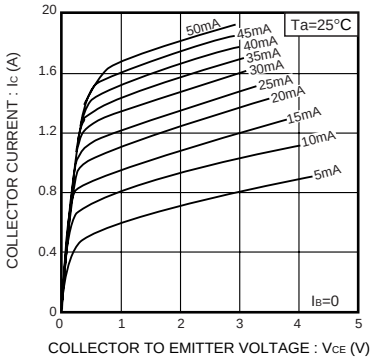


Fig.1 Ground emitter output characteristics

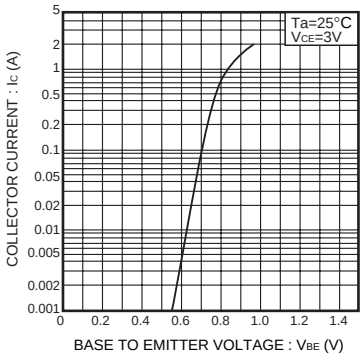


Fig.2 Ground emitter propagation characteristics

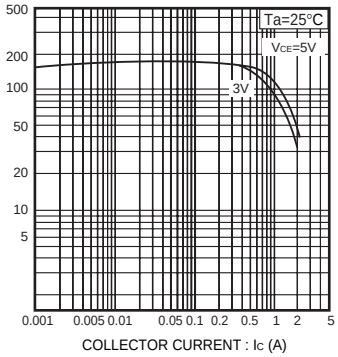


Fig.3 DC current gain vs. collector current

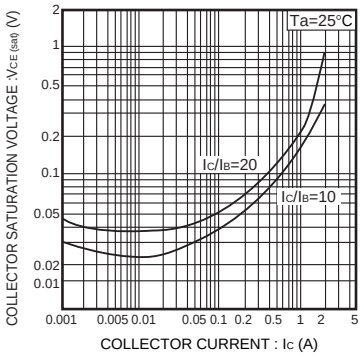


Fig.4 Collector-emitter saturation voltage vs. collector current

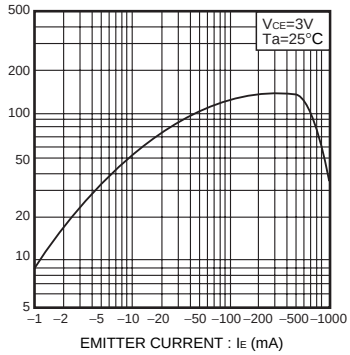


Fig.5 Resistance ratio vs. collector current

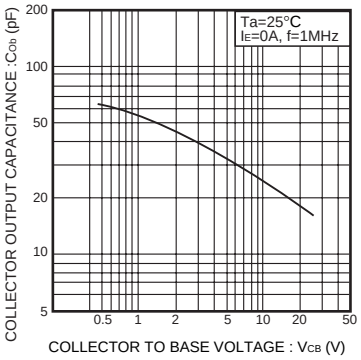


Fig.6 Collector output capacitance vs. collector-base voltage

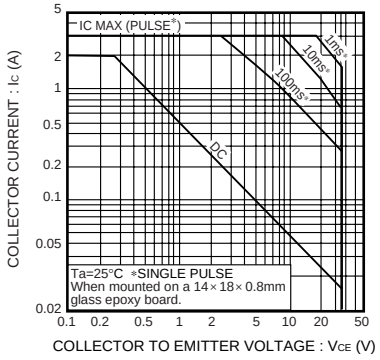


Fig.7 Safe operating area

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