

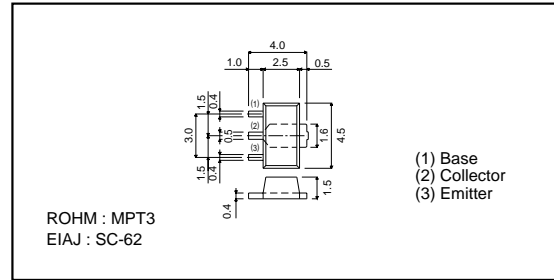
Power Transistor (31±4V, 2A)

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)



●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CB0}	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	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

*1 $P_w=20$ ms, 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_{CB0}	27	-	35	V	$I_c = 50\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	27	-	35	V	$I_c = 1mA$
Emitter-base breakdown voltage	BV_{EBO}	5	-	-	V	$I_E = 50\mu A$
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_r	-	100	-	MHz	$V_{CE} = 3V, I_E = -0.5A, f = 30MHz$
Output capacitance	C_{ob}	-	25	-	pF	$V_{CB} = 10V, I_E = 0A, f = 1MHz$

* Measured using pulse current.

Transistors

●Electrical characteristics

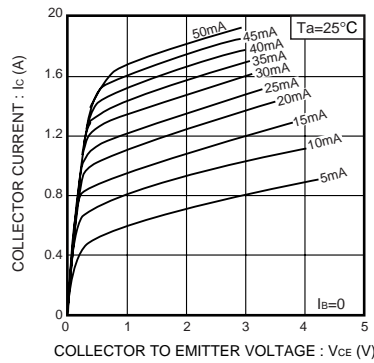


Fig.1 Ground emitter output characteristics

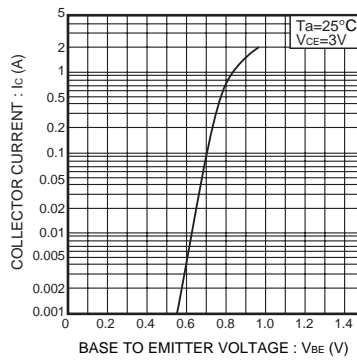


Fig.2 Ground emitter propagation characteristics

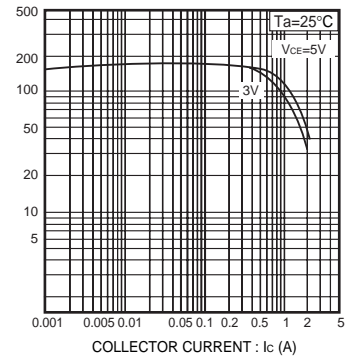


Fig.3 DC current gain vs. collector current

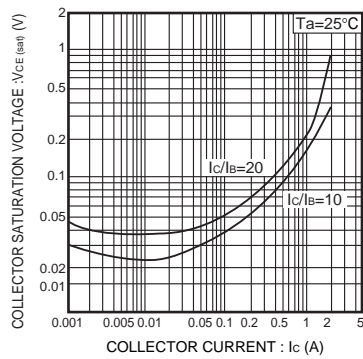


Fig.4 Collector-emitter saturation voltage vs. collector current

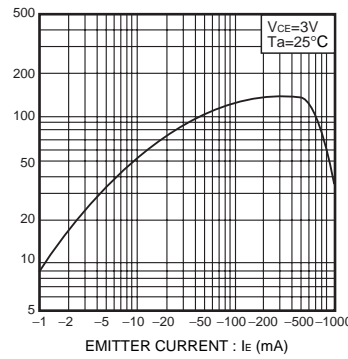


Fig.5 Resistance ratio vs. collector current

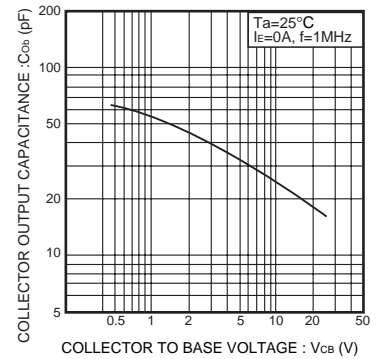


Fig.6 Collector output capacitance vs. collector-base voltage

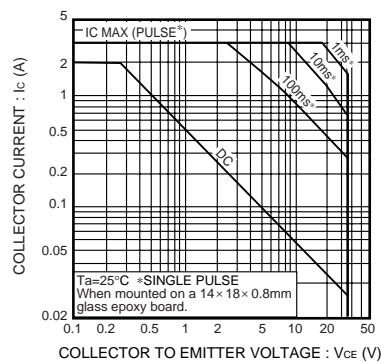


Fig.7 Safe operating area

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