

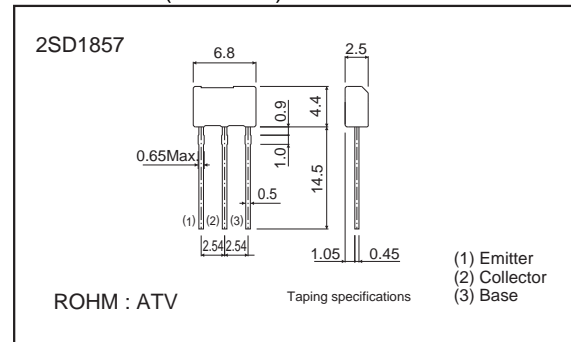
# Power Transistor (120V, 2A)

2SD1857

## ●Features

- 1) High breakdown voltage. ( $BV_{CEO} = 120V$ )
- 2) Low collector output capacitance.  
(Typ. 20pF at  $V_{CB} = 10V$ )
- 3) High transition frequency. ( $f_T = 80MHz$ )
- 4) Complements the 2SB1236.

## ●Dimensions (Unit : mm)



## ●Packaging specifications and $h_{FE}$

Type	$h_{FE}$	Package	Taping
		Code	TV2
		Basic ordering unit (pieces)	2500
2SD1857	QR		○

$h_{FE}$  values are classified as follows:

Item	Q	R
$h_{FE}$	120 to 270	180 to 390

## ●Absolute maximum ratings ( $T_a = 25^\circ C$ )

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	$I_C$	2	A
	$I_{CP}$ *1	3	A
Collector power dissipation	$P_C$ *2	1	W
Junction temperature	$T_j$	150	$^\circ C$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ C$

\*1 Single pulse  $P_w = 10ms$

\*2 When mounted on 1.7mm thick PCB having collector foil dimensions  $1cm^2$  or more.

## ●Electrical characteristics ( $T_a = 25^\circ C$ )

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	$I_E = 50\mu A$
Collector cutoff current	$I_{CBO}$	-	-	1	$\mu A$	$V_{CB} = 100V$
Emitter cutoff current	$I_{EBO}$	-	-	1	$\mu A$	$V_{EB} = 4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	2	V	$I_C/I_B = 1A/0.1A$ *
DC current transfer ratio	$h_{FE}$	120	-	390	-	$V_{CE}/I_C = 5V/0.1A$
Transition frequency	$f_T$	-	80	-	MHz	$V_{CE} = 5V, I_E = -0.1A, f = 30MHz$
Output capacitance	$C_{ob}$	-	20	-	pF	$V_{CB} = 10V, I_E = 0A, f = 1MHz$ *

\* Measured using pulse current.

●Electrical characteristics curves

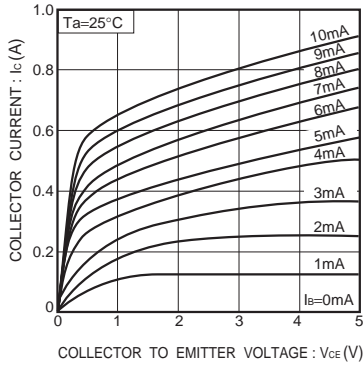


Fig.1 Ground emitter output characteristics

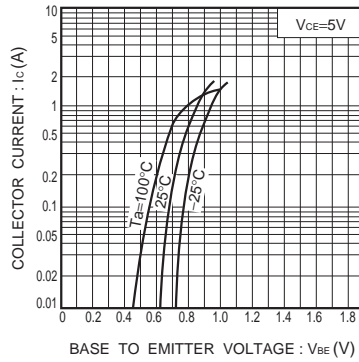


Fig.2 Ground emitter propagation characteristics

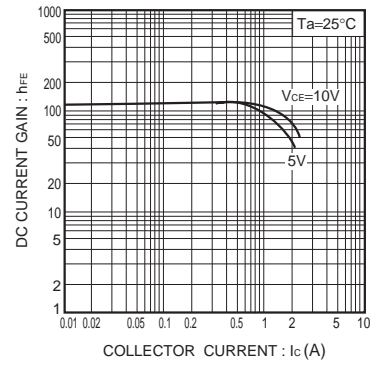


Fig.3 DC current gain vs. collector current ( I )

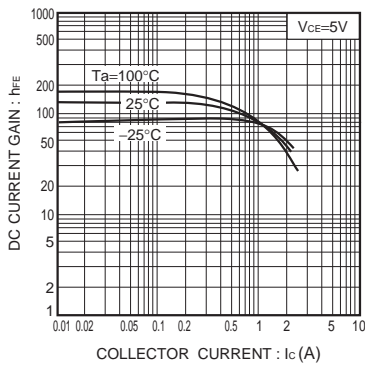


Fig.4 DC current gain vs. collector current (II)

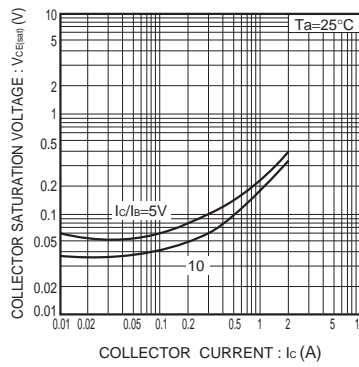


Fig.5 Collector-emitter saturation voltage vs. collector current

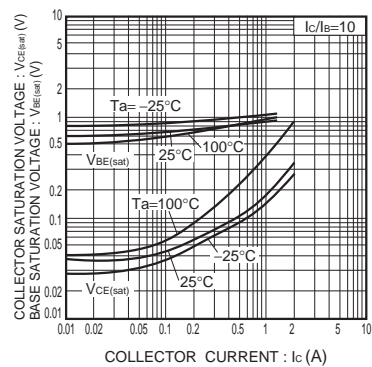


Fig.6 Collector-emitter saturation Base-emitter saturation vs. collector current

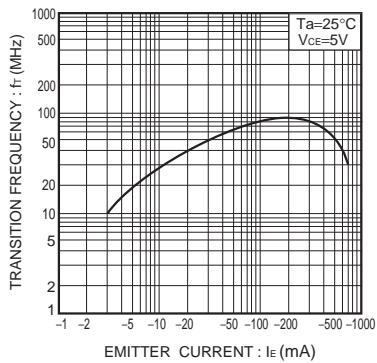


Fig.7 Gain bandwidth product vs. emitter current

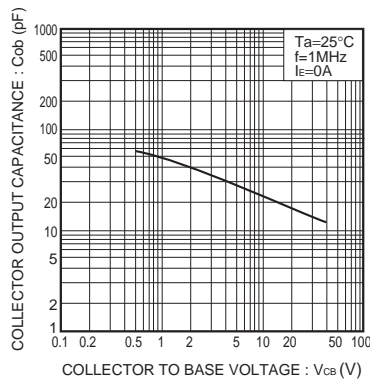


Fig.8 Collector output capacitance vs. collector-base voltage

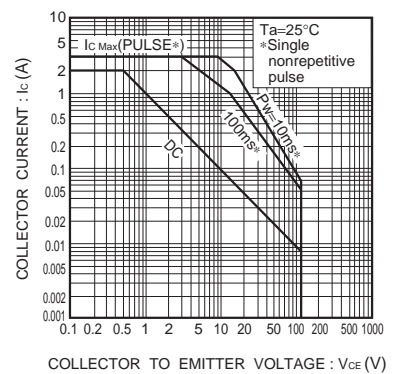


Fig.9 Safe operating area

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