

Power Transistor (160V , 1.5A)

2SD2211 / 2SD1918 / 2SD1857A

●Features

- 1) High breakdown voltage.($BV_{CEO} = 160V$)
- 2) Low collector output capacitance.
(Typ. 20pF at $V_{CB} = 10V$)
- 3) High transition frequency.($f_T = 80MHz$)
- 4) Complements the 2SB1275 / 2SB1236A.

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

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	160	V
Collector-emitter voltage	V_{CEO}	160	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	1.5	A(DC)
		3	A(Pulse) *1
		1	W *2
		0.5	W
		2	W *3
Collector power dissipation	P_C	1	W
		10	W($T_C=25^\circ C$)
		150	$^\circ C$
		-55 ~ +150	$^\circ C$
Junction temperature	T_J	150	$^\circ C$
Storage temperature	T_{stg}	-55 ~ +150	$^\circ C$

* 1 $P_W=200msec$ duty=1/2

* 2 Printed circuit board 1.7mm thick, collector plating 1cm² or larger.

* 3 When mounted on a 40 x 40 x 0.7mm ceramic board.

●Packaging specifications and h_{FE}

Type	2SD2211	2SD1918	2SD1857A
Package	MPT3	CPT3	ATV
h_{FE}	QR	QR	PQ
Marking	DQ*	-	-
Code	T100	TL	TV2
Basic ordering unit (pieces)	1000	2500	2500

* Denotes h_{FE}

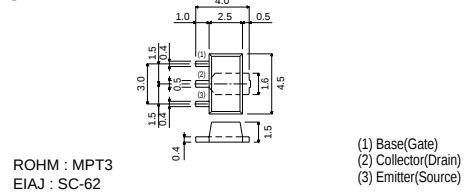
●Electrical characteristics ($T_a = 25^\circ C$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	160	-	-	V	$I_C = 50\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	160	-	-	V	$I_C = 1mA$
Emitter-base breakdown voltage	BV_{EBO}	5	-	-	V	$I_E = 50\mu A$
Collector cutoff current	I_{CBO}	-	-	1	μA	$V_{CB} = 120V$
Emitter cutoff current	I_{EBO}	-	-	1	μA	$V_{EB} = 4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	2	V	$I_C/I_E = 1A/0.1A$ *
Base-emitter saturation voltage	$V_{BE(sat)}$	-	-	1.5	V	$I_C/I_E = 1A/0.1A$ *
DC current transfer ratio	h_{FE}	120	-	390	-	$V_{CE}/I_C = 5V/0.1A$
		82	-	270	-	
Transition frequency	f_T	-	80	-	MHz	$V_{CE} = 5V, I_E = -0.1A, f = 30MHz$
Output capacitance	C_{ob}	-	20	-	pF	$V_{CB} = 10V, I_E = 0A, f = 1MHz$

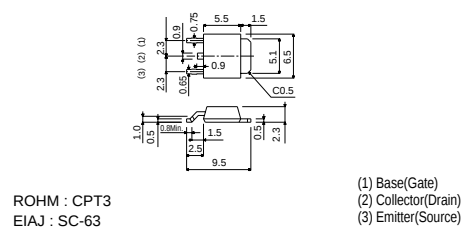
* Measured using pulse current.

●External dimensions (Unit : mm)

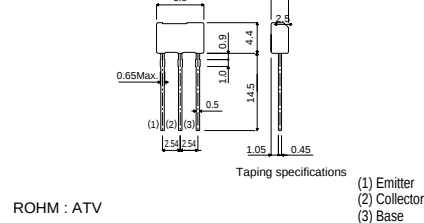
2SD2211



2SD1918



2SD1857A



Transistors

●Electrical characteristic curves

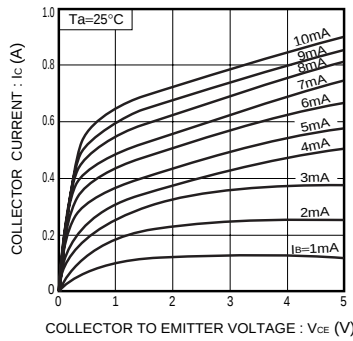


Fig.1 Ground emitter output characteristics

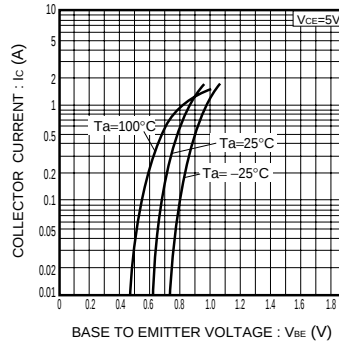


Fig.2 Ground emitter propagation characteristics

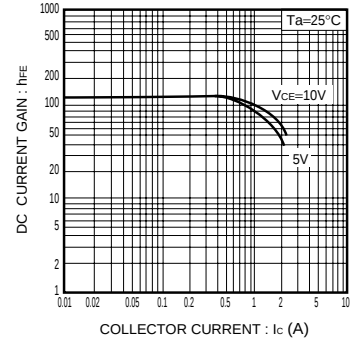


Fig.3 DC current gain vs. collector current (I)

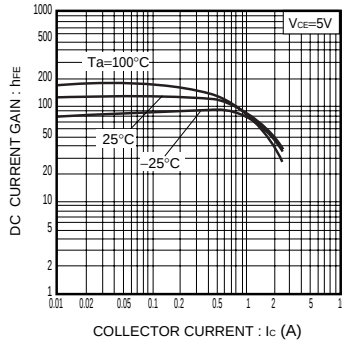


Fig.4 DC current gain vs. collector current (II)

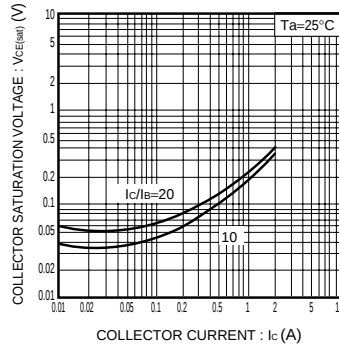


Fig.5 Collector-emitter saturation voltage vs. collector current

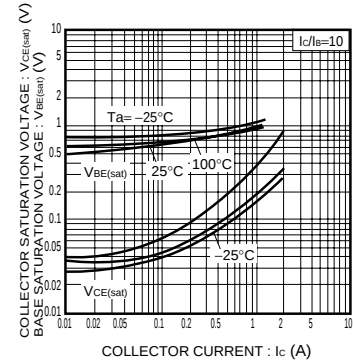


Fig.6 Collector-emitter saturation voltage vs. collector current

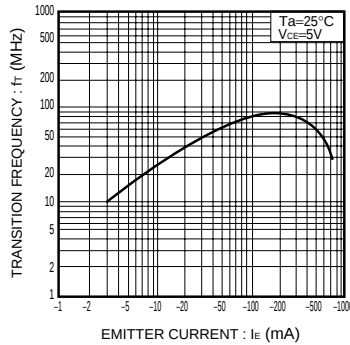


Fig.7 Gain bandwidth products vs. emitter current

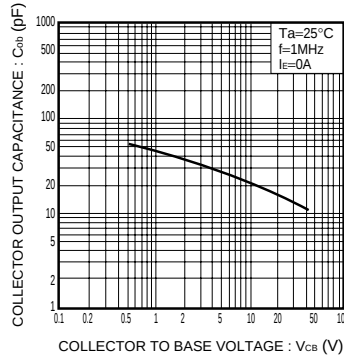


Fig.8 Collector output capacitance vs. collector-base voltage

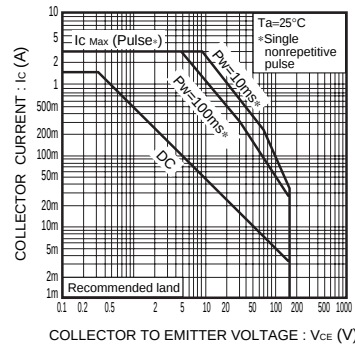


Fig.9 Safe operating area (2SD2211)

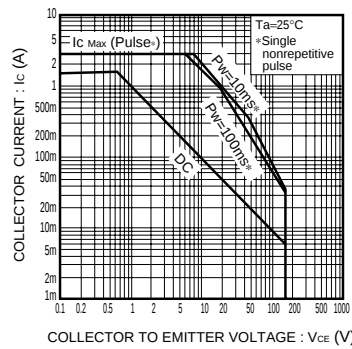


Fig.10 Safe operating area (2SD1918)

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