Power Transistor (160V , 1.5A)

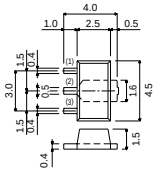
2SD2211 / 2SD1918 / 2SD1857A

●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.

●External dimensions (Unit : mm)

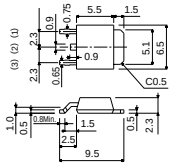
2SD2211



ROHM : MPT3
EIAJ : SC-62

(1) Base(Gate)
(2) Collector(Drain)
(3) Emitter(Source)

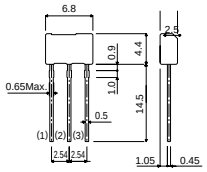
2SD1918



ROHM : CPT3
EIAJ : SC-63

(1) Base(Gate)
(2) Collector(Drain)
(3) Emitter(Source)

2SD1857A



Taping specifications

ROHM : ATV

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

●Absolute maximum ratings (Ta = 25°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
Collector power dissipation	2SD1857A	P_C	1	W	∗2
	2SD2211		0.5	W	
	2SD1918		2	W	∗3
			1	W	
			10	W(Tc=25°C)	
Junction temperature		Tj	150	°C	
Storage temperature		Tstg	−55 −+150	°C	

∗ 1 Pw=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 (Ta = 25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage		BV_{CBO}	160	–	–	V	I_C = 50μA
Collector-emitter breakdown voltage		BV_{CEO}	160	–	–	V	I_C = 1mA
Emitter-base breakdown voltage		BV_{EBO}	5	–	–	V	I_E = 50μA
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_B = 1A/0.1A ∗
Base-emitter saturation voltage		$V_{BE(sat)}$	–	–	1.5	V	I_C/I_B = 1A/0.1A ∗
DC current transfer ratio	2SD2211,2SD1918	h_{FE}	120	–	390	–	V_{CE}/I_C = 5V/0.1A
	2SD1857A		82	–	270	–	
Transition frequency		f_T	–	80	–	MHz	V_{CE} = 5V , I_E = −0.1A , f = 30MHz
Output capacitance		Cob	–	20	–	pF	V_{CB} = 10V , I_E = 0A , f = 1MHz

∗ Measured using pulse current.

●Electrical characteristic curves

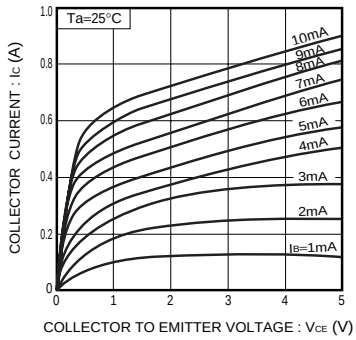


Fig.1 Ground emitter output characteristics

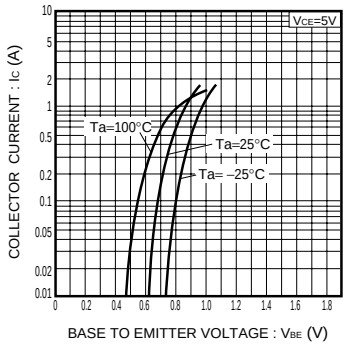


Fig.2 Ground emitter propagation characteristics

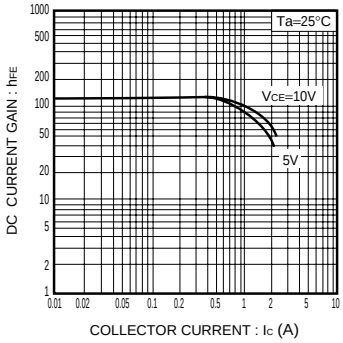


Fig.3 DC current gain vs. collector current (I)

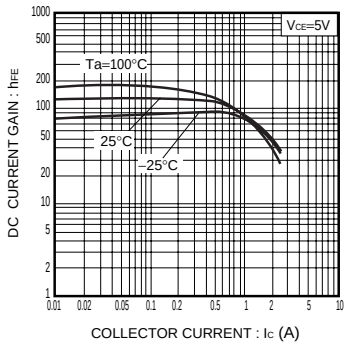


Fig.4 DC current gain vs. collector current (II)

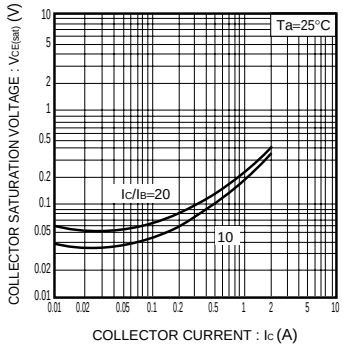


Fig.5 Collector-emitter saturation voltage vs. collector current

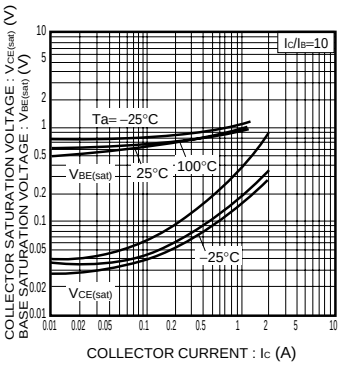


Fig.6 Collector-emitter saturation voltage
Base-emitter saturation voltage vs. collector current

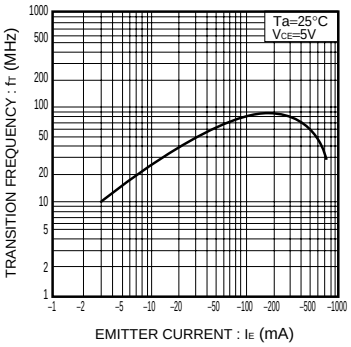


Fig.7 Gain bandwidth products vs. emitter current

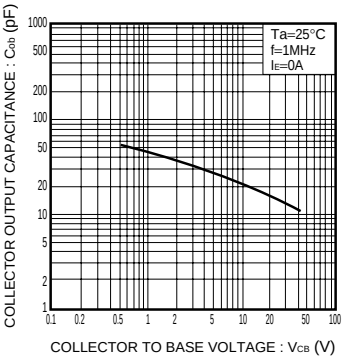


Fig.8 Collector output capacitance vs. collector-base voltage

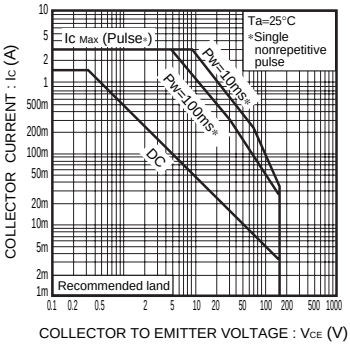


Fig.9 Safe operating area (2SD2211)

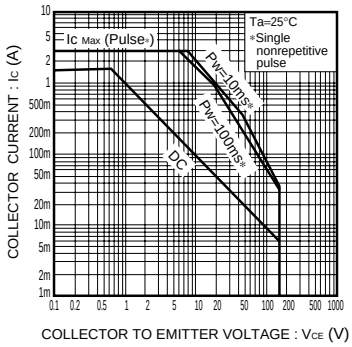


Fig.10 Safe operating area (2SD1918)

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