Low $V_{CE(sat)}$ transistor (strobe flash)

2SD2098 / 2SD2118 / 2SD2097

●Features

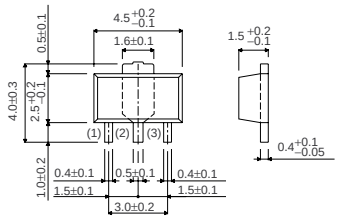
1) Low $V_{CE(sat)}$.
   $V_{CE(sat)}$ = 0.25V (Typ.)
   (I_C/I_B = 4A / 0.1A)
2) Excellent DC current gain characteristics.
3) Complements the 2SB1386 / 2SB1412 / 2SB1326.

●Structure

Epitaxial planar type
NPN silicon transistor

●External dimensions (Unit : mm)

2SD2098

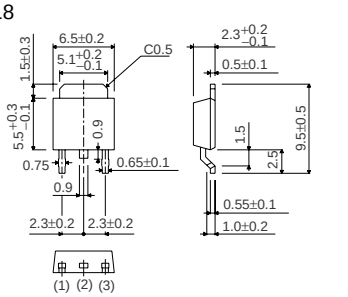


Abbreviated symbol : DJ∗

ROHM : MPT3
EIAJ : SC-62

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

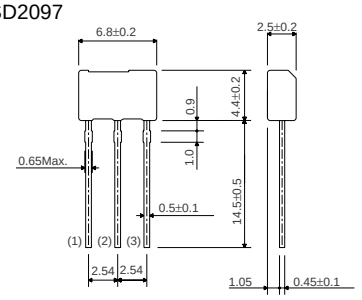
2SD2118



ROHM : CPT3
EIAJ : SC-63

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

2SD2097



ROHM : ATV

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

∗ Denotes h_{FE}

●**Absolute maximum ratings** (Ta=25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V_{CBO}	50	V
Collector-emitter voltage		V_{CEO}	20	V
Emitter-base voltage		V_{EBO}	6	V
Collector current		I_C	5	A(DC)
		I_{CP}	10	A(Pulse) ∗1
Collector power dissipation	2SD2098	P_C	0.5	W ∗2
			2	
	2SD2118		1	
			10	W(Tc=25°C)
	2SD2097		1	W ∗3
Junction temperature		Tj	150	°C
Storage temperature		Tstg	−55 to +150	°C

∗1 Single pulse Pw=10ms
∗2 When mounted on a 40×40×0.7 mm ceramic board.
∗3 Printed circuit board glass epoxy board, 1.6 mm thick with copper plating 100mm^2 or larger.

●**Electrical characteristics** (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	50	–	–	V	I_C=50μA
Collector-emitter breakdown voltage	BV_{CEO}	20	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	6	–	–	V	I_E=50μA
Collector cutoff current	I_{CBO}	–	–	0.5	μA	V_{CB}=40V
Emitter cutoff current	I_{EBO}	–	–	0.5	μA	V_{EB}=5V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	0.3	1.0	V	I_C/I_B=4A/0.1A ∗
DC current transfer ratio	h_{FE}	120	–	390	–	V_{CE}=2V, I_C=0.5A ∗
Transition frequency	f_T	–	150	–	MHz	V_{CE}=6V, I_E=−50mA, f=100MHz
Output capacitance	Cob	–	35	–	pF	V_{CE}=20V, I_E=0A, f=1MHz

∗ Measured using pulse current.

●**Packaging specifications and h_{FE}**

Type	h_{FE}	Package	Taping		
		Code	T100	TL	TV2
		Basic ordering unit (pieces)	1000	2500	2500
2SD2098	QR		○	–	–
2SD2118	QR		–	○	–
2SD2097	QR		–	–	○

h_{FE} values are classified as follows :

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

●Electrical characteristic curves

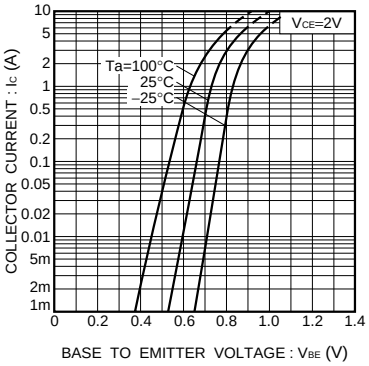


Fig.1 Grounded emitter propagation characteristics

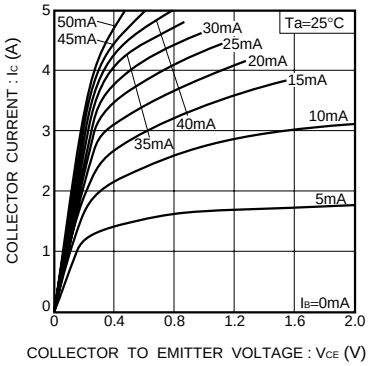


Fig.2 Grounded emitter output characteristics

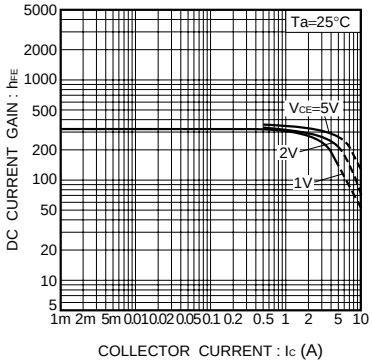


Fig.3 DC current gain vs. collector current (I)

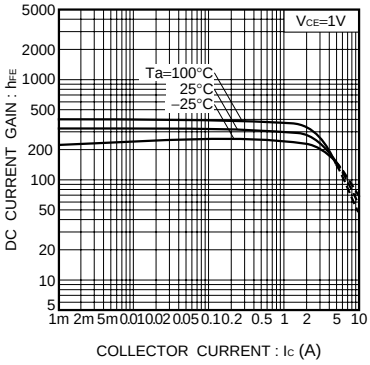


Fig.4 DC current gain vs. collector current (II)

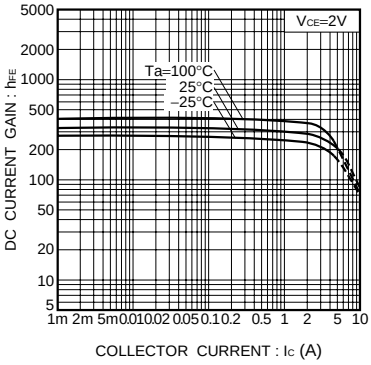


Fig.5 DC current gain vs. collector current (III)

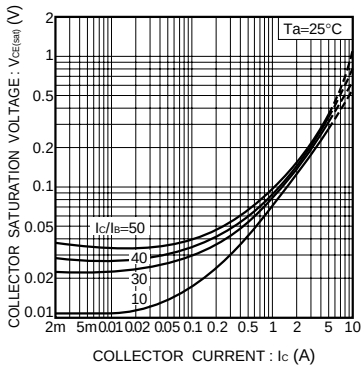


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

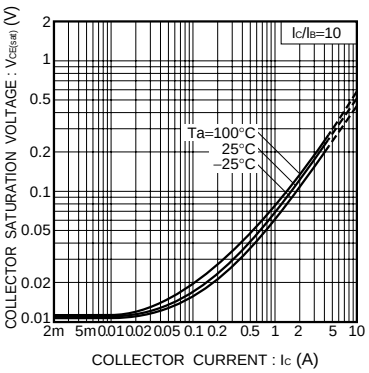


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

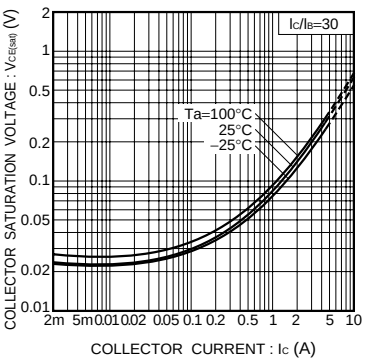


Fig.8 Collector-emitter saturation voltage vs. collector current (III)

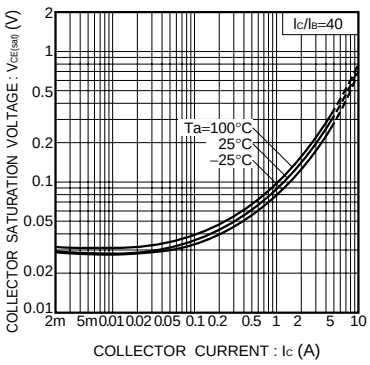


Fig.9 Collector-emitter saturation voltage vs. collector current (IV)

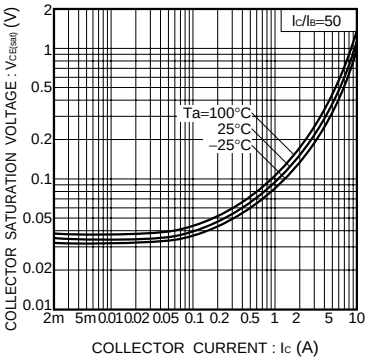


Fig.10 Collector-emitter saturation voltage vs. collector current (V)

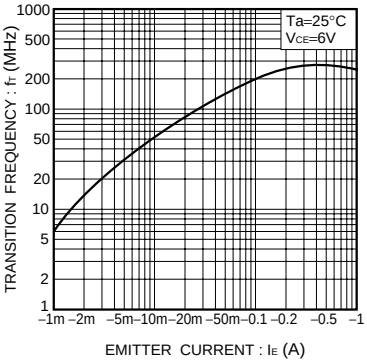


Fig.11 Gain bandwidth product vs. emitter current

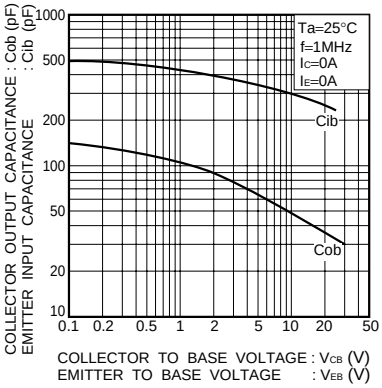


Fig.12 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

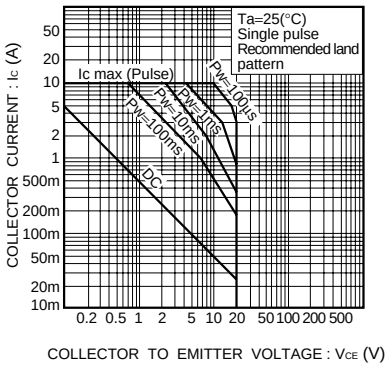


Fig.13 Safe operating area (2SD2098)

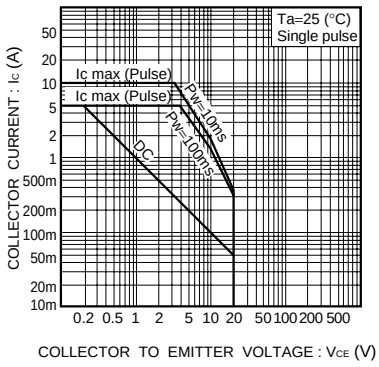


Fig.14 Safe operating area (2SD2118)

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