

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

2SD2118

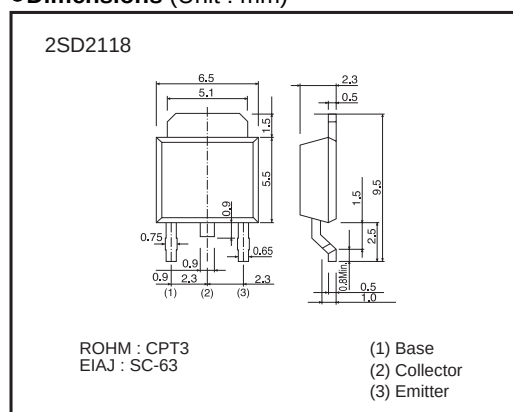
●Features

- 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 2SB1412.

●Structure

Epitaxial planar type
 NPN silicon transistor

●Dimensions (Unit : mm)



* Denotes h_{FE}

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

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	2SD2118 P_C	1	W
		10	W($T_C=25^\circ C$)
Junction temperature	T_j	150	$^\circ C$
Storage temperature	T_{stg}	-55 to +150	$^\circ C$

*1 Single pulse $P_w=10ms$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	50	—	—	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	20	—	—	V	$I_C=1mA$
Emitter-base breakdown voltage	BV_{EBO}	6	—	—	V	$I_E=50\mu A$
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	C_{ob}	—	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	TL
		Basic ordering unit (pieces)	2500
2SD2118	QR		○

h_{FE} values are classified as follows :

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

●Electrical characteristic curves

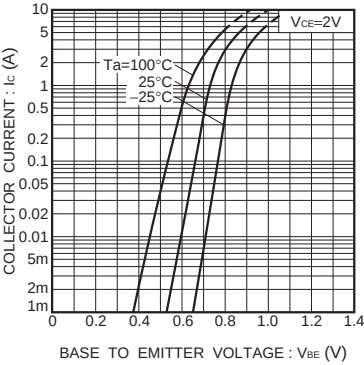


Fig.1 Grounded emitter propagation characteristics

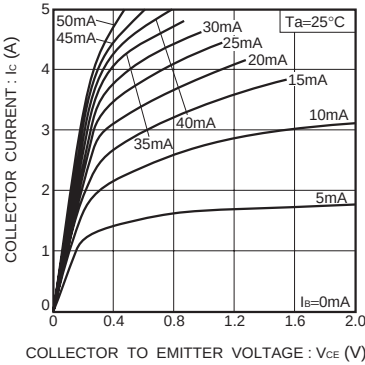


Fig.2 Grounded emitter output characteristics

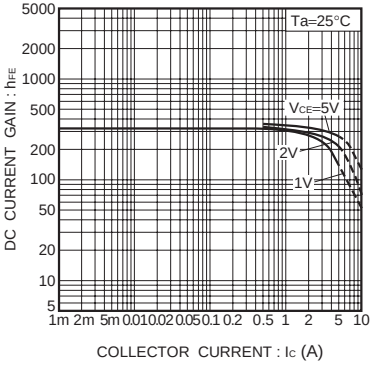


Fig.3 DC current gain vs. collector current (I)

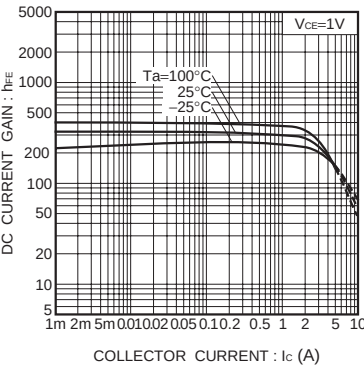


Fig.4 DC current gain vs. collector current (II)

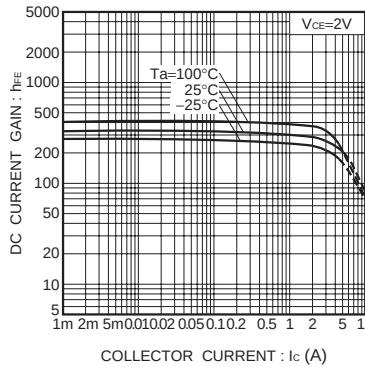


Fig.5 DC current gain vs. collector current (III)

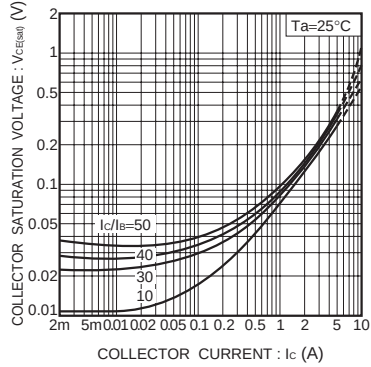


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

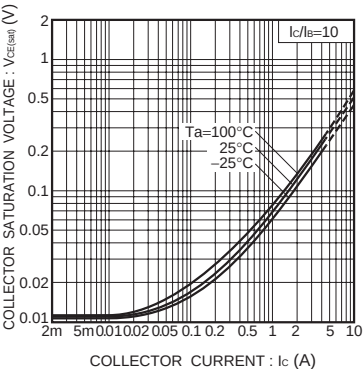


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

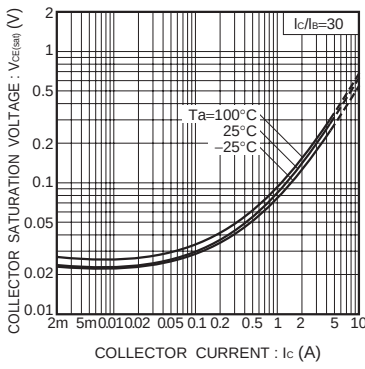


Fig.8 Collector-emitter saturation voltage vs. collector current (III)

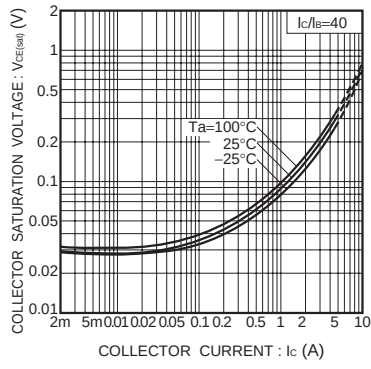


Fig.9 Collector-emitter saturation voltage vs. collector current (IV)

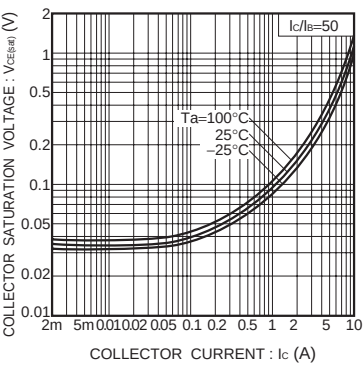


Fig.10 Collector-emitter saturation voltage vs. collector current (V)

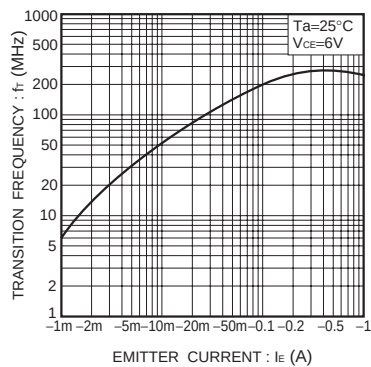


Fig.11 Gain bandwidth product vs. emitter current

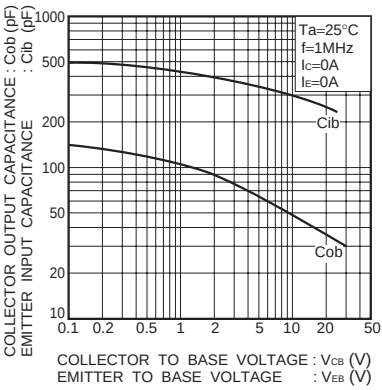


Fig.12 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

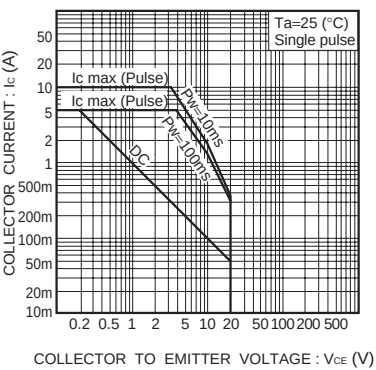


Fig.13 Safe operating area (2SD2118)

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