

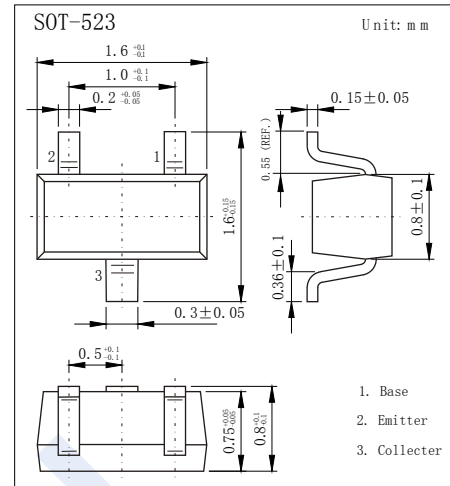
PNP Transistors

2SA2018

■ Features

- A collector current is large.
- Low $V_{CE(sat)}$.

$$V_{CE(sat)} \leq -250\text{mV at } I_C = -200\text{mA} / I_B = -10\text{mA}$$

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	-15	V
Collector - Emitter Voltage	V_{CEO}	-12	
Emitter - Base Voltage	V_{EBO}	-6	
Collector Current - Continuous	I_C	-500	mA
Collector Current - Pulse	I_{CP}	-1	A
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature range	T_{stg}	-55 to 150	

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V_{CBO}	$I_C = -100 \mu\text{A}, I_E = 0$	-15			V
Collector-emitter breakdown voltage	V_{CEO}	$I_C = -1 \text{mA}, I_B = 0$	-12			
Emitter-base breakdown voltage	V_{EBO}	$I_E = -100 \mu\text{A}, I_C = 0$	-6			
Collector-base cut-off current	I_{CBO}	$V_{CB} = -15\text{V}, I_E = 0$			-0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -6\text{V}, I_C = 0$			-0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -200\text{mA}, I_B = -10\text{mA}$			-0.25	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -200\text{mA}, I_B = -10\text{mA}$			-1.2	
DC current gain	h_{FE}	$V_{CE} = -2\text{V}, I_C = -10\text{mA}$	270		680	
Collector output capacitance	C_{ob}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$		6.5		pF
Transition frequency	f_T	$V_{CE} = -2\text{V}, I_C = -10\text{mA}, f = 100\text{MHz}$		260		MHz

■ Marking

Marking	BW
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■ Typical Characteristics

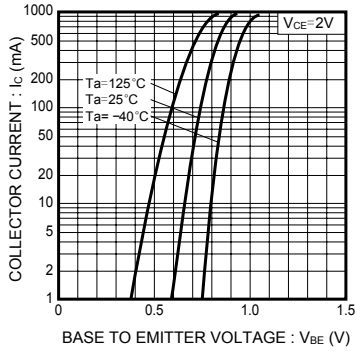


Fig.1 Grounded Emitter Propagation Characteristics

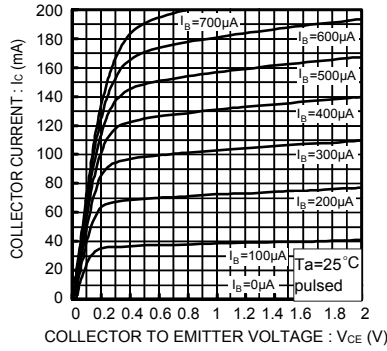


Fig.2 Typical Output Characteristics

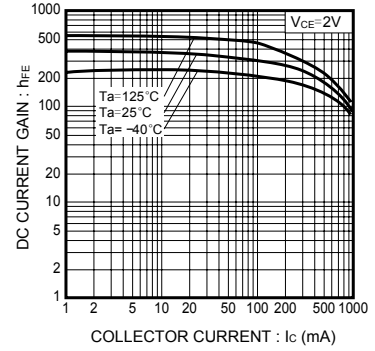


Fig.3 DC Current Gain vs. Collector Current

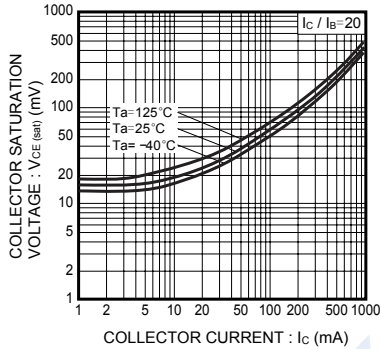


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current (1)

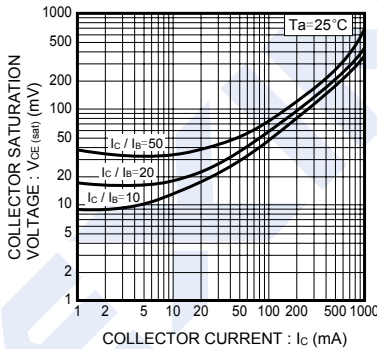


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (2)

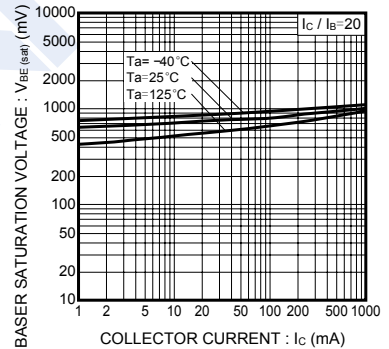


Fig.6 Base-Emitter Saturation Voltage vs. Collector Current

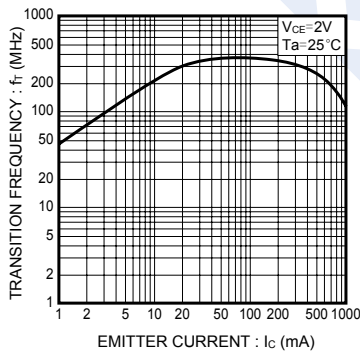


Fig.7 Gain Bandwidth Product vs. Emitter Current

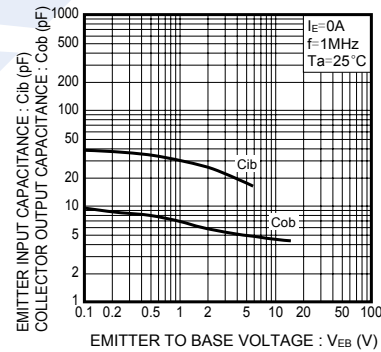


Fig.8 Collector Output Capacitance vs. Collector-Base Voltage
Emitter Input Capacitance vs. Emitter-Base Voltage