

NPN Transistors

2SD1918

■ Features

- High breakdown voltage.
- Low collector output capacitance.
- High transition frequency
- Complementary to 2SB1275

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

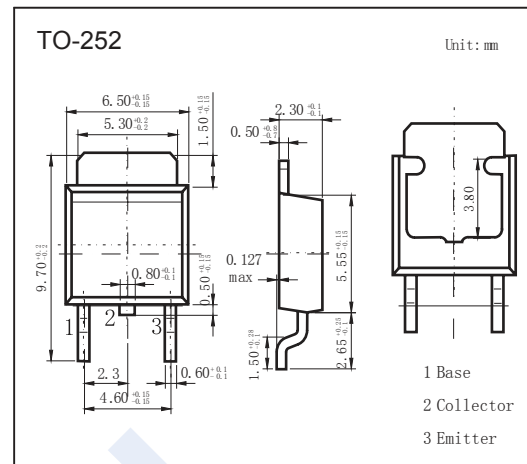
Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	160	V
Collector - Emitter Voltage	V_{CE0}	160	
Emitter - Base Voltage	V_{EB0}	5	
Collector Current - Continuous	I_C	1.5	A
Collector Current - Pulse	I_{CP}	3	
Collector Power Dissipation	P_C	$T_c = 25^\circ\text{C}$ 10	W
		$T_a = 25^\circ\text{C}$ 1	
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_{CB0}	$I_C = 100\ \mu\text{A}$, $I_E = 0$	160			V
Collector-emitter breakdown voltage	V_{CE0}	$I_C = 1\ \text{mA}$, $I_B = 0$	160			
Emitter - base breakdown voltage	V_{EB0}	$I_E = 100\ \mu\text{A}$, $I_C = 0$	5			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 120\ \text{V}$, $I_E = 0$			1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 4\ \text{V}$, $I_C = 0$			1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1\ \text{A}$, $I_B = 100\ \text{mA}$			2	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1\ \text{A}$, $I_B = 100\ \text{mA}$			1.5	
DC current gain	h_{FE}	$V_{CE} = 5\ \text{V}$, $I_C = 100\ \text{mA}$	120		390	
Collector output capacitance	C_{ob}	$V_{CB} = 10\ \text{V}$, $I_E = 0$, $f = 1\ \text{MHz}$		20		pF
Transition frequency	f_T	$V_{CE} = 5\ \text{V}$, $I_E = -100\ \text{mA}$, $f = 1\ \text{MHz}$		80		MHz

■ Classification of $h_{fe}(1)$

Type	2SD1918-Q	2SD1918-R
Range	120-270	180-390



NPN Transistors

2SD1918

■ Typical Characteristics

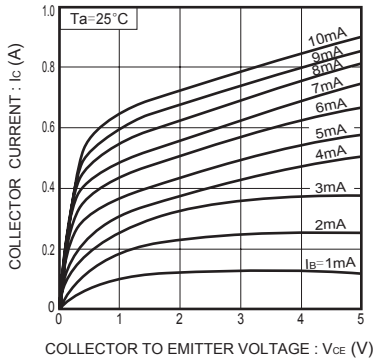


Fig. 1 Ground emitter output characteristics

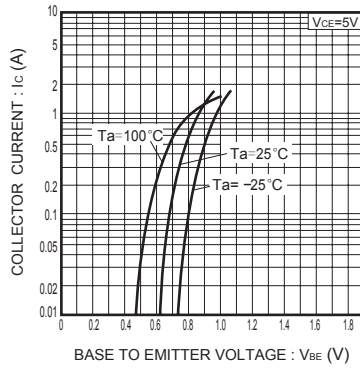


Fig. 2 Ground emitter propagation characteristics

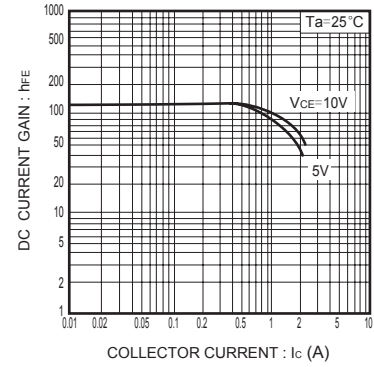


Fig. 3 DC current gain vs. collector current (1)

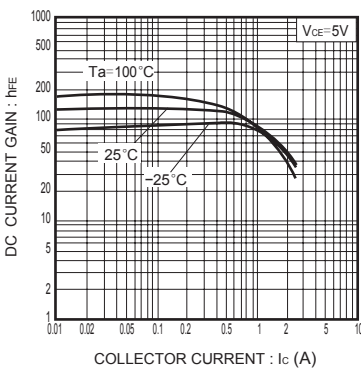


Fig. 4 DC current gain vs. collector current (2)

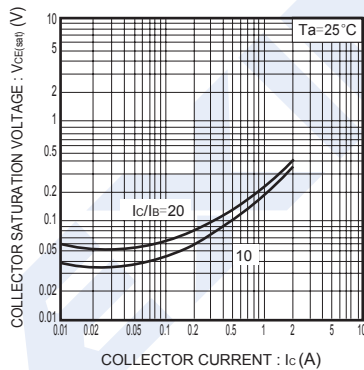


Fig. 5 Collector-emitter saturation voltage vs. collector current

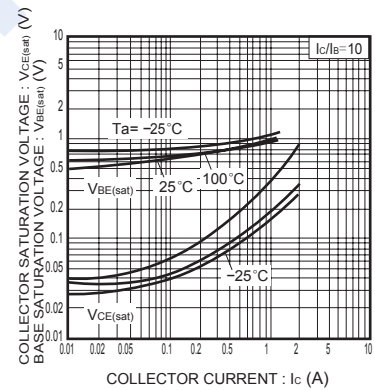


Fig. 6 Collector-emitter saturation voltage vs. collector current
Base-emitter saturation voltage

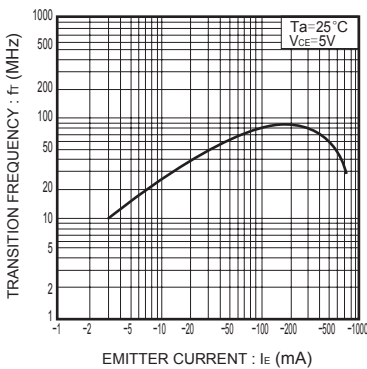


Fig. 7 Gain bandwidth products vs. emitter current

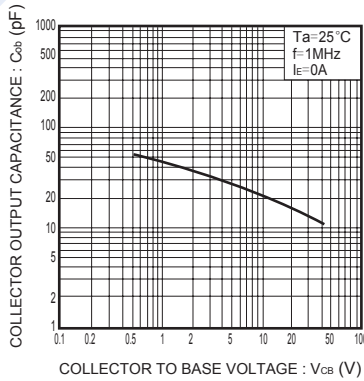


Fig. 8 Collector output capacitance vs. collector-base voltage

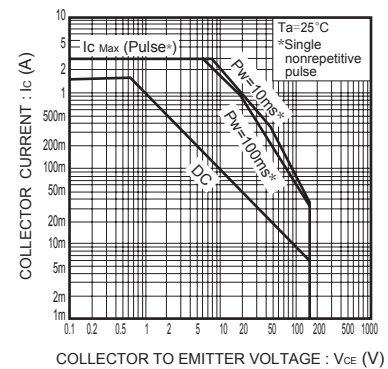


Fig. 9 Safe operating area (2SD1918)