

## NPN Transistors

## 2SD1918

## ■ Features

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

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

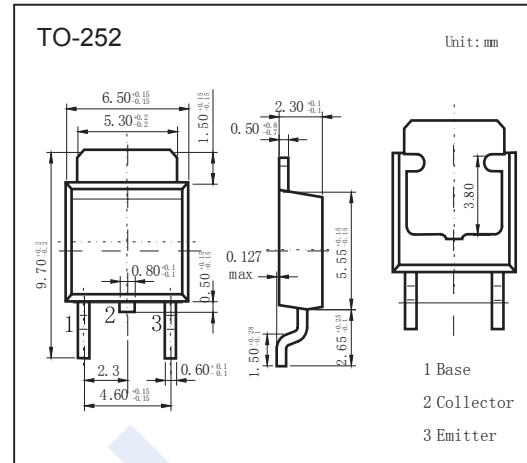
Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CB0}$	160	V
Collector - Emitter Voltage	$V_{CE0}$	160	
Emitter - Base Voltage	$V_{EB0}$	5	
Collector Current - Continuous	$I_C$	1.5	A
Collector Current - Pulse	$I_{CP}$	3	
Collector Power Dissipation	$P_C$	$T_c = 25^\circ\text{C}$ 10	W
		$T_a = 25^\circ\text{C}$ 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	$\mu\text{A}$
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



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■ Typical Characteristics

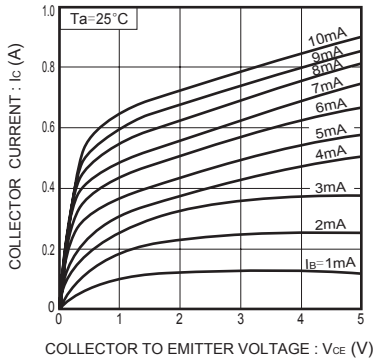


Fig. 1 Ground emitter output characteristics

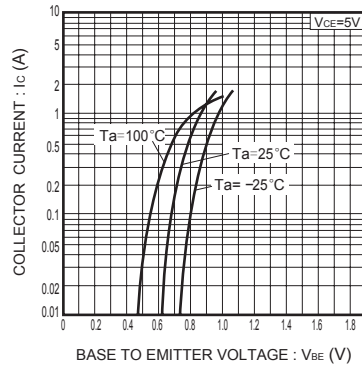


Fig. 2 Ground emitter propagation characteristics

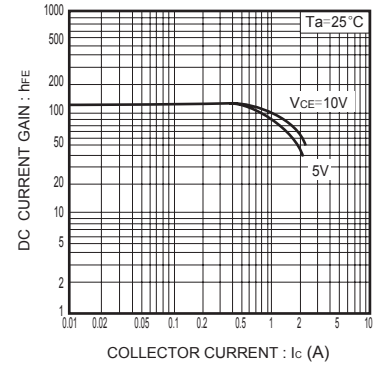


Fig. 3 DC current gain vs. collector current ( 1 )

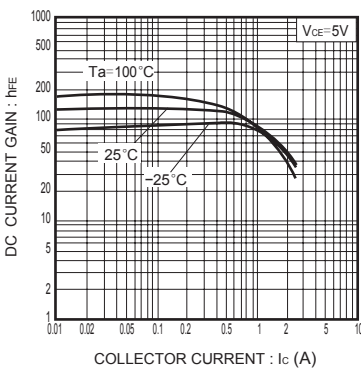


Fig. 4 DC current gain vs. collector current ( 2 )

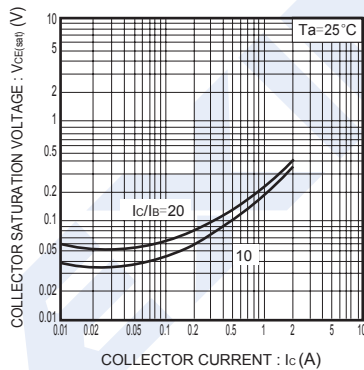


Fig. 5 Collector-emitter saturation voltage vs. collector current

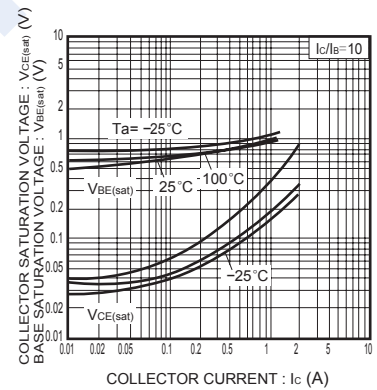


Fig. 6 Collector-emitter saturation voltage vs. collector current  
Base-emitter saturation voltage

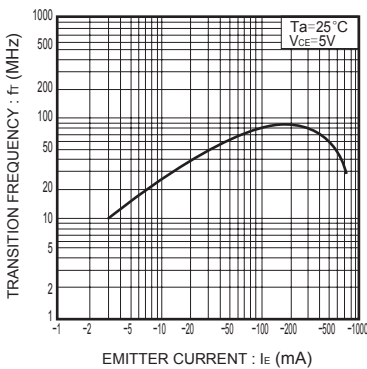


Fig. 7 Gain bandwidth products vs. emitter current

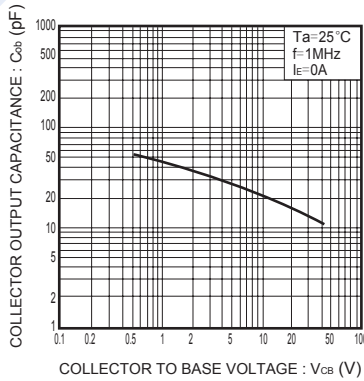


Fig. 8 Collector output capacitance vs. collector-base voltage

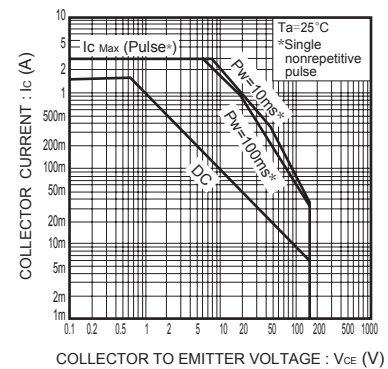


Fig. 9 Safe operating area (2SD1918)