

## NPN Silicon Epitaxial Planar Transistor

### Features

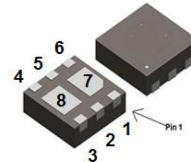
- Low saturation

### Mechanical Data

- Case: DFN2020-6LC
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability, per MIL-STD-202, Method 208

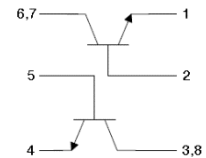


**RoHS**  
COMPLIANT



**DFN2020-6LC**

### Equivalent circuit



### Maximum Ratings & Thermal Characteristics (@ T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	60	V
Collector-Emitter Breakdown Voltage	V <sub>CEO</sub>	60	V
Emitter-Base Breakdown Voltage	V <sub>EBO</sub>	6	V
Collector Current (Continuous)	I <sub>C</sub>	1	A
Collector Current (Peak)	I <sub>CM</sub>	2	A
Power Dissipation (T <sub>A</sub> = 25°C) <sup>*1</sup>	P <sub>D</sub>	1.8	W
Thermal Resistance Junction-to-Air <sup>*1</sup>	R <sub>θJA</sub>	69	°C/W
Junction Temperature	T <sub>J</sub>	-55 ~ +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 ~ +150	°C

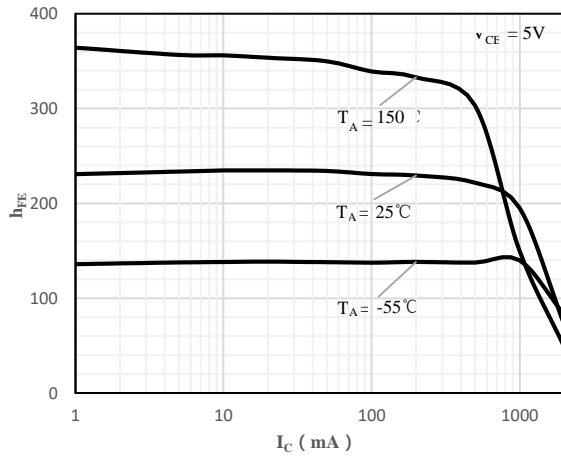
#### Note

1: Per JESD51-7 with 100 mm<sup>2</sup> pad area and 2 oz. Cu (Single-Operation)

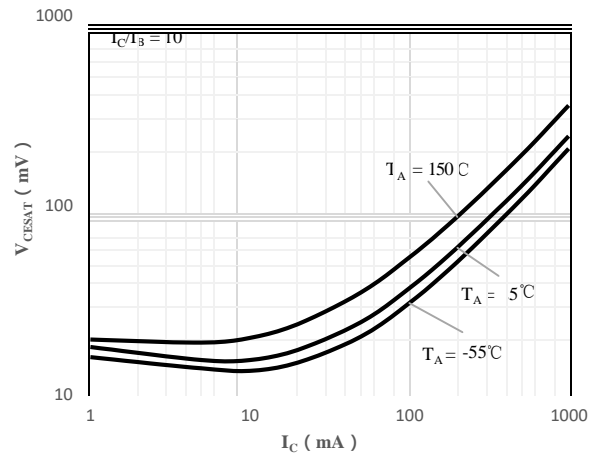
Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)						
Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	60			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	60			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	6			V
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 60\text{V}, I_E = 0$			0.1	$\mu\text{A}$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 5\text{V}, I_C = 0$			0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 2\text{V}, I_C = 100\text{mA}$	150			
		$V_{CE} = 2\text{V}, I_C = 500\text{mA}$	120			
		$V_{CE} = 2\text{V}, I_C = 1\text{A}$	90			
		$V_{CE} = 2\text{V}, I_C = 2\text{A}$	35			
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 0.5\text{A}, I_B = 0.05\text{A}$			0.1	V
		$I_C = 1\text{A}, I_B = 0.05\text{A}$			0.2	V
		$I_C = 1\text{A}, I_B = 0.1\text{A}$			0.18	V
Base-emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 0.5\text{A}, I_B = 0.05\text{A}$			1	V
		$I_C = 1\text{A}, I_B = 0.05\text{A}$			1	V
		$I_C = 1\text{A}, I_B = 0.1\text{A}$			1.1	V
Base-emitter On Voltage	$V_{BE(on)}$	$I_C = 0.5\text{A}, V_{CE} = 2\text{V}$			0.9	V
Output Capacity	$C_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$		10		pF
Current-Gain—Bandwidth Product	$f_T$	$I_C = 0.05\text{A}, V_{CE} = 2\text{V}, f = 100\text{MHz}$		180		MHz

## Ratings and Characteristics Curves

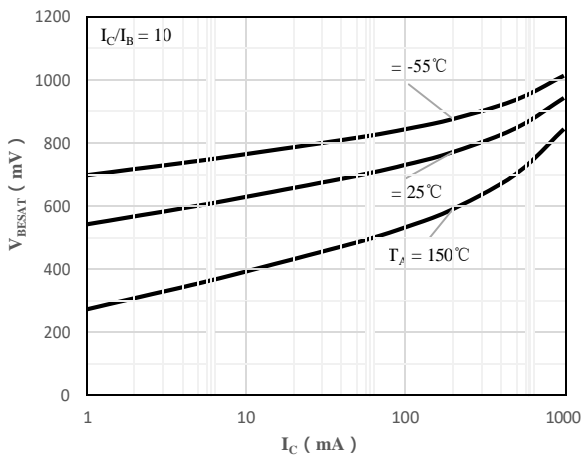
(@  $T_A = 25^\circ\text{C}$  unless otherwise specified)



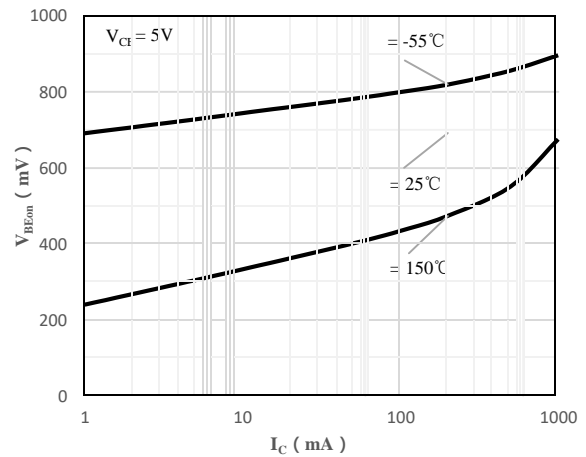
**Fig 1**  $h_{FE}$  vs.  $I_C$



**Fig 2**  $V_{CE(sat)}$  vs.  $I_C$



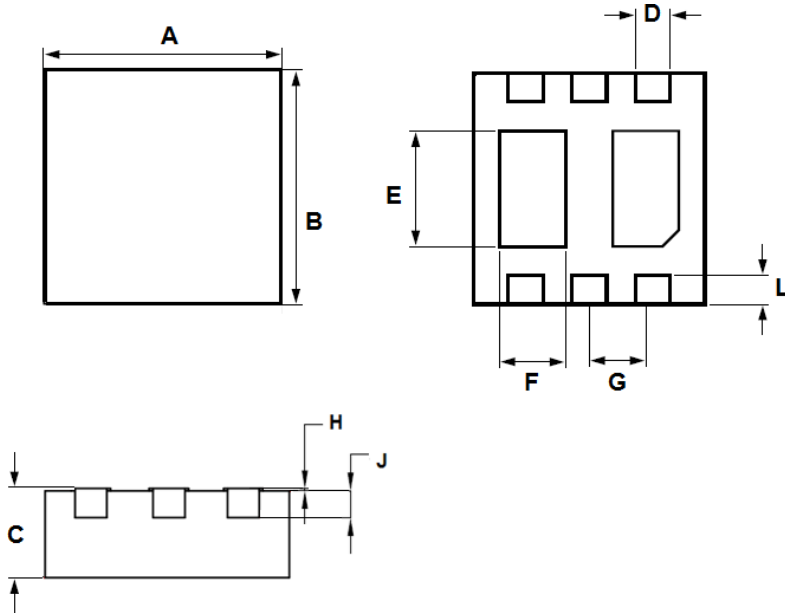
**Fig 3**  $V_{BE(sat)}$  vs.  $I_C$



**Fig 4**  $V_{BE(on)}$  vs.  $I_C$

## Package Outline Dimensions

millimeters



DFN2020-6LC		
Dimension	Min.	Max.
A	1.900	2.100
B	1.900	2.100
C	0.500	0.600
D	0.250	0.350
E	0.800	1.000
F	0.600	0.800
G	0.550	0.750
H	0.000	0.050
J	0.103	0.303
L	0.174	0.326

## Revision History

Document Version	Date of release	Discription of changes
Rev.A	2020.03.04	First issue

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