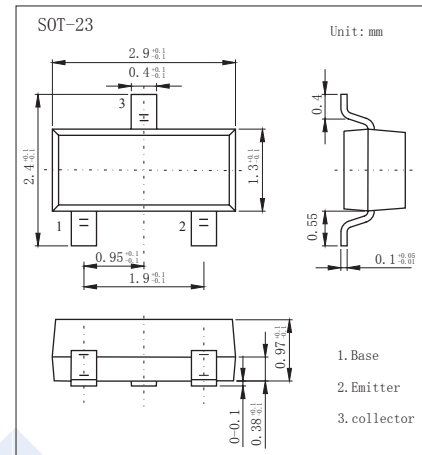


NPN Transistors

2SC3138

■ Features

- Collector Current Capability $I_C=50\text{mA}$
- Collector Emitter Voltage $V_{CEO}=200\text{V}$
- Complementary to 2SA1255

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	200	V
Collector - Emitter Voltage	V_{CEO}	200	
Emitter - Base Voltage	V_{EBO}	5	
Collector Current - Continuous	I_C	50	mA
Base Current	I_B	20	
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_J	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 125	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C = 100\text{ }\mu\text{A}$, $I_E = 0$	200			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C = 1\text{ mA}$, $I_B = 0$	200			
Emitter - base breakdown voltage	V_{EBO}	$I_E = 100\text{ }\mu\text{A}$, $I_C = 0$	5			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 200\text{ V}$, $I_E = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{ V}$, $I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\text{ mA}$, $I_B = 1\text{ mA}$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10\text{ mA}$, $I_B = 1\text{ mA}$			1.5	
DC current gain	h_{FE}	$V_{CE} = 3\text{ V}$, $I_C = 10\text{ mA}$	70		240	
Turn-on time	t_{on}	$V_{CC} = 50\text{ V}$, $I_C = 6\text{ mA}$,		0.3		μs
Storage time	t_{on}	$I_{B1} = -I_{B2} = 0.6\text{ mA}$		2		
Fall time	t_{stg}	Pulse Width=5 μs , Duty cycle $\leq 2\%$		0.4		
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$			4	pF
Transition frequency	f_T	$V_{CE} = 10\text{ V}$, $I_C = 2\text{ mA}$	50			MHz

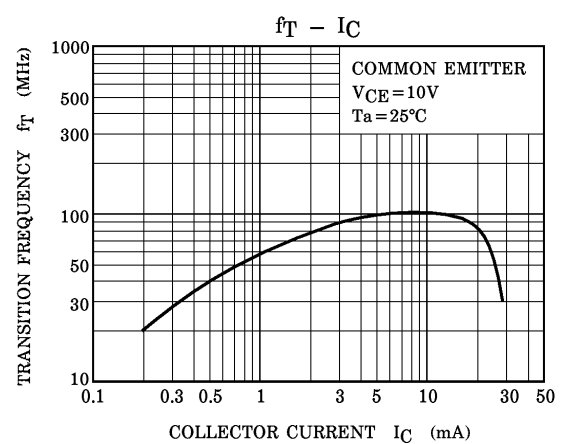
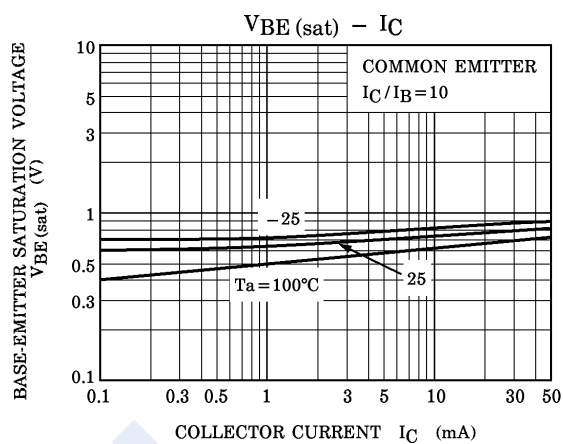
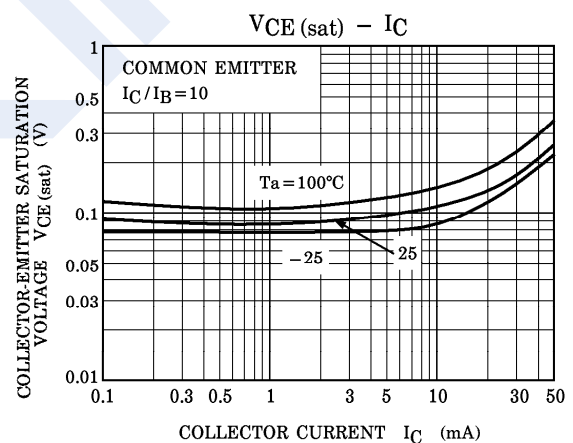
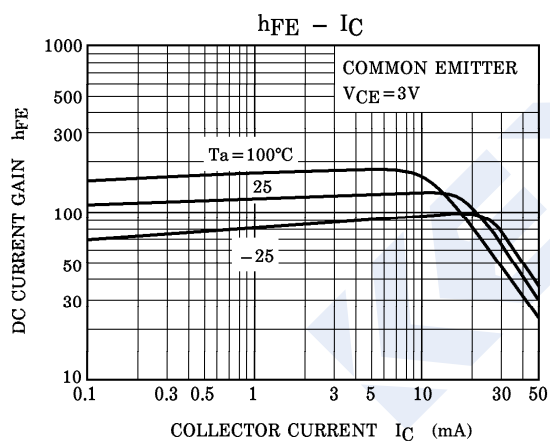
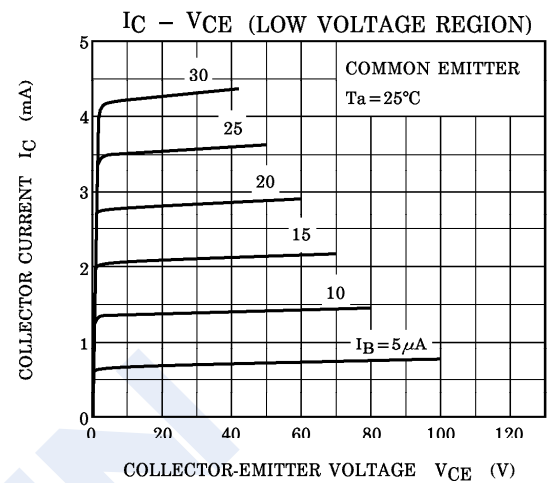
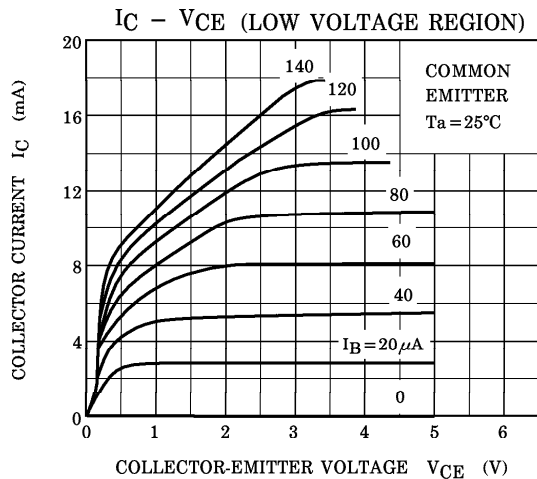
■ Classification of h_{FE}

Type	2SC3138-O	2SC3138-Y
Range	70-140	120-240
Marking	NO	NY

NPN Transistors

2SC3138

■ Typical Characteristics



NPN Transistors

2SC3138

■ Typical Characteristics

