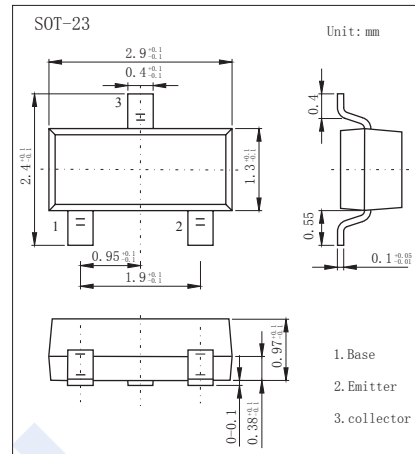


NPN Transistors

2SC4168-HF

■ Features

- Fast switching speed.
- High gain-bandwidth product.
- Low saturation voltage.
- Complementary to 2SA1607-HF
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	40	V
Collector - Emitter Voltage	V_{CE0}	20	
Emitter - Base Voltage	V_{EB0}	5	
Collector Current - Continuous	I_C	150	mA
Peak Collector Current	I_{CP}	300	
Collector Power Dissipation	P_C	200	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_{CB0}	$I_C = 100\ \mu\text{A}$, $I_E = 0$	40			V
Collector-emitter breakdown voltage	V_{CE0}	$I_C = 1\ \text{mA}$, $R_{BE} = \infty$	20			
Emitter - base breakdown voltage	V_{EB0}	$I_E = 100\ \mu\text{A}$, $I_C = 0$	5			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 30\ \text{V}$, $I_E = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 4\ \text{V}$, $I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\ \text{mA}$, $I_B = 1\ \text{mA}$		0.08	0.2	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10\ \text{mA}$, $I_B = 1\ \text{mA}$		0.72	1	
DC current gain	h_{FE}	$V_{CE} = 1\ \text{V}$, $I_C = 10\ \text{mA}$	60		270	
Delay time	t_d	See specified Test Circuit		11	20	ns
Rise time	t_r			10	20	
Storage time	t_s			70	180	
Fall time	t_f			15	25	
Collector output capacitance	C_{ob}	$V_{CB} = 10\ \text{V}$, $f = 1\ \text{MHz}$		2.6		pF
Transition frequency	f_T	$V_{CE} = 10\ \text{V}$, $I_C = 10\ \text{mA}$		700		MHz

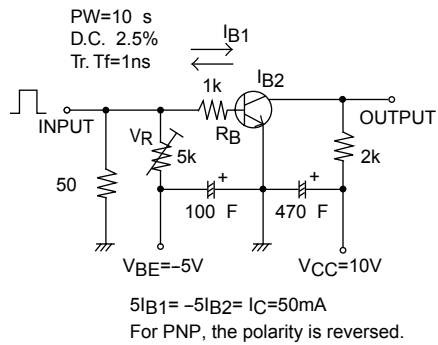
■ Classification of h_{FE}

Type	2SC4168-GT3-HF	2SC4168-GT4-HF	2SC4168-GT5-HF
Range	40-80	60-120	160-320
Marking	GT3 _F	GT4 _F	GT5 _F

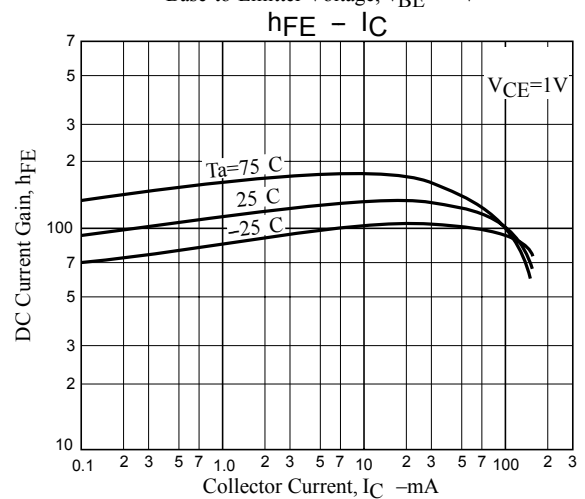
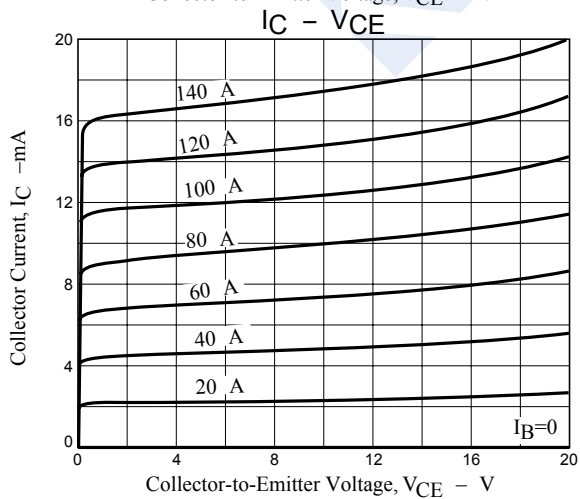
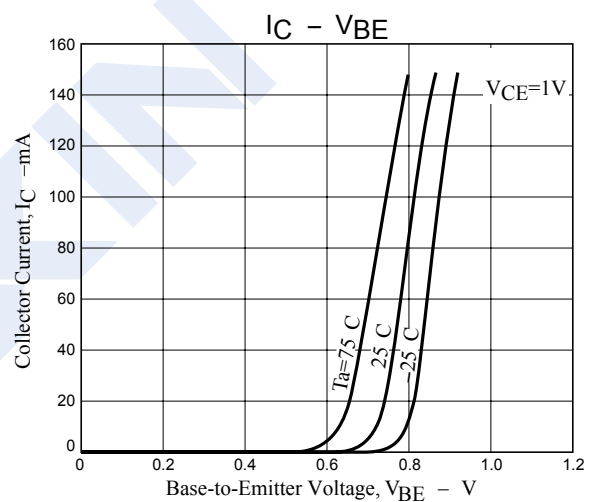
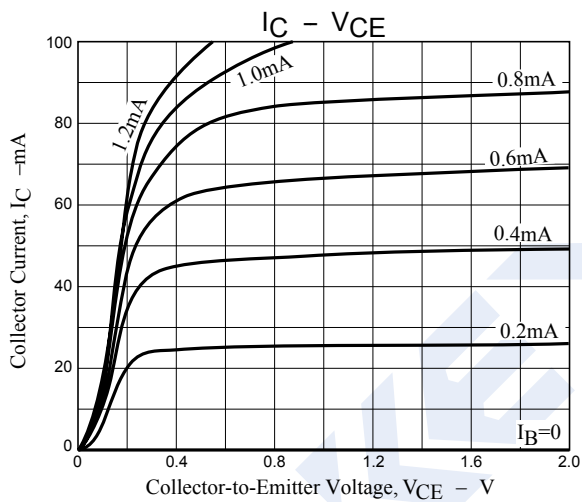
NPN Transistors

2SC4168-HF

Switching Time Test Circuit



■ Typical Characteristics



NPN Transistors

2SC4168-HF

■ Typical Characteristics

