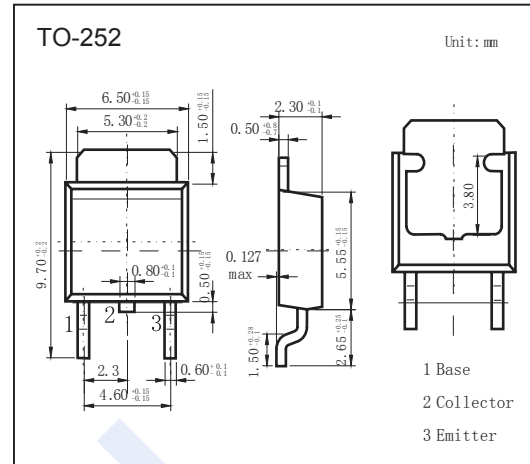


NPN Transistors

2SD1816

■ Features

- Low Collector-to-Emitter Saturation Voltage
- Fast Switching Speed
- High fr.
- Complementary to 2SB1216

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	120	V
Collector - Emitter Voltage	V_{CE0}	100	
Emitter - Base Voltage	V_{EB0}	6	
Collector Current - Continuous	I_C	4	A
Collector Current - Pulse	I_{CP}	8	
Collector Power Dissipation	P_C	1	W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to 150	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CB0}	$I_C = 100 \mu\text{A}$, $I_E = 0$	120			V
Collector- emitter breakdown voltage	V_{CE0}	$I_C = 1 \text{ mA}$, $R_{BE} = \infty$	100			
Emitter - base breakdown voltage	V_{EB0}	$I_E = 100 \mu\text{A}$, $I_C = 0$	6			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 100 \text{ V}$, $I_E = 0$			1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5 \text{ V}$, $I_C = 0$			1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2 \text{ A}$, $I_B = 200 \text{ mA}$		0.15	0.4	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2 \text{ A}$, $I_B = 200 \text{ mA}$		0.9	1.2	
DC current gain	$h_{FE(1)}$	$V_{CE} = 5 \text{ V}$, $I_C = 500 \text{ mA}$	70		400	
	$h_{FE(2)}$	$V_{CE} = 5 \text{ V}$, $I_C = 3 \text{ A}$	40			
Turn-on Time	t_{on}	See Test Circuit		100		ns
Storage Time	t_{stg}			900		
Fall Time	t_f			50		
Collector output capacitance	C_{ob}	$V_{CB} = 10 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$		40		μF
Transition frequency	f_T	$V_{CE} = 10 \text{ V}$, $I_C = 500 \text{ mA}$		180		MHz

■ Classification of $h_{FE(1)}$

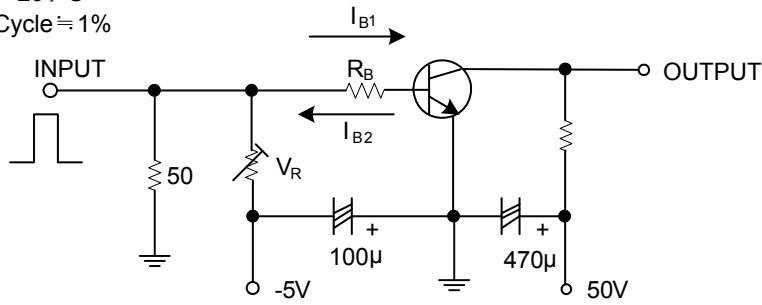
Type	2SD1816-Q	2SD1816-R	2SD1816-S	2SD1816-T
Range	70-140	100-200	140-280	200-400

NPN Transistors

2SD1816

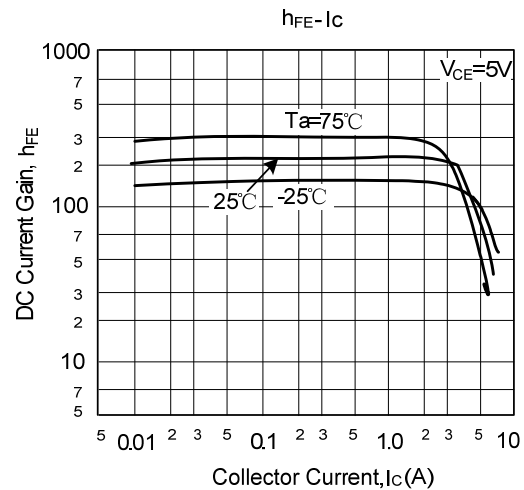
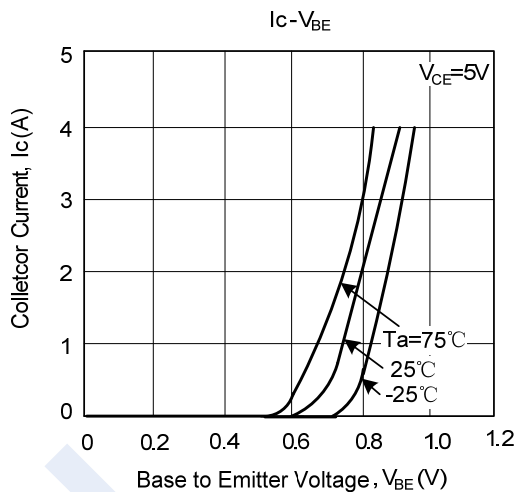
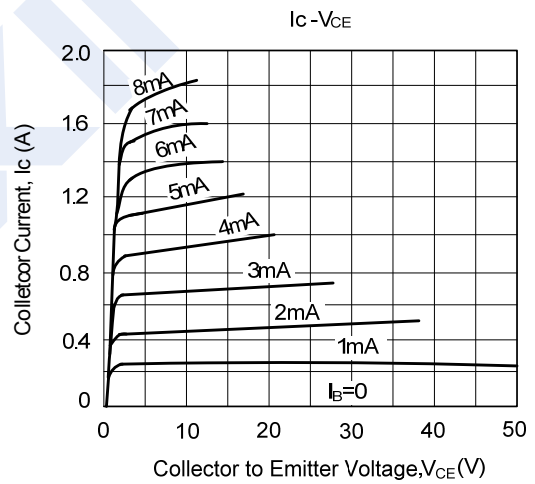
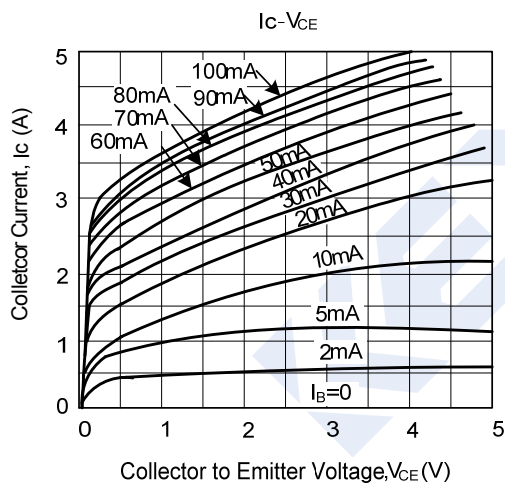
TEST CIRCUIT

PW=20 μ S
Duty Cycle ≈ 1%



$I_c=10, I_{B1}=-10, I_{B2}=2A$
Unit (resistance: Ω, capacitance: F)

Typical Characteristics



NPN Transistors

2SD1816

■ Typical Characteristics

