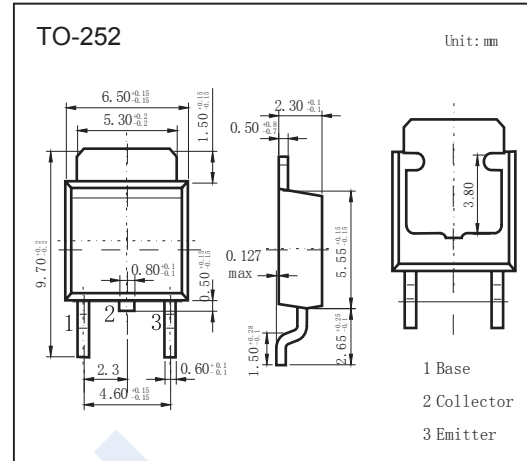


NPN Transistors

2SD1804



■ Features

- Low Collector-to-Emitter Saturation Voltage
- Fast Switching Speed
- High Current And High fr.
- Complementary to 2SB1204

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

Parameter	Symbol	Rating	Unit	
Collector - Base Voltage	V_{CB0}	60	V	
Collector - Emitter Voltage	V_{CE0}	50		
Emitter - Base Voltage	V_{EB0}	6		
Collector Current - Continuous	I_C	8	A	
Collector Current - Pulse	I_{CP}	12		
Collector Power Dissipation	P_C	$T_c = 25^\circ\text{C}$	20	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}	$I_C = 100 \mu\text{A}$, $I_E = 0$	60			V
Collector- emitter breakdown voltage	V_{CE0}	$I_C = 1 \text{ mA}$, $R_{BE} = \infty$	50			
Emitter - base breakdown voltage	V_{EB0}	$I_E = 100 \mu\text{A}$, $I_C = 0$	6			
Collector-base cut-off current	I_{CB0}	$V_{CB} = 50 \text{ V}$, $I_E = 0$			1	μA
Emitter cut-off current	I_{EB0}	$V_{EB} = 5 \text{ V}$, $I_C = 0$			1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 4 \text{ A}$, $I_B = 200 \text{ mA}$		0.2	0.4	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 4 \text{ A}$, $I_B = 200 \text{ mA}$		0.95	1.3	
DC current gain	$h_{FE(1)}$	$V_{CE} = 2 \text{ V}$, $I_C = 500 \text{ mA}$	70		400	
	$h_{FE(2)}$	$V_{CE} = 2 \text{ V}$, $I_C = 6 \text{ A}$	35			
Storage Time	t_{stg}	See Test Circuit		500		ns
Fall Time	t_f			20		
Collector output capacitance	C_{ob}	$V_{CB} = 10 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$		65		pF
Transition frequency	f_T	$V_{CE} = 5 \text{ V}$, $I_C = 1 \text{ A}$		180		MHz

■ Classification of $h_{FE(1)}$

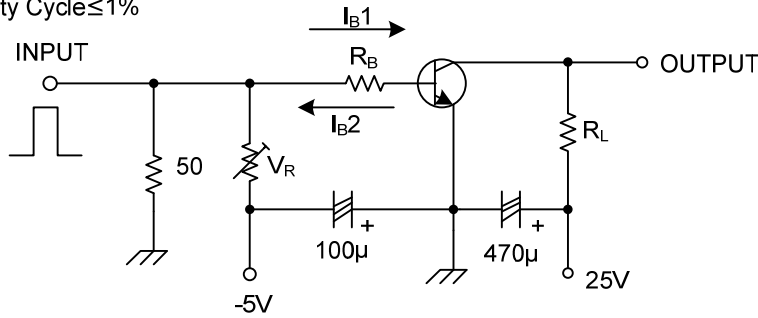
Type	2SD1804-Q	2SD1804-R	2SD1804-S	2SD1804-T
Range	70-140	100-200	140-280	200-400

NPN Transistors

2SD1804

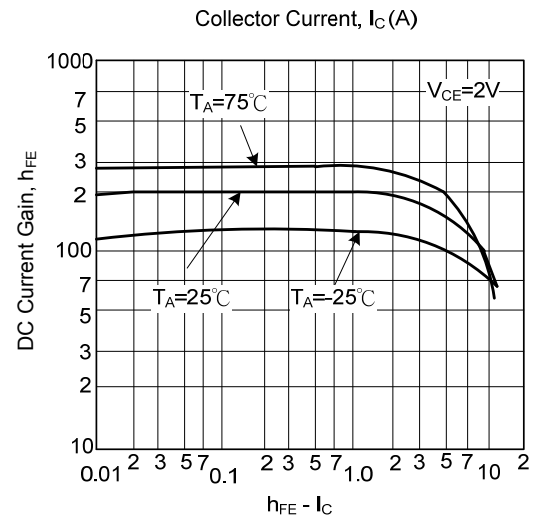
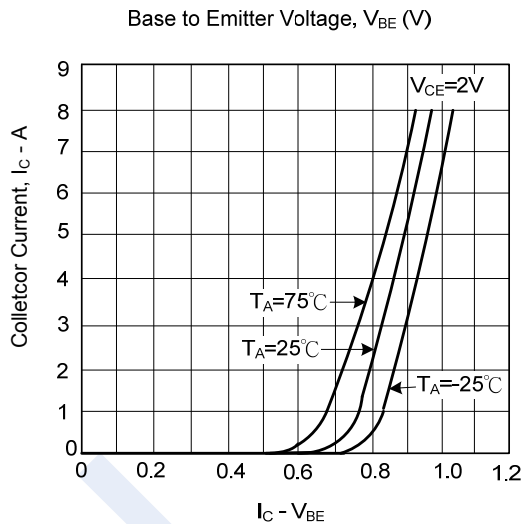
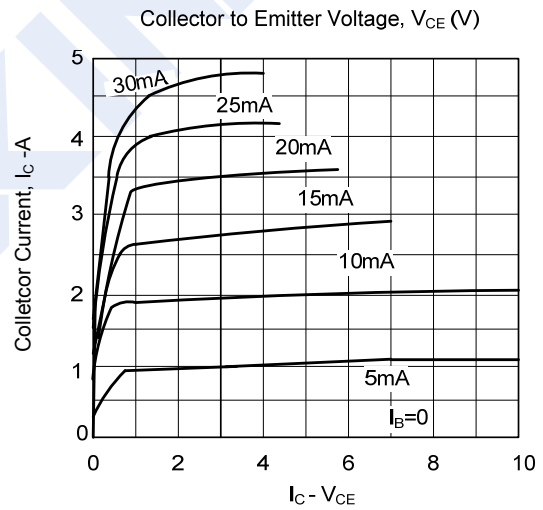
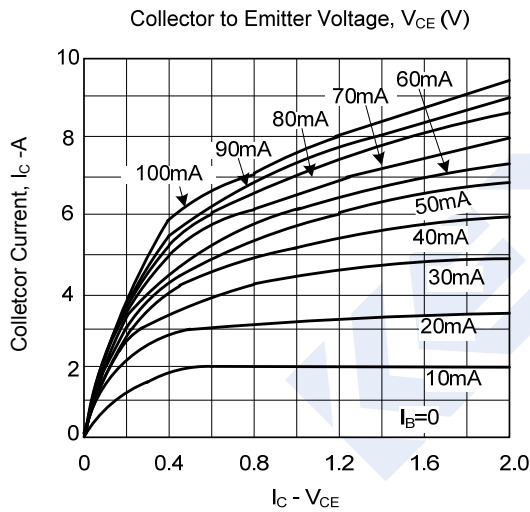
■ TEST CIRCUIT

PW=20μS
Duty Cycle≤1%



$I_C=10 I_{B1}= -10 I_{B2}=4A$
Unit(resistance: Ω, capacitance: F)

■ Typical Characteristics



NPN Transistors

2SD1804

■ Typical Characteristics

