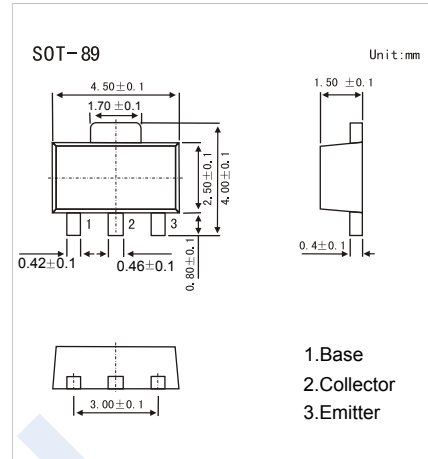


NPN Transistors

2SC4540-HF

■ Features

- Low saturation voltage
- High speed switching time
- Small flat package
- $P_c = 1.0$ to 2.0 W (mounted on ceramic substrate)
- Complementary to 2SA1735-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}	80	V
Collector - Emitter Voltage	V_{CE0}	50	
Emitter - Base Voltage	V_{EB0}	6	
Collector Current - Continuous	I_C	1	A
Base Current	I_B	0.2	
Collector Power Dissipation (Note.1)	P_c	500 1000	mW
Junction Temperature	T_J	150	
Storage Temperature Range	T_{stg}	-55 to 150	

Note.1: Mounted on ceramic substrate ($250\text{ mm}^2 \times 0.8\text{ t}$)

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V_{CB0}	$I_C = 100\text{ }\mu\text{A}$, $I_E = 0$	80			V
Collector-emitter breakdown voltage	V_{CE0}	$I_C = 10\text{ mA}$, $I_B = 0$	50			
Emitter - base breakdown voltage	V_{EB0}	$I_E = 100\text{ }\mu\text{A}$, $I_C = 0$	6			
Collector-base cut-off current	I_{CB0}	$V_{CB} = 80\text{ V}$, $I_E = 0$			0.1	μA
Emitter cut-off current	I_{EB0}	$V_{EB} = 6\text{ V}$, $I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 500\text{ mA}$, $I_B = 25\text{ mA}$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 500\text{ mA}$, $I_B = 25\text{ mA}$			1.2	
DC current gain	h_{FE}	$V_{CE} = 2\text{ V}$, $I_C = 100\text{ mA}$	120		400	
		$V_{CE} = 2\text{ V}$, $I_C = 700\text{ mA}$	40			
Turn-on time	t_{on}	See specified Test Circuit		0.1		μs
Storage time	t_{stg}			0.4		
Fall time	t_r			0.1		
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$		10		pF
Transition frequency	f_T	$V_{CE} = 2\text{ V}$, $I_C = 100\text{ mA}$		100		MHz

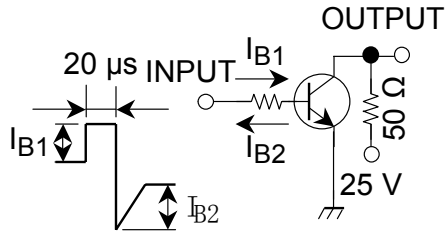
■ Marking

Marking	$K^\circ\text{C}_F$

NPN Transistors

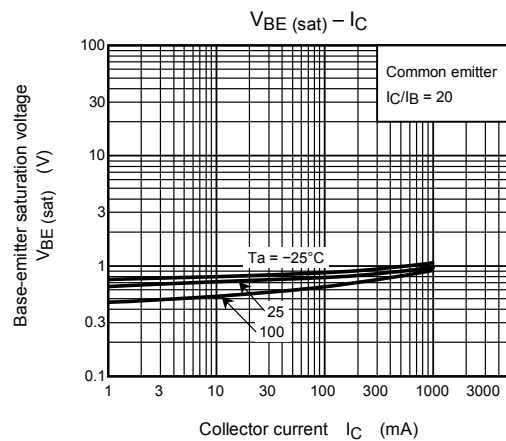
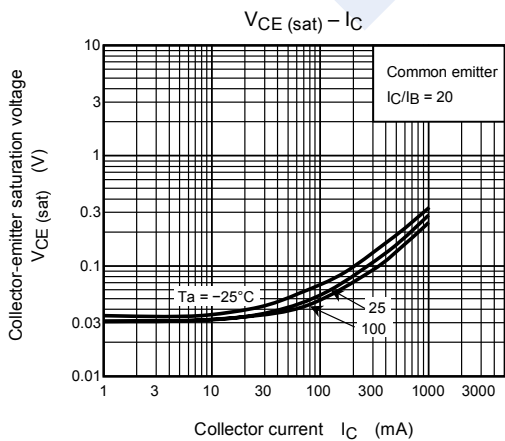
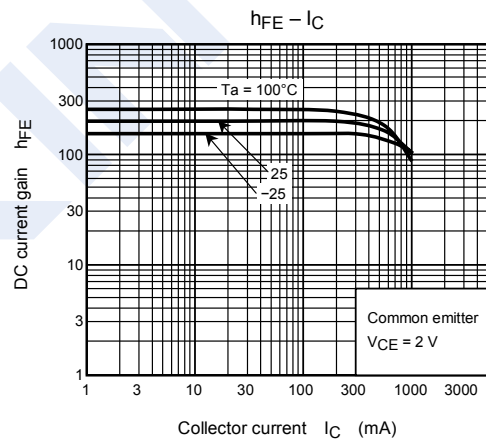
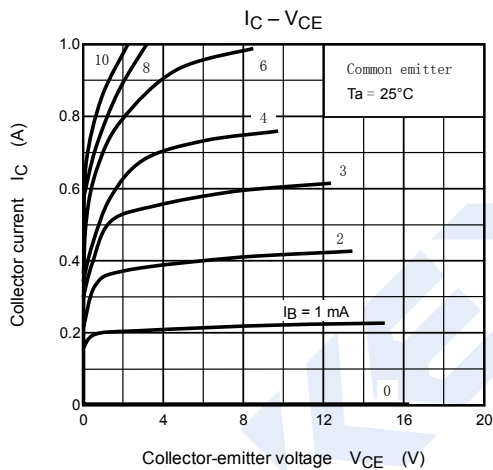
2SC4540-HF

Switching Time Test Circuit



$I_{B1} = -I_{B2} = 35 \text{ mA}$,
 DUTY CYCLE $\leq 1\%$

■ Typical Characteristics



NPN Transistors

2SC4540-HF

■ Typical Characteristics

