

NPN Transistors

2SC4539-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 2SA1743-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}	50	V
Collector - Emitter Voltage	V_{CE0}	30	
Emitter - Base Voltage	V_{EB0}	6	
Collector Current - Continuous	I_C	1.2	A
Base Current	I_B	0.3	
Collector Power Dissipation (Note.1)	P_C	500 1000	mW
Junction Temperature	T_J	150	
Storage Temperature Range	T_{stg}	-55 to 150	

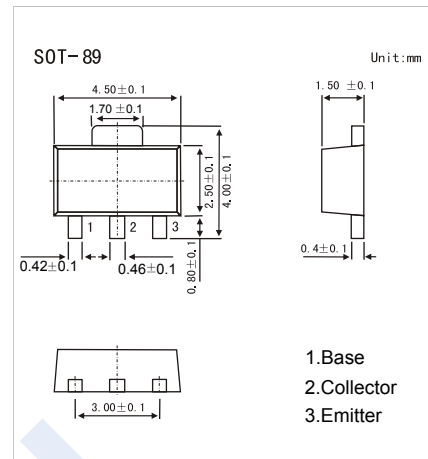
Note.1: Mounted on ceramic substrate ($250\text{ mm}^2 \times 0.8\text{ t}$)

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CB0}	$I_C = 100\ \mu\text{A}$, $I_E = 0$	50			V
Collector- emitter breakdown voltage	V_{CE0}	$I_C = 10\ \text{mA}$, $I_B = 0$	30			
Emitter - base breakdown voltage	V_{EB0}	$I_E = 100\ \mu\text{A}$, $I_C = 0$	6			
Collector-base cut-off current	I_{CB0}	$V_{CB} = 50\text{V}$, $I_E = 0$			0.1	μA
Emitter cut-off current	I_{EB0}	$V_{EB} = 6\text{V}$, $I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 700\text{mA}$, $I_B = 35\text{mA}$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 700\text{mA}$, $I_B = 35\text{mA}$			1.2	
DC current gain	h_{FE}	$V_{CE} = 2\text{V}$, $I_C = 100\text{mA}$	120		400	
		$V_{CE} = 2\text{V}$, $I_C = 1\text{A}$	40			
Turn-on time	t_{on}	See specified Test Circuit		0.1		us
Storage time	t_{stg}			0.3		
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

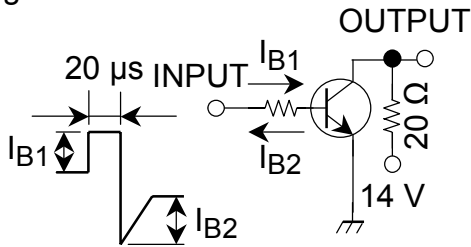
Marking	KB F
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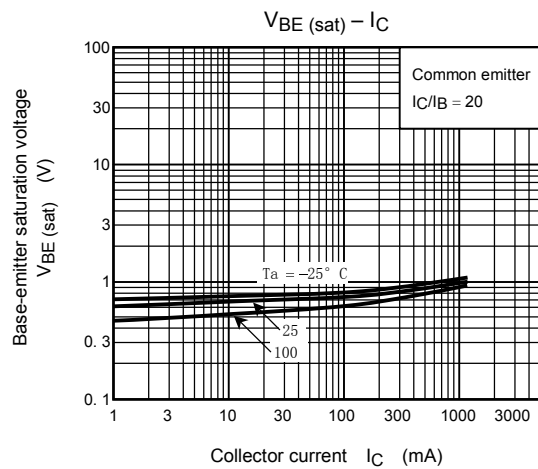
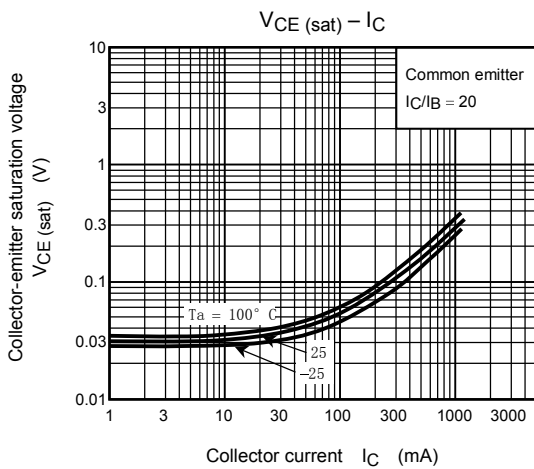
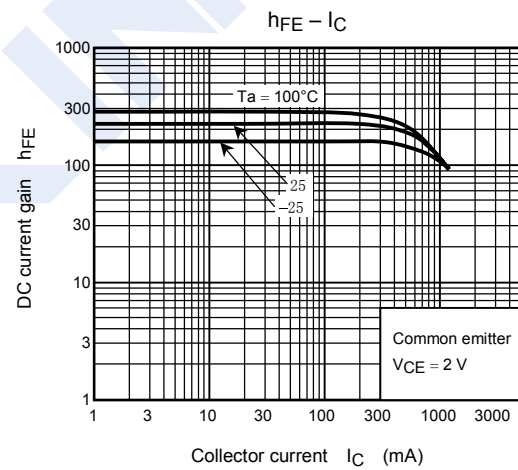
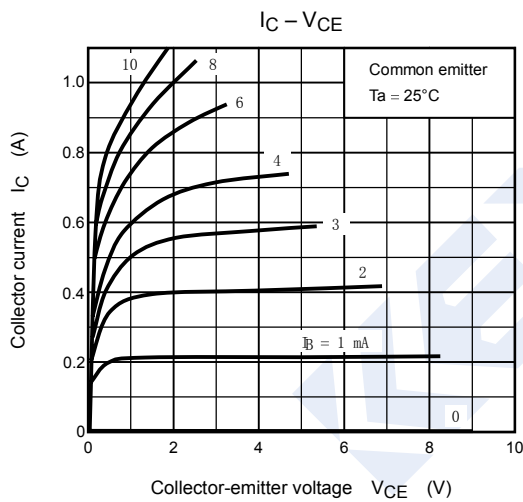
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Switching Time Test Circuit



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

■ Typical Characteristics



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