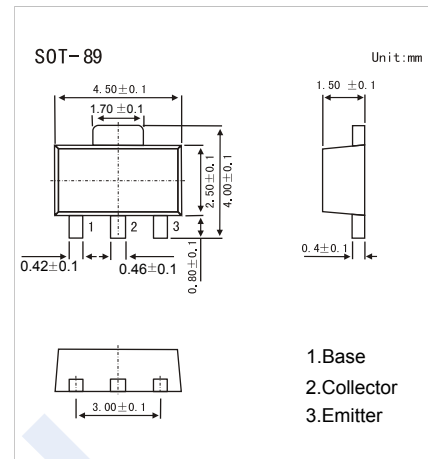


NPN Transistors

2SC3649

■ Features

- High breakdown voltage and large current capacity.
- Complementary to 2SA1419

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	180	V
Collector - Emitter Voltage	V_{CE0}	160	
Emitter - Base Voltage	V_{EB0}	6	
Collector Current - Continuous	I_C	1.5	A
Peak Collector Current	I_{CM}	2.5	
Collector Power Dissipation	P_C	500	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}	$I_C = 100 \mu\text{A}$, $I_E = 0$	180			V
Collector- emitter breakdown voltage	V_{CE0}	$I_C = 1 \text{ mA}$, $R_{BE} = \infty$	160			
Emitter - base breakdown voltage	V_{EB0}	$I_E = 100 \mu\text{A}$, $I_C = 0$	6			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 120 \text{ V}$, $I_E = 0$			1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 4 \text{ V}$, $I_C = 0$			1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 500 \text{ mA}$, $I_B = 50 \text{ mA}$		0.13	0.45	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 500 \text{ mA}$, $I_B = 50 \text{ mA}$		0.85	1.2	
DC current gain	h_{FE}	$V_{CE} = 5 \text{ V}$, $I_C = 100 \text{ mA}$	100		400	
		$V_{CE} = 5 \text{ V}$, $I_C = 10 \text{ mA}$	80			
Turn-ON Time	t_{on}	See specified Test Circuit.		40		ns
Storage Time	t_{stg}			1200		
Fall Time	t_f			80		
Collector output capacitance	C_{ob}	$V_{CB} = 10 \text{ V}$, $f = 1 \text{ MHz}$		14		μF
Transition frequency	f_T	$V_{CE} = 10 \text{ V}$, $I_C = 50 \text{ mA}$		120		MHz

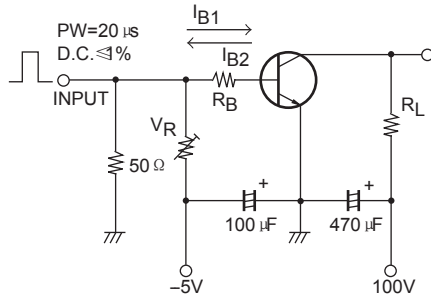
■ Classification of $h_{FE}(1)$

Type	2SC3649-R	2SC3649-S	2SC3649-T
Range	100-200	140-280	200-400
Marking	CER	CES	CET

NPN Transistors

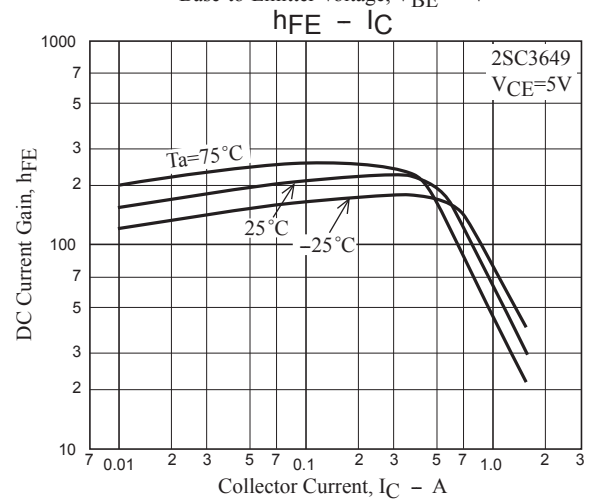
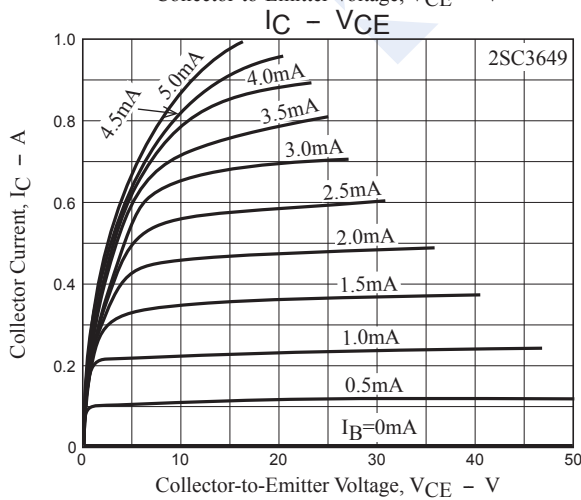
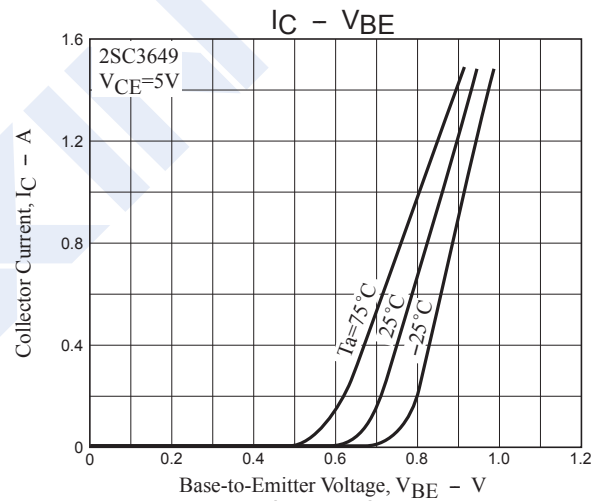
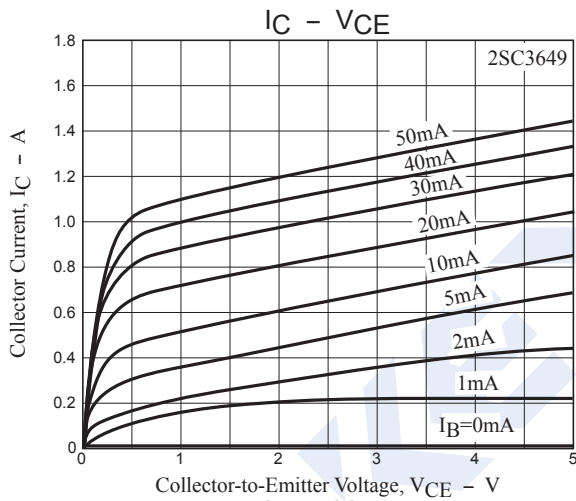
2SC3649

Switching Time Test Circuit



$I_C = 10I_{B1} = -10I_{B2} = 0.7A$
 (For PNP, the polarity is reversed)

Typical Characteristics



NPN Transistors

2SC3649

■ Typical Characteristics

