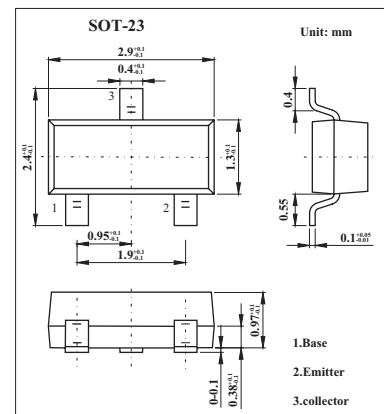


## NPN Epitaxial Planar Silicon Transistor

## 2SC4519

## ■ Features

- Adoption of FBET process.
- Low collector-to-emitter saturation voltage.
- Fast switching speed.
- Small-sized package.

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

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	60	V
Collector-emitter voltage	$V_{CE0}$	45	V
Emitter-base voltage	$V_{EB0}$	5	V
Collector current	$I_C$	500	mA
Collector current (pulse)	$I_{cp}$	1	A
Collector dissipation	$P_C$	200	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

## 2SC4519

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit	
Collector cutoff current	ICBO	V <sub>CB</sub> = 45V, I <sub>E</sub> =0			0.5	μA	
Emitter cutoff current	IEBO	V <sub>EB</sub> = 3V, I <sub>C</sub> =0			0.5	μA	
DC current gain	hFE	V <sub>CE</sub> = 2V, I <sub>C</sub> = 50mA	100		400		
Gain bandwidth product	f <sub>T</sub>	V <sub>CE</sub> = 2V, I <sub>C</sub> = 50mA		360		MHz	
Output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, f = 1.0MHz		4		pF	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 200mA, I <sub>B</sub> = 10mA		0.15	0.45	V	
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 200mA, I <sub>B</sub> = 10mA		0.8	1.2	V	
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = 10μA, I <sub>E</sub> = 0	60			V	
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = 1mA, R <sub>BE</sub> = ∞	45			V	
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = 10μA, I <sub>C</sub> = 0	5			V	
Turn-on time	t <sub>on</sub>	<p>           P.W. = 20μs            D.C. = 1%            V<sub>BE</sub> = 1V            V<sub>CE</sub> = 25V            20I<sub>b1</sub> = -20I<sub>b2</sub> = I<sub>C</sub> = 200mA            Unit (resistance : Ω, capacitance : F)         </p>		60	120	ns	
Storage time	t <sub>stg</sub>				150	270	ns
Fall time	t <sub>f</sub>				200	350	ns

## ■ hFE Classification

Marking	TT		
Rank	4	5	6
hFE	100~200	140~280	200~400