

# 2SC5405

## Silicon NPN triple diffusion planar type

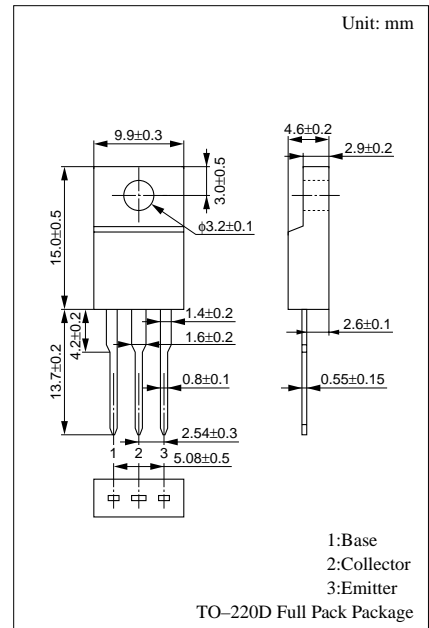
For high-speed switching and high current amplification ratio

### ■ Features

- High-speed switching
- High forward current transfer ratio  $h_{FE}$  which has satisfactory linearity
- Dielectric breakdown voltage of the package: > 5kV

### ■ Absolute Maximum Ratings ( $T_C=25^\circ\text{C}$ )

Parameter	Symbol	Ratings	Unit	
Collector to base voltage	$V_{CBO}$	80	V	
Collector to emitter voltage	$V_{CEO}$	50	V	
Emitter to base voltage	$V_{EBO}$	6	V	
Peak collector current	$I_{CP}$	6	A	
Collector current	$I_C$	3	A	
Base current	$I_B$	1	A	
Collector power dissipation	$P_C$	$T_C=25^\circ\text{C}$	20	W
		$T_a=25^\circ\text{C}$	2.0	
Junction temperature	$T_j$	150	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$	



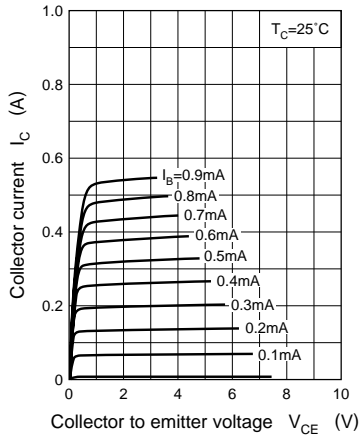
### ■ Electrical Characteristics ( $T_C=25^\circ\text{C}$ )

Parameter	Symbol	Conditions	min	typ	max	Unit	
Collector cutoff current	$I_{CBO}$	$V_{CB} = 80\text{V}, I_E = 0$			100	$\mu\text{A}$	
	$I_{CEO}$	$V_{CE} = 40\text{V}, I_B = 0$			100	$\mu\text{A}$	
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 6\text{V}, I_C = 0$			100	$\mu\text{A}$	
Collector to emitter voltage	$V_{CEO}$	$I_C = 25\text{mA}, I_B = 0$	50			V	
Forward current transfer ratio	$h_{FE}^*$	$V_{CE} = 4\text{V}, I_C = 0.5\text{A}$	500		1500		
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2\text{A}, I_B = 0.05\text{A}$		0.5	0.7	V	
Base to emitter saturation voltage	$V_{BE(sat)}$					V	
Transition frequency	$f_T$	$V_{CE} = 12\text{V}, I_C = 0.2\text{A}, f = 10\text{MHz}$		75		MHz	
Turn-on time	$t_{on}$	$I_C = 1\text{A}, I_{B1} = 0.05\text{A}, I_{B2} = -0.1\text{A}, V_{CC} = 50\text{V}$		0.3		$\mu\text{s}$	
Storage time	$t_{stg}$				3.5		$\mu\text{s}$
Fall time	$t_f$				0.9		$\mu\text{s}$

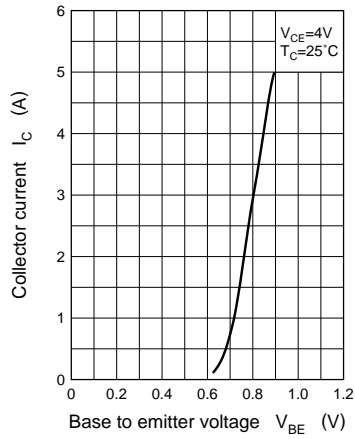
\* $h_{FE}$  Rank classification

Rank	P	Q
$h_{FE}$	800 to 1500	500 to 1000

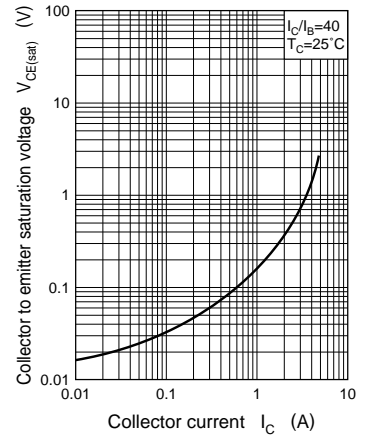
$I_C - V_{CE}$



$I_C - V_{BE}$



$V_{CE(sat)} - I_C$



$h_{FE} - I_C$

