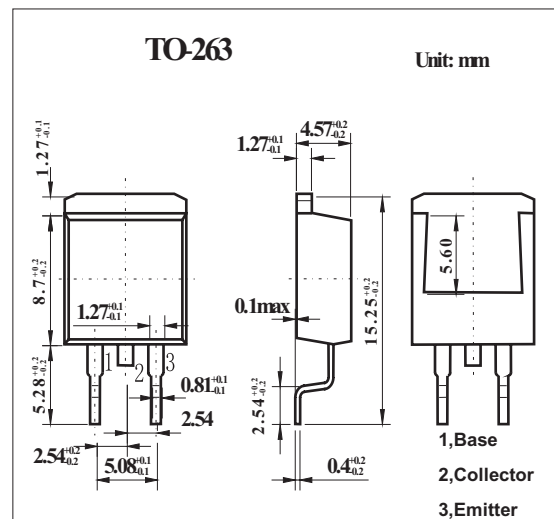


## Silicon NPN Triple Diffused Type

## 2SC4597

## ■ Features

- Surface mount type device making the following possible.
- Reduction in the number of manufacturing processes for 2SC4597-applied equipment.
- High density surface mount applications.  
Small size of 2SC4597-applied equipment.
- High breakdown voltage, high reliability.
- Fast switching speed.
- Wide ASO.
- Adoption of MBIT process.

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

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	500	V
Collector-emitter voltage	$V_{CEO}$	400	V
Emitter-base voltage	$V_{EBO}$	7	V
Collector current (DC)	$I_C$	4	A
Collector current (Pulse) *	$I_{CP}$	8	
Base current	$I_B$	1.5	A
Collector power dissipation	$P_C$	$T_a = 25^\circ\text{C}$	1.65
		$T_c = 25^\circ\text{C}$	40
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55 to +150	$^\circ\text{C}$

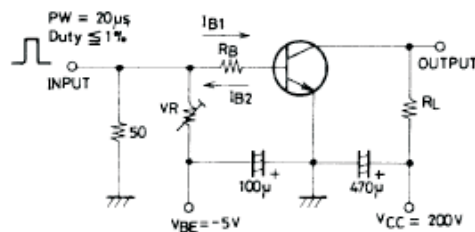
\*  $PW \leq 300\text{ms}$ , duty cycle  $\leq 10\%$

## 2SC4597

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

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = 400\text{ V}, I_E = 0$			10	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$			10	$\mu\text{A}$
DC current gain	$h_{FE}$	$V_{CE} = 5\text{ V}, I_C = 0.4\text{ A}$	15		50	
		$V_{CE} = 5\text{ V}, I_C = 2\text{ A}$	10			
		$V_{CE} = 5\text{ V}, I_C = 10\text{ mA}$	10			
Gain-Bandwidth product	$f_T$	$V_{CE} = 10\text{ V}, I_C = 0.4\text{ A}$		20		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{ V}, f = 1\text{ MHz}$		50		pF
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2\text{ A}, I_B = 0.4\text{ A}$			0.8	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2\text{ A}, I_B = 0.4\text{ A}$			1.5	V
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 1\text{ mA}, I_E = 0$	500			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 5\text{ mA}, R_{BE} = \infty$	400			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\text{ mA}, I_C = 0$	7			
Collector-to-Emitter Sustain Voltage	$V_{CEX(SUS)}$	$I_C = 2\text{ A}, I_{B1} = 0.2\text{ A}, L = 1\text{ mH}, I_{B2} = -0.8\text{ A}$	400			
Turn-ON time	$t_{on}$	$I_C = 3\text{ A}, I_{B1} = 0.6\text{ A}, I_{B2} = -1.2\text{ A}, R_L = 66.6\ \Omega, V_{CC} = 200\text{ V}$			0.5	$\mu\text{s}$
Storage time	$t_{stg}$				2.5	
Fall time	$t_r$				0.3	

## ■ Switching Time Test Circuit

Unit (resistance :  $\Omega$ , capacitance : F)■  $h_{FE}$  Classification

Rank	L	M	N
$h_{FE}$	15 to 30	20 to 40	30 to 50