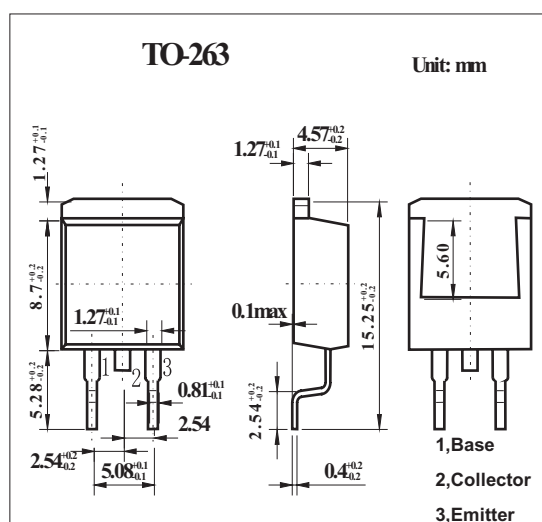


NPN Triple Diffused Planar Silicon Transistor

2SC4599

■ Features

- Surface mount type device making the following possible.
- Reduction in the number of manufacturing processes for 2SC4599-applied equipment.
- High density surface mount applications.
- Small size of 2SC4599-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}	800	V
Collector-emitter voltage	V_{CE0}	500	V
Emitter-base voltage	V_{EB0}	7	V
Collector current (DC)	I_C	3	A
Collector current (Pulse) *	I_{CP}	6	
Base current	I_B	1	A
Collector power dissipation $T_a = 25^\circ\text{C}$ $T_c = 25^\circ\text{C}$	P_C	1.65	W
		40	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to +150	$^\circ\text{C}$

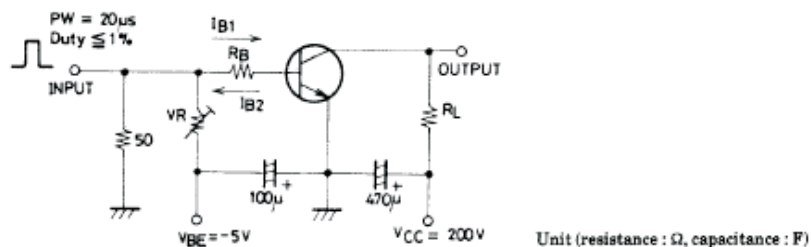
* $PW \leq 300\text{ms}$, duty cycle $\leq 10\%$

2SC4599

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

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 500\text{ V}, I_E = 0$			10	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0$			10	μA
DC current gain	h_{FE}	$V_{CE} = 5\text{ V}, I_C = 0.3\text{ A}$	15		50	
		$V_{CE} = 5\text{ V}, I_C = 1.5\text{ A}$	8			
Gain-Bandwidth product	f_T	$V_{CE} = 10\text{ V}, I_C = 0.3\text{ A}$		18		MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{ V}, f = 1\text{ MHz}$		50		pF
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1.5\text{ A}, I_B = 0.3\text{ A}$			1.0	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1.5\text{ A}, I_B = 0.3\text{ A}$			1.5	V
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 1\text{ mA}, I_E = 0$	800			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 5\text{ mA}, R_{BE} = \infty$	500			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\text{ mA}, I_C = 0$	7			V
Collector-to-Emitter Sustain Voltage	$V_{CEX(SUS)}$	$I_C = 1.5\text{ A}, I_{B1} = 0.6\text{ A}, L = 2\text{ mH}, I_{B2} = -0.6\text{ A}$	500			V
Turn-ON time	t_{on}	$I_C = 2\text{ A}, I_{B1} = 0.4\text{ A}, I_{B2} = -0.8\text{ A}, R_L = 100\ \Omega, V_{CC} = 200\text{ V}$			0.5	μs
Storage time	t_{stg}				3.0	
Fall time	t_f				0.3	

■ Switching Time Test Circuit

■ h_{FE} Classification

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