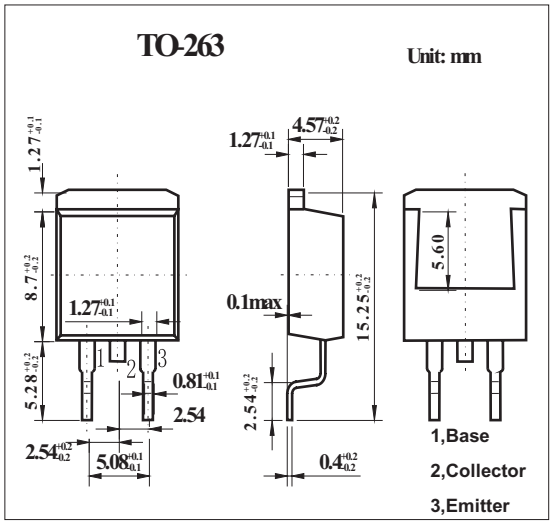
NPN Triple Diffused Planar Silicon Transistor

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 Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	800	V
Collector-emitter voltage	V_{CEO}	500	V
Emitter-base voltage	V_{EBO}	7	V
Collector current (DC)	I_C	3	A
Collector current (Pulse) *	I_{CP}	6	
Base current	I_B	1	A
Collector power dissipation Ta = 25℃	P_C	1.65	W
T_C = 25℃		40	
Junction temperature	T_j	150	℃
Storage temperature range	T_{stg}	-55 to +150	℃

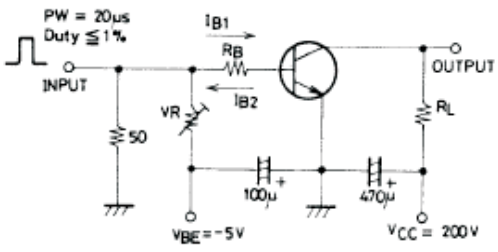
* PW≤300ms, duty cycle≤10%

2SC4599

■ Electrical Characteristics Ta = 25℃

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

■ Switching Time Test Circuit



Unit (resistance : Ω, capacitance : F)

■ h_{FE} Classification

Rank	L	M	N
hFE	15 to 30	20 to 40	30 to 50