

**2SC3743**

## Silicon NPN triple diffusion planar type

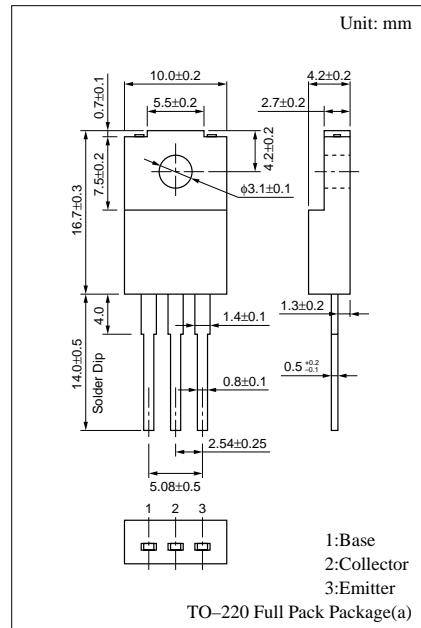
For high breakdown voltage high-speed switching

## ■ Features

- High-speed switching
  - Wide area of safe operation (ASO) with high breakdown voltage
  - Satisfactory linearity of forward current transfer ratio  $h_{FE}$
  - Full-pack package which can be installed to the heat sink with one screw

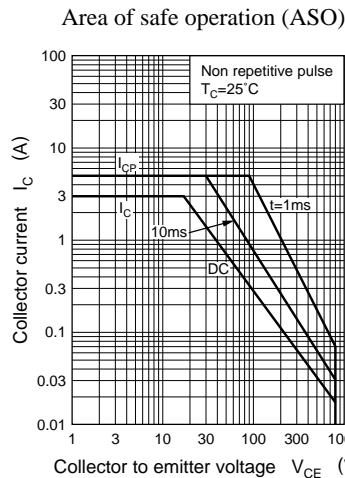
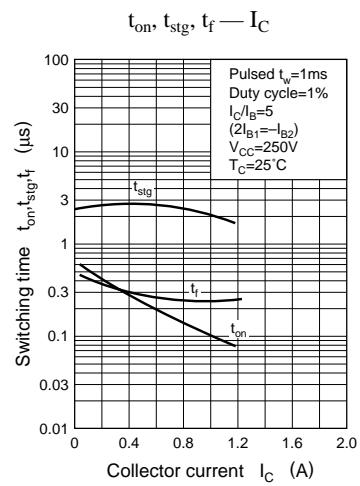
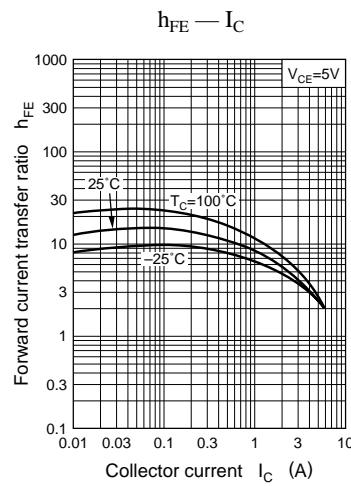
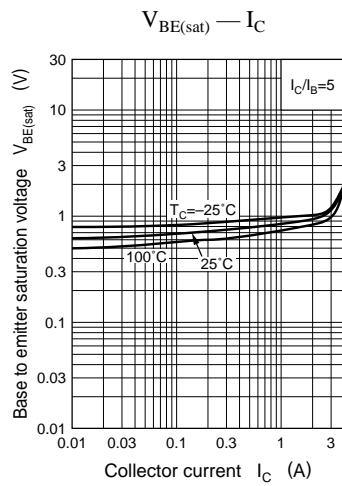
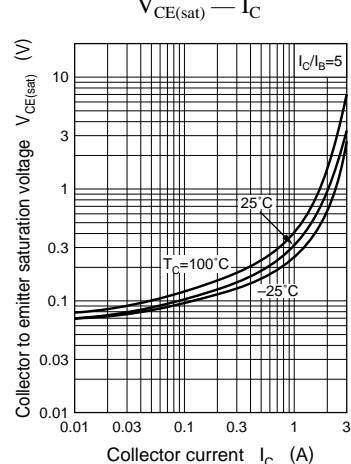
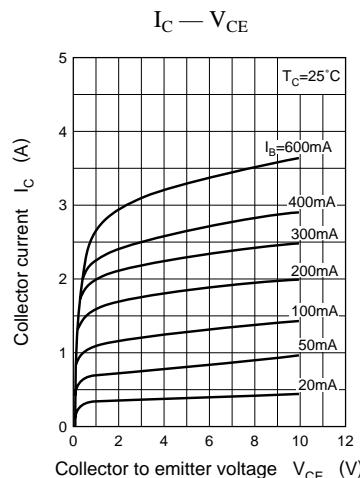
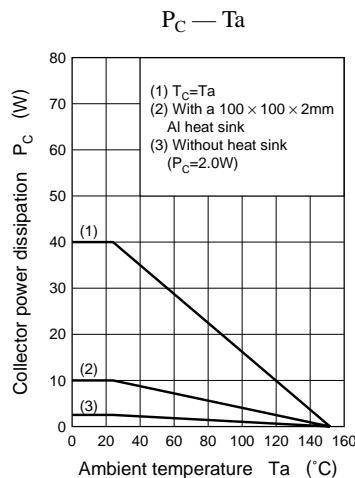
#### Absolute Maximum Ratings ( $T_C=25^\circ\text{C}$ )

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V <sub>CBO</sub>	900	V
Collector to emitter voltage	V <sub>CES</sub>	900	V
	V <sub>CEO</sub>	800	V
Emitter to base voltage	V <sub>EBO</sub>	7	V
Peak collector current	I <sub>CP</sub>	5	A
Collector current	I <sub>C</sub>	3	A
Base current	I <sub>B</sub>	1	A
Collector power dissipation	T <sub>C</sub> =25°C Ta=25°C	40	W
		2	
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

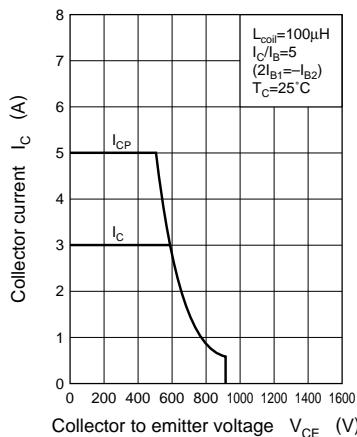


## ■ Electrical Characteristics ( $T_C=25^\circ\text{C}$ )

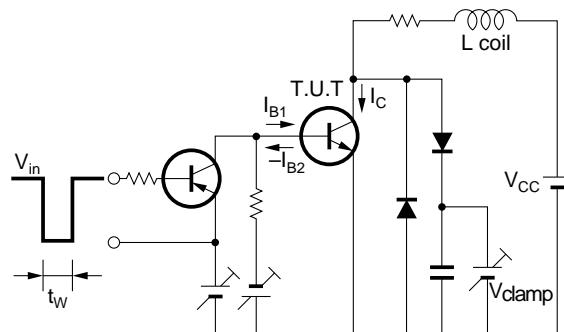
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 900V, I_E = 0$			50	$\mu A$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 7V, I_C = 0$			50	$\mu A$
Collector to emitter voltage	$V_{CEO}$	$I_C = 10mA, I_B = 0$	800			V
Forward current transfer ratio	$h_{FE1}$	$V_{CE} = 5V, I_C = 0.1A$	6			
	$h_{FE2}$	$V_{CE} = 5V, I_C = 0.8A$	6			
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 0.8A, I_B = 0.16A$			0.6	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 0.8A, I_B = 0.16A$			1.2	V
Transition frequency	$f_T$	$V_{CE} = 5V, I_C = 0.1A, f = 1MHz$		4		MHz
Turn-on time	$t_{on}$	$I_C = 0.8A, I_{B1} = 0.16A, I_{B2} = -0.32A,$ $V_{CC} = 250V$			1.0	$\mu s$
Storage time	$t_{stg}$				4.0	$\mu s$
Fall time	$t_f$				1.0	$\mu s$



Area of safe operation, reverse bias ASO



Reverse bias ASO measuring circuit



$R_{th(t)} — t$

