Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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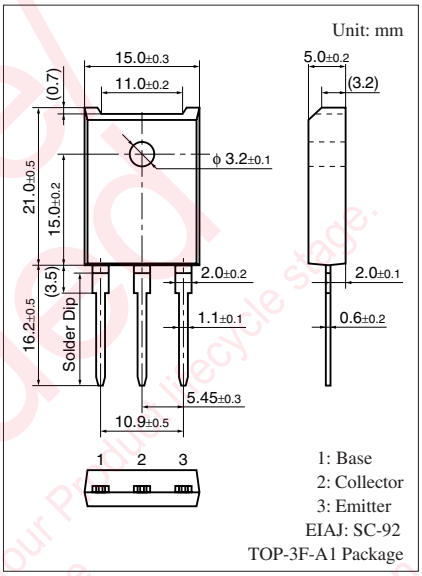
2SC3506

Silicon NPN triple diffusion planar type

For high-speed switching



■ Features

- High-speed switching
- High collector-base voltage (Emitter open) V_{CBO}
- 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 $T_C = 25°C$

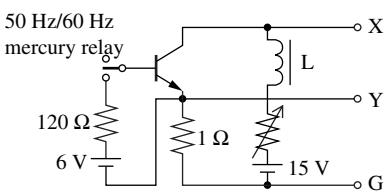
Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	1 000	V
Collector-emitter voltage (E-B short)	V_{CES}	1 000	V
Collector-emitter voltage (Base open)	V_{CEO}	800	V
Emitter-base voltage (Collector open)	V_{EBO}	7	V
Collector current	I_C	3	A
Base current	I_B	2	A
Peak collector current	I_{CP}	6	A
Collector power dissipation	P_C	70	W
$T_a = 25°C$		3.0	
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

■ Electrical Characteristics $T_C = 25°C \pm 3°C$

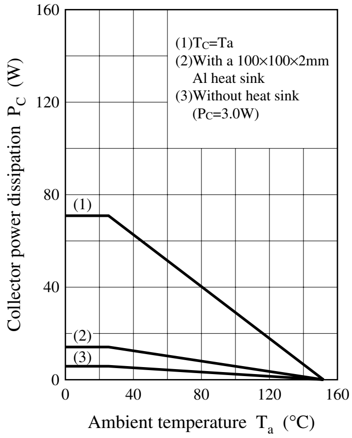
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter sustaining voltage *	$V_{CEO(SUS)}$	I_C = 0.5 A, L = 50 mH	800			V
Collector-base cutoff current (Emitter open)	I_{CBO}	V_{CB} = 1 000 V, I_E = 0			50	µA
Emitter-base cutoff current (Collector open)	I_{EBO}	V_{EB} = 7 V, I_C = 0			50	µA
Forward current transfer ratio	h_{FE}	V_{CE} = 5 V, I_C = 2 A	6			—
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 2 A, I_B = 0.4 A			1.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C = 2 A, I_B = 0.4 A			1.5	V
Transition frequency	f_T	V_{CE} = 5 V, I_C = 0.2 A, f = 1 MHz		4		MHz
Turn-on time	t_{on}	I_C = 2 A			1	µs
Storage time	t_{stg}	I_{B1} = 0.4 A, I_{B2} = − 0.8 A			2.5	µs
Fall time	t_f	V_{CC} = 250 V			0.5	µs

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

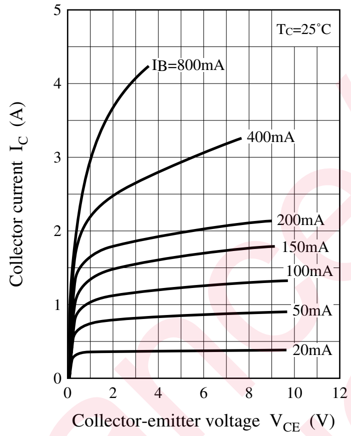
2. *: $V_{CEO(SUS)}$ test circuit



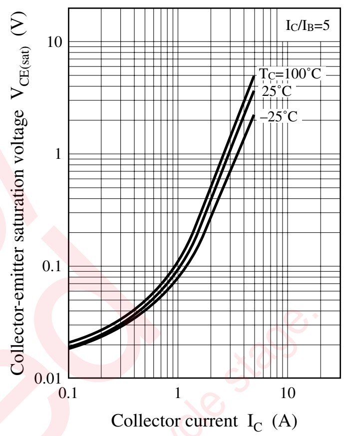
P_C — T_a



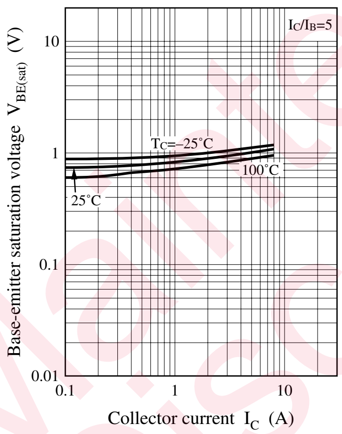
I_C — V_{CE}



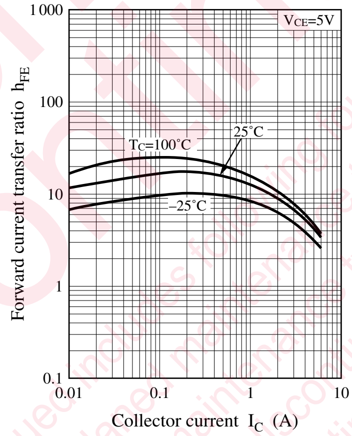
$V_{CE(sat)}$ — I_C



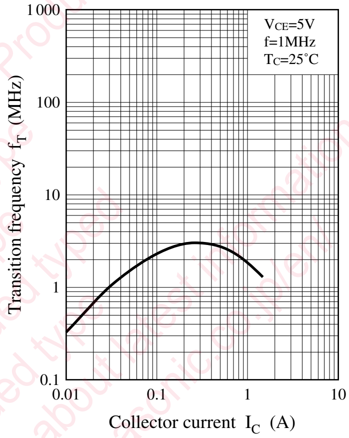
$V_{BE(sat)}$ — I_C



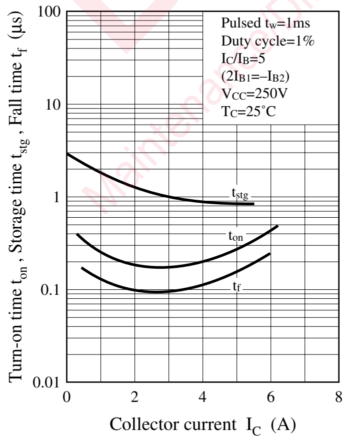
h_{FE} — I_C



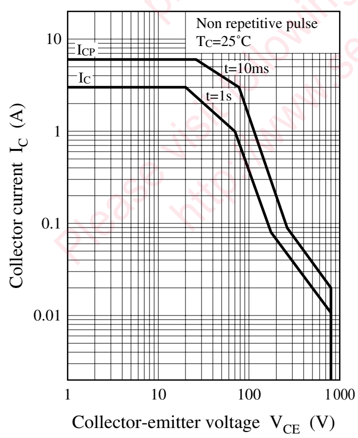
f_T — I_C



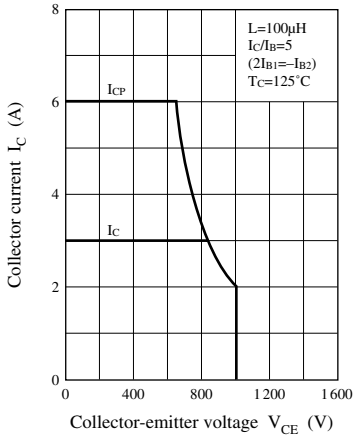
t_{on} , t_{stg} , t_f — I_C



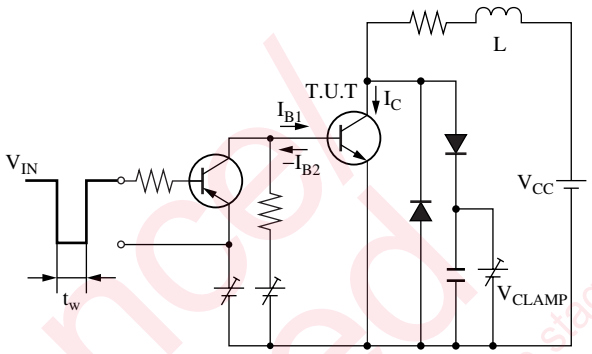
Safe operation area



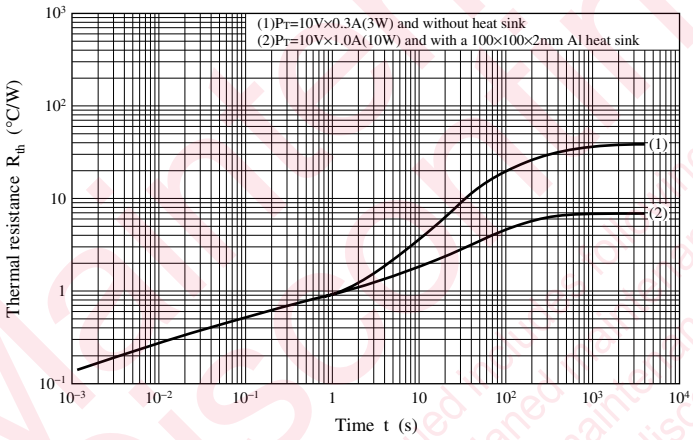
Safe operation area (Reverse bias)



Safe operation area (Reverse bias) measurement circuit



R_{th} — t



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