



# 2SC4600

## Switching Regulator Applications

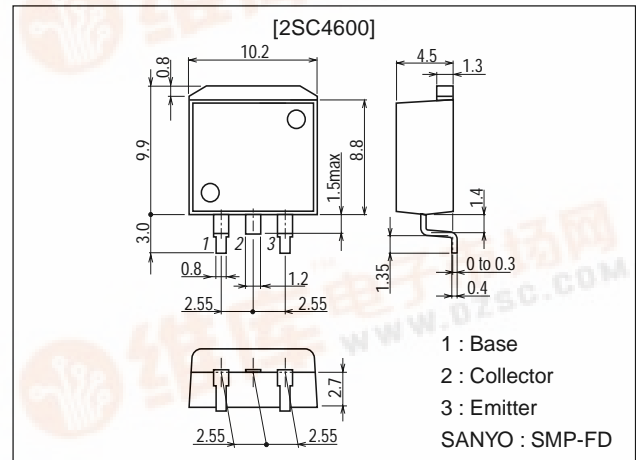
### Features

- Surface mount type device making the following possible.
- Reduction in the number of manufacturing processes for 2SC4600-applied equipment.
- High density surface mount applications.
- Small size of 2SC4600-applied equipment.
- High breakdown voltage, high reliability.
- Fast switching speed.
- Wide ASO.
- Adoption of MBIT process.

### Package Dimensions

unit:mm

2069C



### Specifications

#### Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		800	V
Collector-to-Emitter Voltage	V <sub>CE0</sub>		500	V
Emitter-to-Base Voltage	V <sub>EB0</sub>		7	V
Collector Current	I <sub>C</sub>		5	A
Collector Current (Pulse)	I <sub>CP</sub>	PW≤300μs, duty cycle≤10%	10	A
Base Current	I <sub>B</sub>		2	A
Collector Dissipation	P <sub>C</sub>		1.65	W
		T <sub>C</sub> =25°C	50	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

#### Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> =500V, I <sub>E</sub> =0			10	μA
Emitter Cutoff Current	I <sub>EB0</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0			10	μA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =0.6A	15*		50*	
	h <sub>FE2</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =3A	8			

\* : For the h<sub>FE1</sub> of the 2SC4600, specify two ranks or more in principle.

15	L	30	20	M	40	30	N	50
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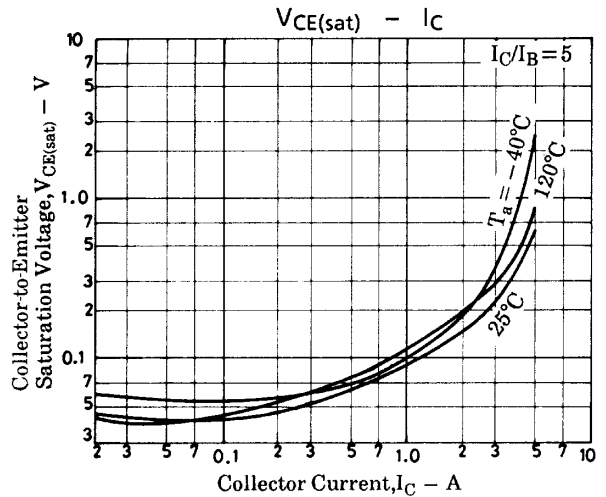
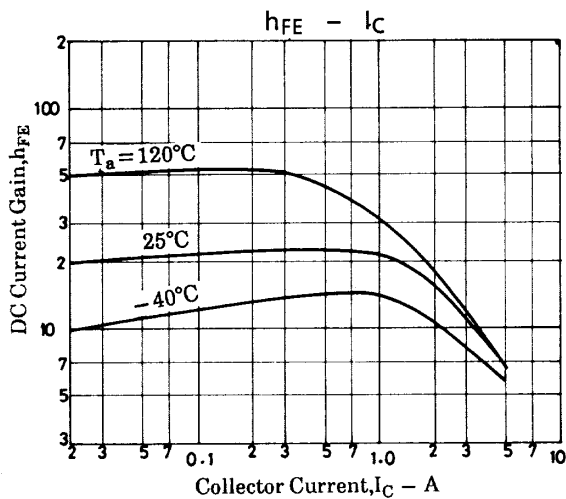
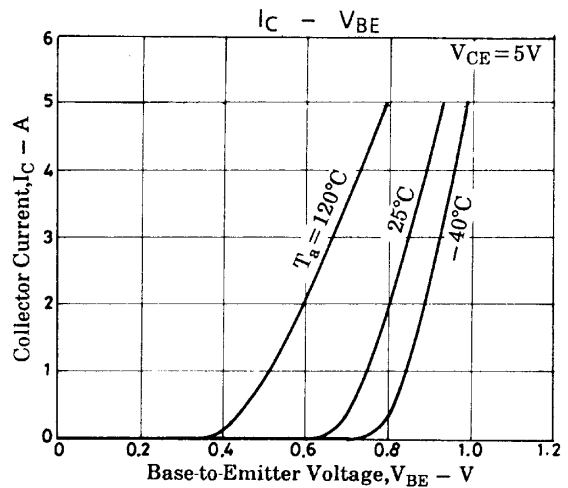
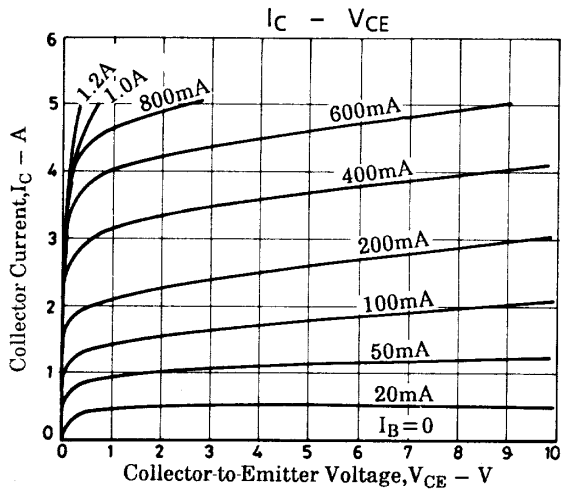
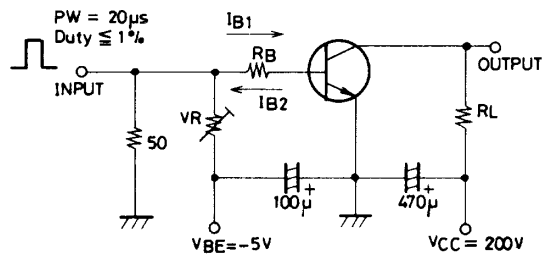
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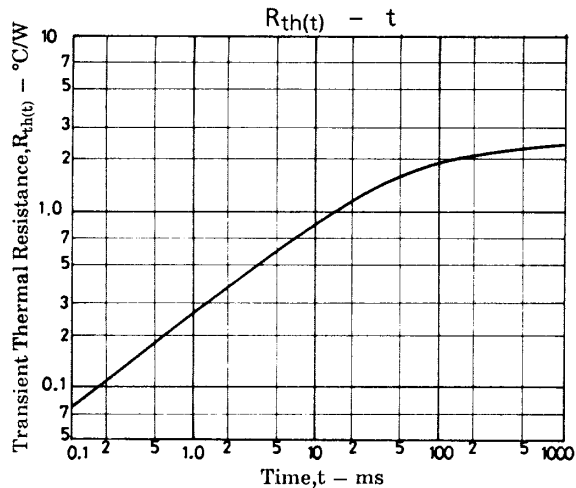
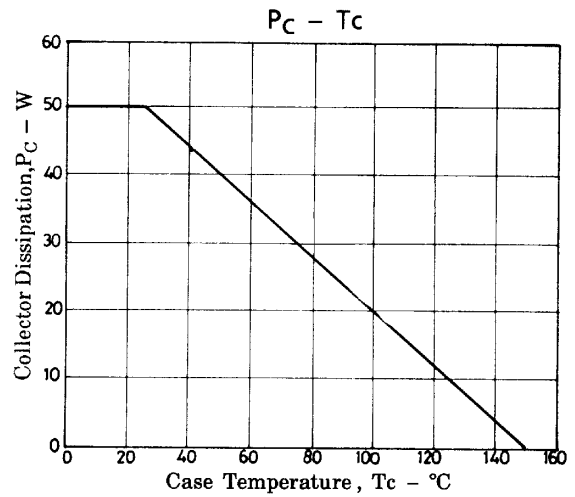
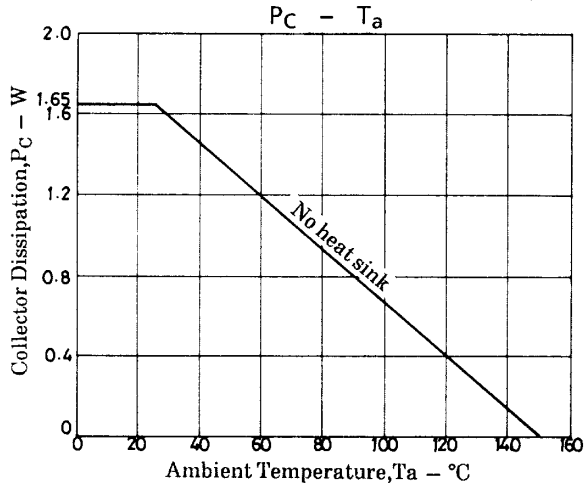
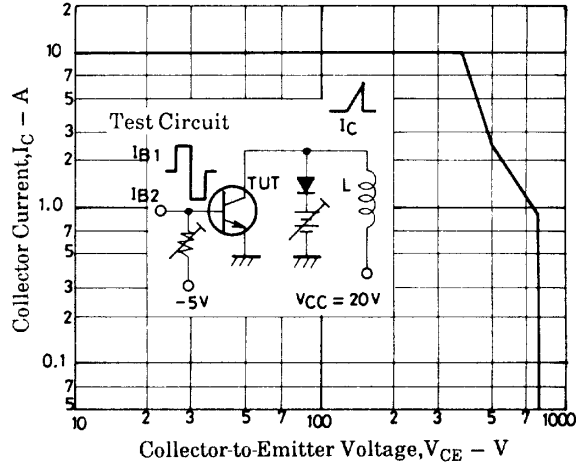
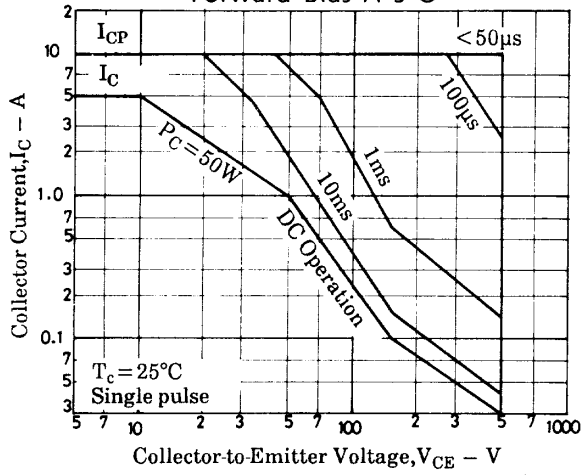
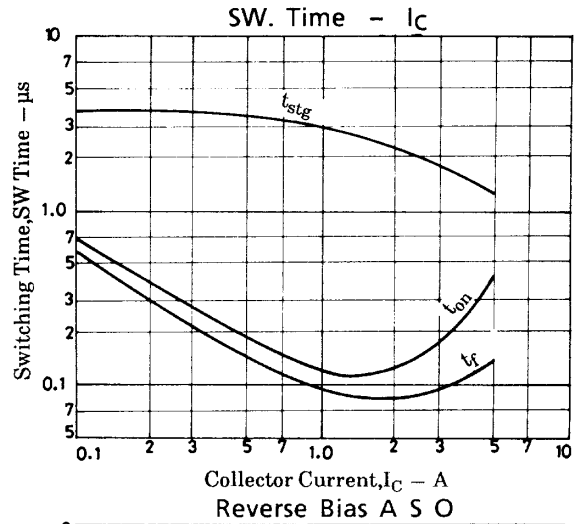
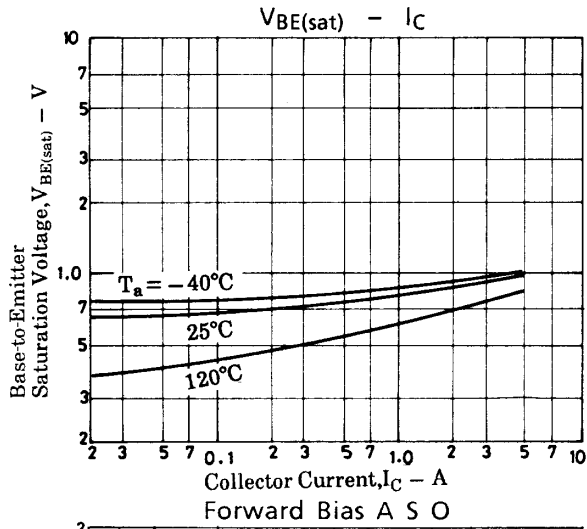
## 2SC4600

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=0.6A$		18		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, f=1MHz$		80		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=3A, I_B=0.6A$			1.0	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=3A, I_B=0.6A$			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	800			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	500			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	7			V
Collector-to-Emitter Sustain Voltage	$V_{CEO(sus)}$	$I_C=5A, I_{B1}=1A, L=50\mu H$	500			V
	$V_{CEX(sus)}$	$I_C=2.5A, I_{B1}=-I_{B2}=1A, L=1mH, \text{clamped}$	500			V
Turn-ON Time	$t_{on}$	$I_C=4A, I_{B1}=0.8A, I_{B2}=-1.6A, R_L=50\Omega, V_{CC}=200V$			0.5	$\mu s$
Storage Time	$t_{stg}$	$I_C=4A, I_{B1}=0.8A, I_{B2}=-1.6A, R_L=50\Omega, V_{CC}=200V$			3.0	$\mu s$
Fall Time	$t_f$	$I_C=4A, I_{B1}=0.8A, I_{B2}=-1.6A, R_L=50\Omega, V_{CC}=200V$			0.3	$\mu s$

### Switching Time Test Circuit



# 2SC4600



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