



Switching Regulator Applications

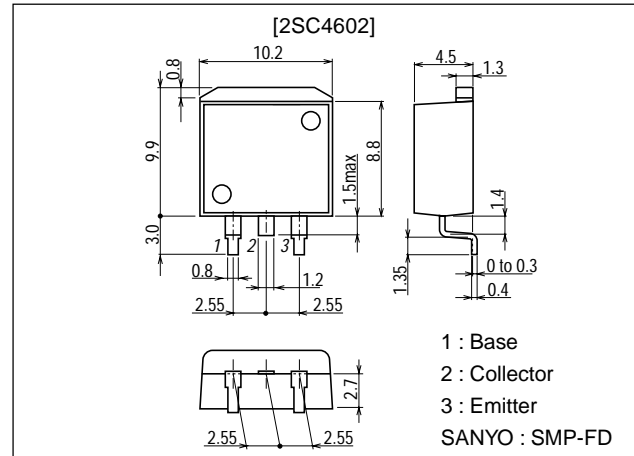
Features

- Surface mount type device making the following possible.
- Reduction in the number of manufacturing processes for 2SC4602-applied equipment.
- High density surface mount applications.
- Small size of 2SC4602-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 $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		1100	V
Collector-to-Emitter Voltage	V_{CE0}		800	V
Emitter-to-Base Voltage	V_{EBO}		7	V
Collector Current	I_C		3	A
Collector Current (Pulse)	I_{CP}	$PW \leq 300\mu\text{s}$, duty cycle $\leq 10\%$	10	A
Base Current	I_B		1.5	A
Collector Dissipation	P_C		1.65	W
		$T_c = 25^\circ\text{C}$	50	W
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB} = 800\text{V}$, $I_E = 0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5\text{V}$, $I_C = 0$			10	μA
DC Current Gain	h_{FE1}	$V_{CE} = 5\text{V}$, $I_C = 0.2\text{A}$	10*		40*	
	h_{FE2}	$V_{CE} = 5\text{V}$, $I_C = 1\text{A}$	8			

* : For the h_{FE1} of the 2SC4602, specify two ranks or more in principle.

10	K	20	15	L	30	20	M	40
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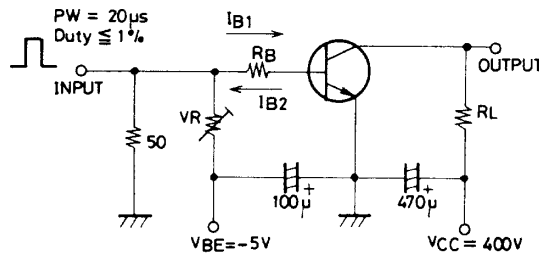
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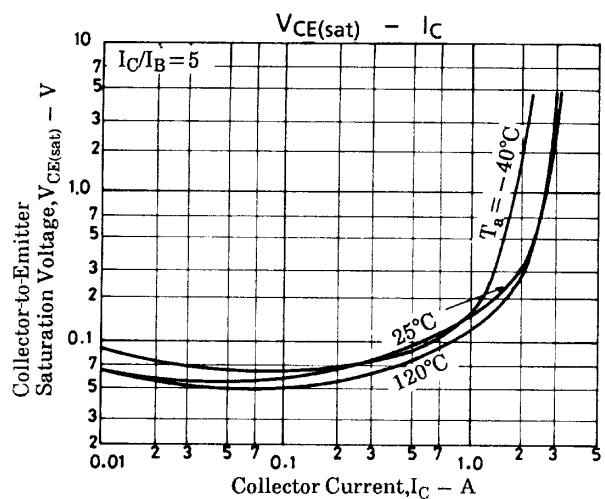
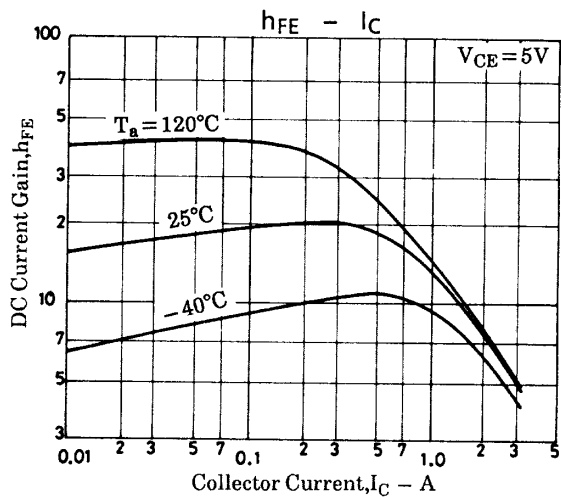
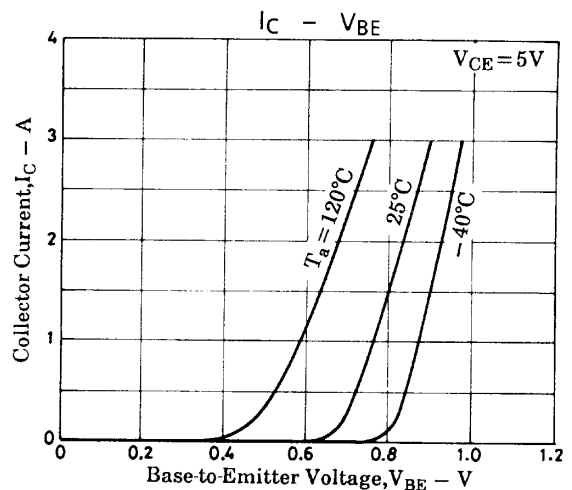
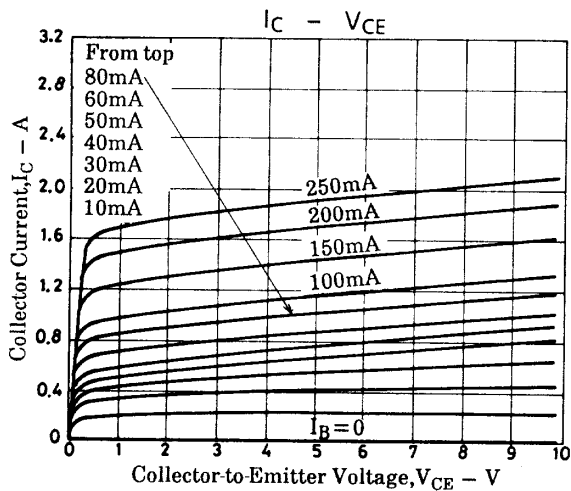
2SC4602

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=0.2A$		15		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		60		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1.5A, I_B=0.3A$			2.0	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1.5A, I_B=0.3A$			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	1100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	800			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	7			V
Collector-to-Emitter Sustain Voltage	$V_{CEO(sus)}$	$I_C=1.5A, I_{B1}=-I_{B2}=0.3A, L=2mH, \text{clamped}$	800			V
Turn-ON Time	t_{on}	$I_C=2A, I_{B1}=0.4A, I_{B2}=-0.8A, R_L=200\Omega, V_{CC}=400V$			0.5	μs
Storage Time	t_{stg}	$I_C=2A, I_{B1}=0.4A, I_{B2}=-0.8A, R_L=200\Omega, V_{CC}=400V$			3.0	μs
Fall Time	t_f	$I_C=2A, I_{B1}=0.4A, I_{B2}=-0.8A, R_L=200\Omega, V_{CC}=400V$			0.3	μs

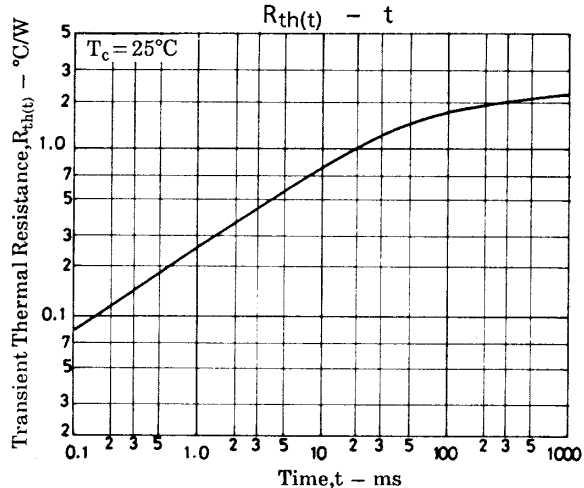
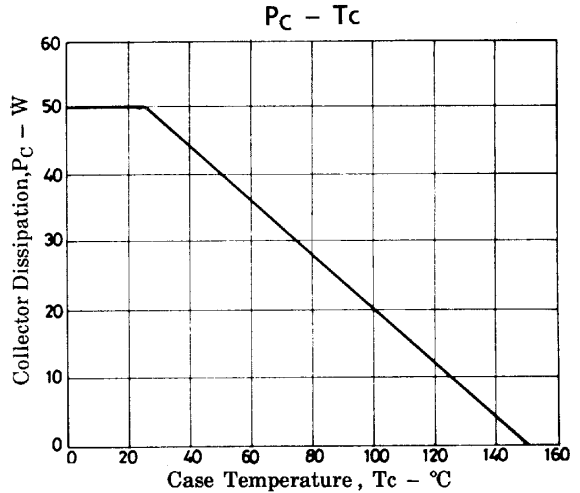
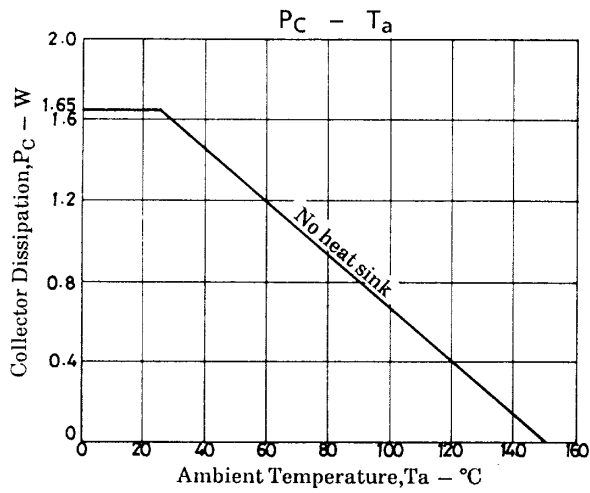
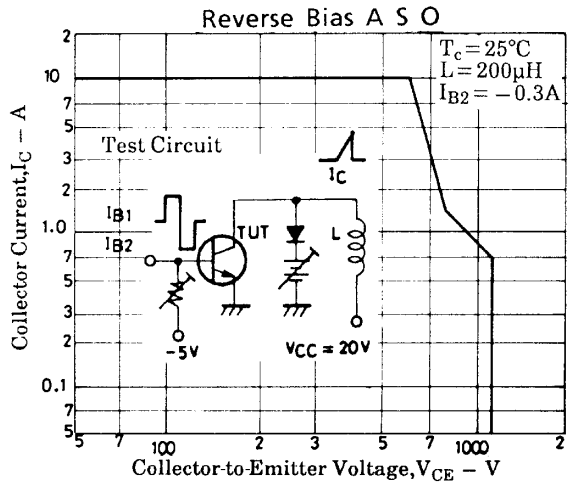
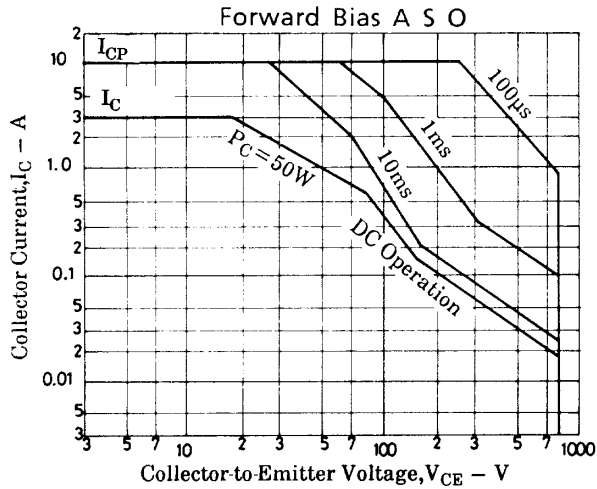
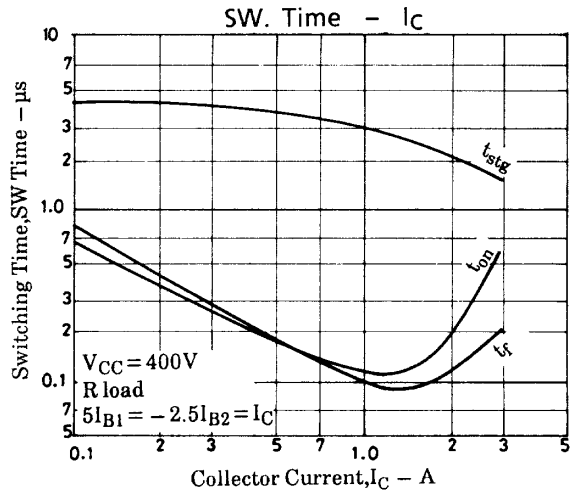
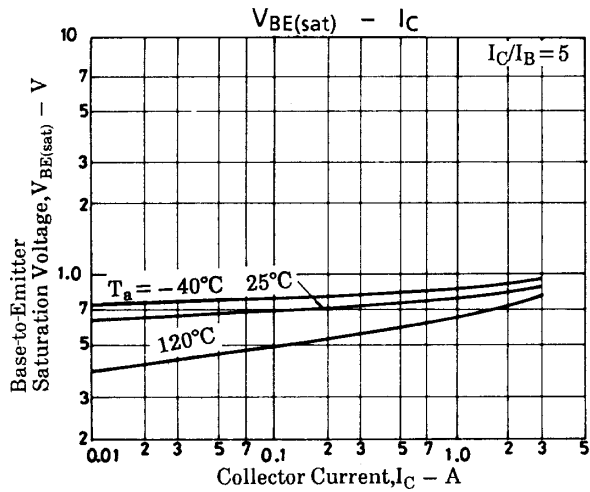
Switching Time Test Circuit



Unit (resistance : Ω , capacitance : F)



2SC4602



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