



No.1576C

**2SC3450**

NPN Triple Diffused Planar Silicon Transistor

Switching Regulator Applications

**Features**

- High breakdown voltage and high reliability
- Fast switching speed ( $t_f$ : 0.1 $\mu$ s typ.)
- Wide ASO
- Adoption of MBIT process

**Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$**

Parameter	Symbol	Condition	Value	Unit
Collector-to-Base Voltage	$V_{CBO}$		800	V
Collector-to-Emitter Voltage	$V_{CEO}$		500	V
Emitter-to-Base Voltage	$V_{EBO}$		7	V
Collector Current	$I_C$		10	A
Peak Collector Current	$i_{cp}$	$PW \leq 300\mu\text{s}, \text{Duty cycle} \leq 10\%$	20	A
Base Current	$I_B$		3	A
Collector Dissipation	$P_C$	$T_c=25^\circ\text{C}$	90	W
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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

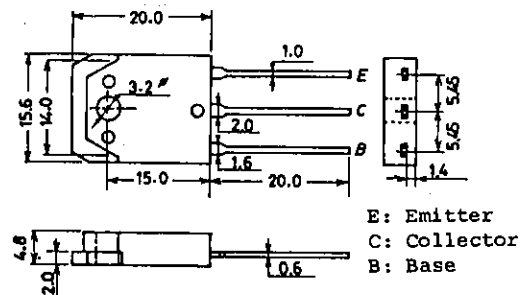
Parameter	Symbol	Condition	min	typ	max	Unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=500\text{V}, I_E=0$			10	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$			10	$\mu\text{A}$
DC Current Gain	$h_{FE}(1)$	$V_{CE}=5\text{V}, I_C=0.8\text{A}$	15*		50*	
	$h_{FE}(2)$	$V_{CE}=5\text{V}, I_C=4\text{A}$	8			
Gain-Bandwidth Product	$f_T$	$V_{CE}=10\text{V}, I_C=0.8\text{A}$		18		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, f=1\text{MHz}$		120		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=4\text{A}, I_B=0.8\text{A}$			1.0	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=4\text{A}, I_B=0.8\text{A}$			1.5	V
C-B Breakdown Voltage	$V(BR)_{CBO}$	$I_C=1\text{mA}, I_E=0$	800			V
C-E Breakdown Voltage	$V(BR)_{CEO}$	$I_C=5\text{mA}, R_{BE}=\infty$	500			V
E-B Breakdown Voltage	$V(BR)_{EBO}$	$I_E=1\text{mA}, I_C=0$	7			V

\*: The  $h_{FE}(1)$  of the 2SC3450 is classified as follows. When specifying the  $h_{FE}(1)$  rank, specify two ranks or more in principle

15	L	30	20	M	40	30	N	50
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**Package Dimensions 2022**  
(unit:mm)

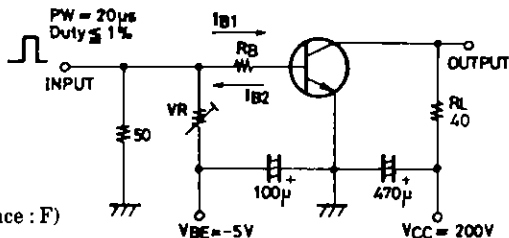


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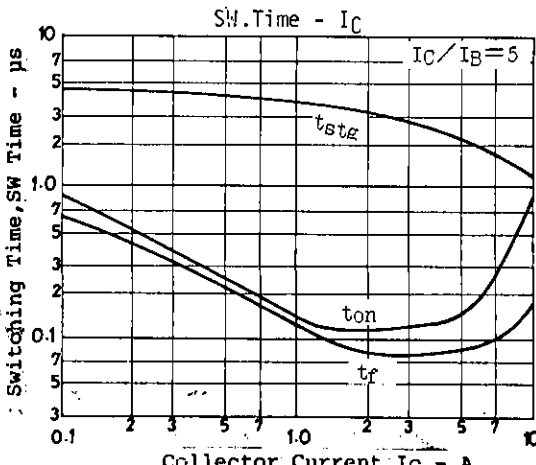
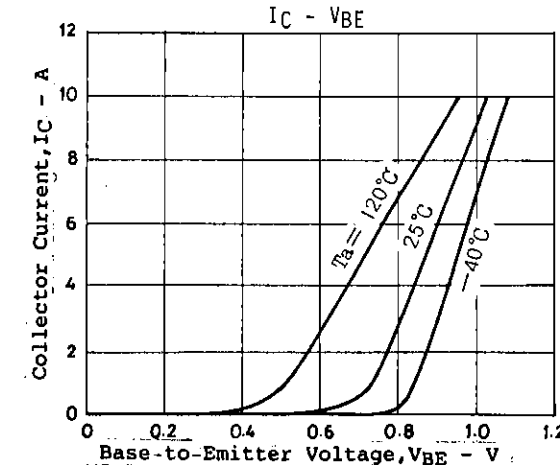
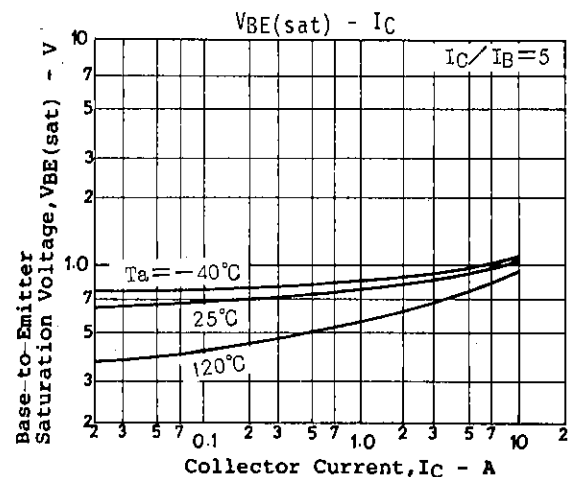
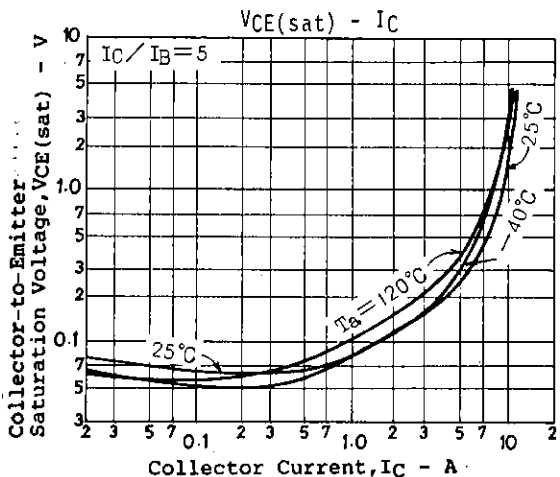
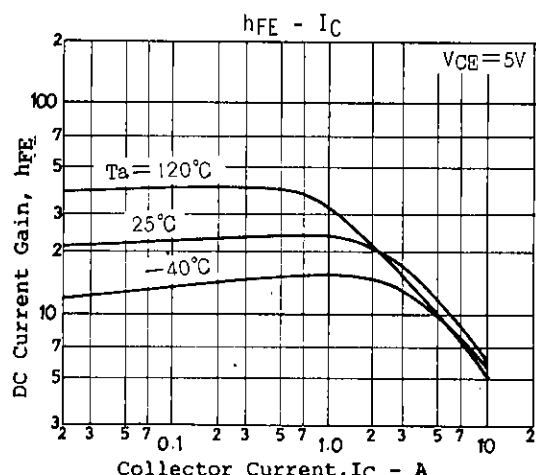
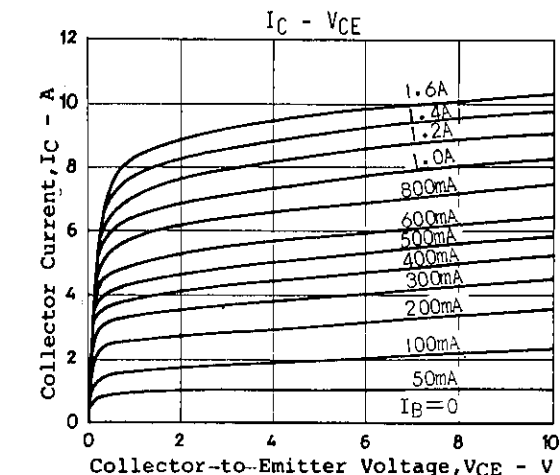
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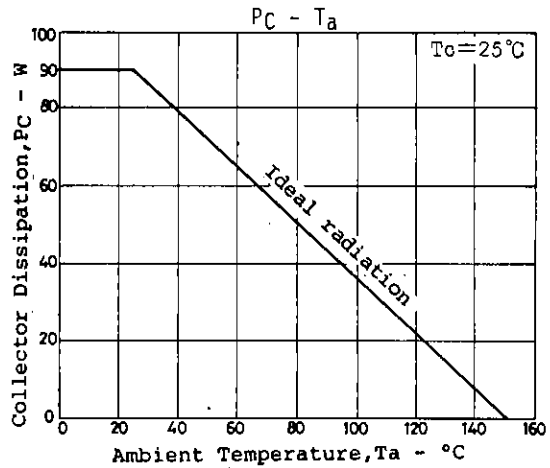
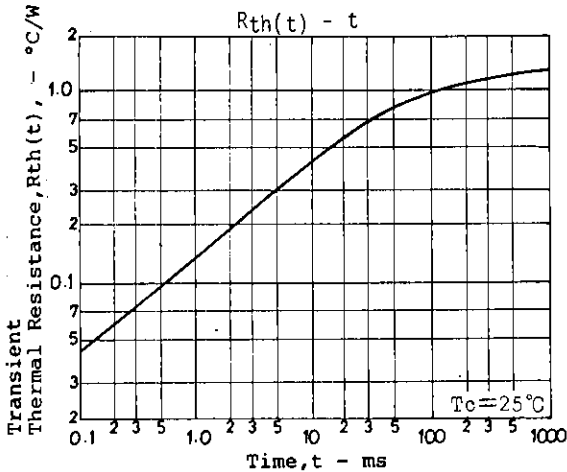
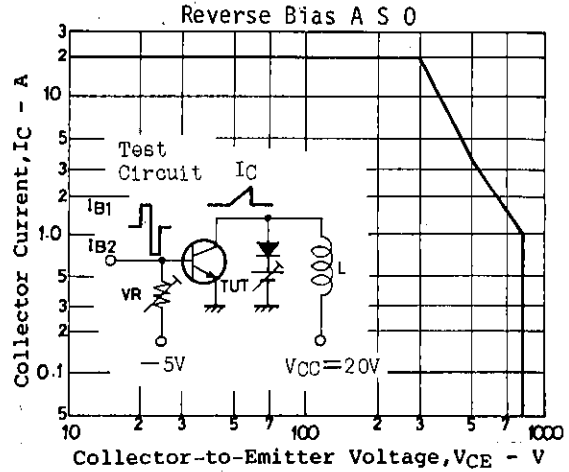
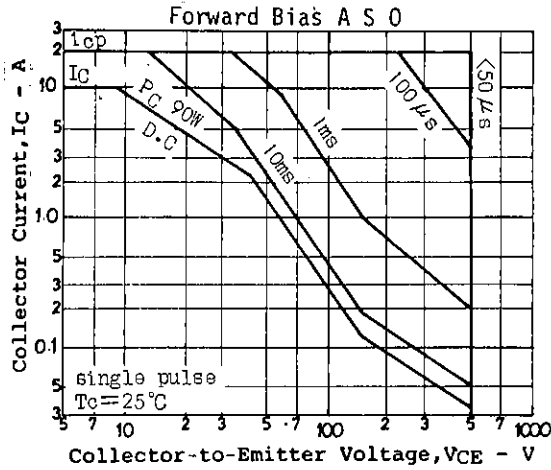
			min	typ	max	unit
C-E Sustain Voltage	$V_{CEX(sus)}$	$I_C=3.5A$	500			V
		$I_{B1}=-I_{B2}=1.4A,$				
		$L=500\mu H, \text{clamped}$				
Turn-on Time	$t_{on}$	$\left\{ \begin{array}{l} V_{CC}=200V, \\ 5I_{B1}=-2.5I_{B2}=I_C=5A, \\ R_L=40\text{ohms} \end{array} \right\}$			0.5	$\mu s$
Storage Time	$t_{stg}$				3.0	$\mu s$
Fall Time	$t_f$				0.3	$\mu s$

Switching Time Test Circuit



Unit (Resistance :  $\Omega$ , Capacitance : F)





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