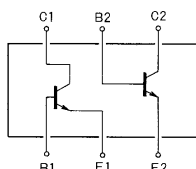


SANYO**FC140**

NPN Epitaxial Planar Silicon Composite Transistor

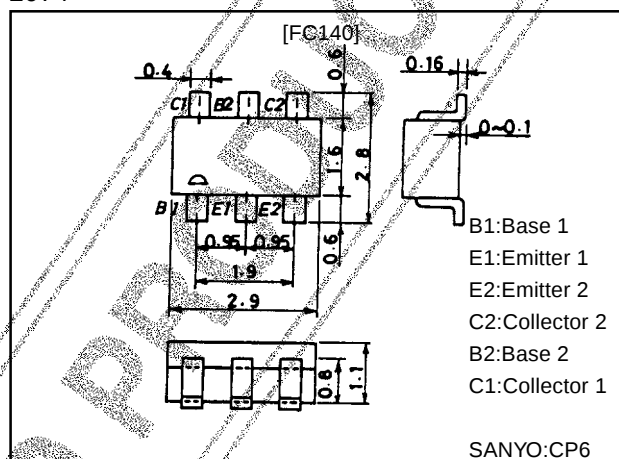
High-Speed Switching Applications**Features**

- Composite type with 2 transistors contained in the CP package currently in use, improving the mounting efficiency greatly.
- Small output capacitance, high gain-bandwidth product.
- The FC140 is formed with two chips, being equivalent to the 2SC4452, placed in one package.

Electrical Connection**Package Dimensions**

unit:mm

2074

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		40	V
Collector-to-Emitter Voltage	V_{CES}		40	V
Collector-to-Emitter Voltage	V_{CEO}		15	V
Emitter-to-Base Voltage	V_{EBO}		5	V
Collector Current	I_C		200	mA
Collector Current (Pulse)	I_{CP}		500	mA
Base Current	I_B		40	mA
Collector Dissipation	P_C	1 unit	200	mW
Total Power Dissipation	P_T		300	mW
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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

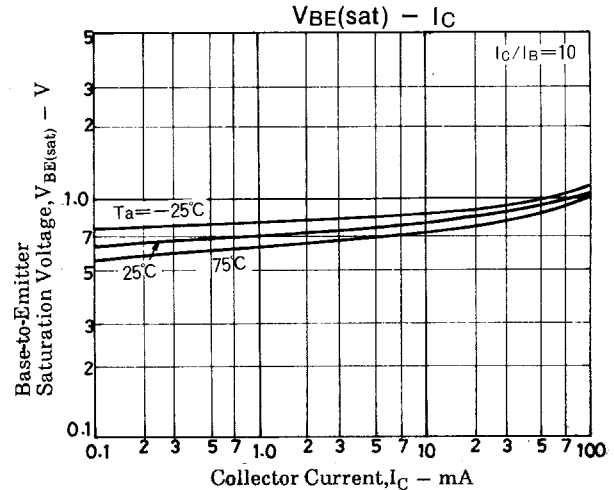
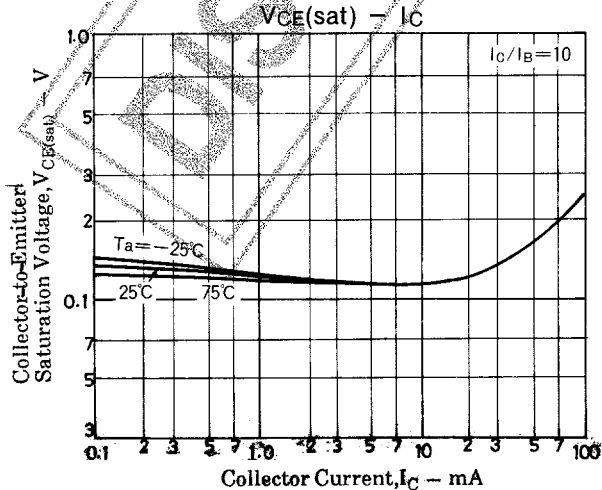
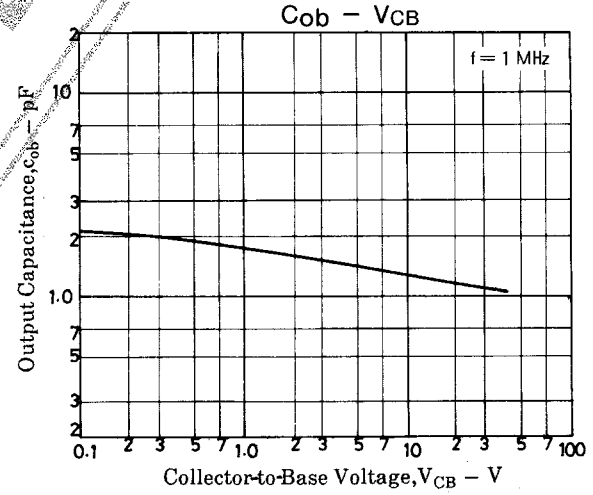
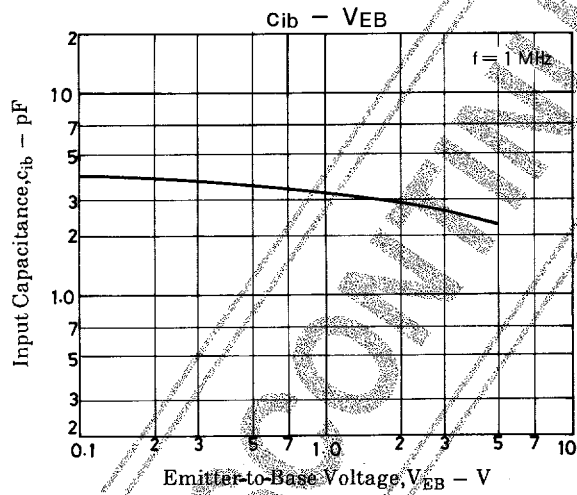
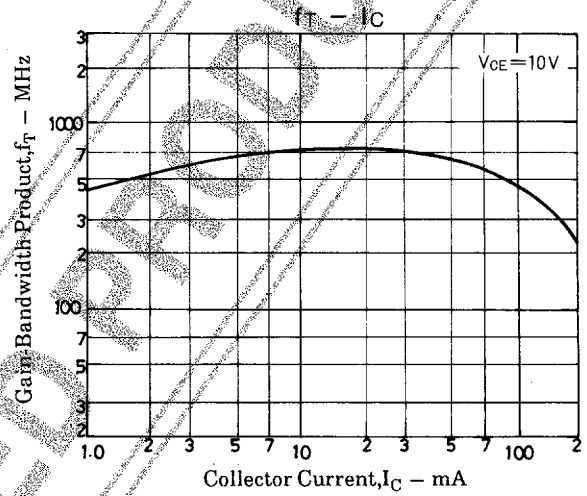
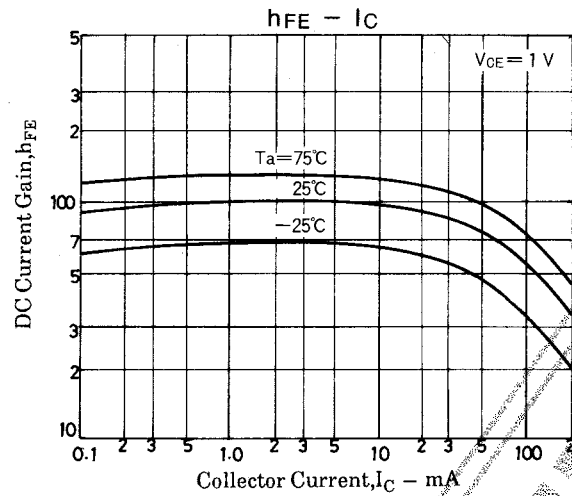
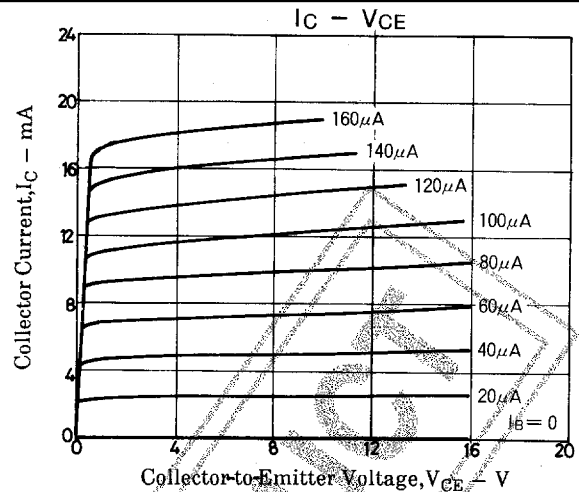
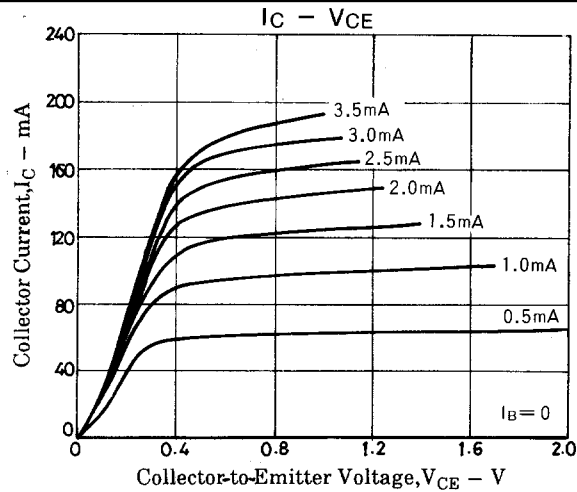
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=20\text{V}, I_E=0$			0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=3\text{V}, I_C=0$			0.1	μA
DC Current Gain	β_{FE}	$V_{CE}=1\text{V}, I_C=10\text{mA}$	90		240	
DC Current Gain Ratio	$\beta_{FE}(\text{small/large})$	$V_{CE}=1\text{V}, I_C=10\text{mA}$	0.6	0.98		
Gain-Bandwidth Product	f_T	$V_{CE}=10\text{V}, I_C=10\text{mA}$	450	750		MHz
Output Capacitance	C_{ob}	$V_{CB}=5\text{V}, f=1\text{MHz}$		1.4	4.0	pF
C-E Saturation Voltage	$V_{CE}(\text{sat})$	$I_C=10\text{mA}, I_B=1\text{mA}$		0.13	0.25	V
B-E Saturation Voltage	$V_{BE}(\text{sat})$	$I_C=10\text{mA}, I_B=1\text{mA}$		0.80	0.85	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	40			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	15			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		8.0		ns
Storage Time	t_{stg}	See specified Test Circuit.		6.0		ns
Turn-OFF Time	t_{off}	See specified Test Circuit.		12		ns

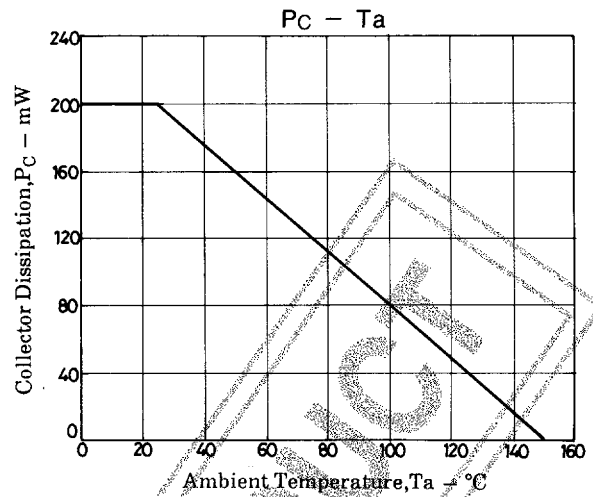
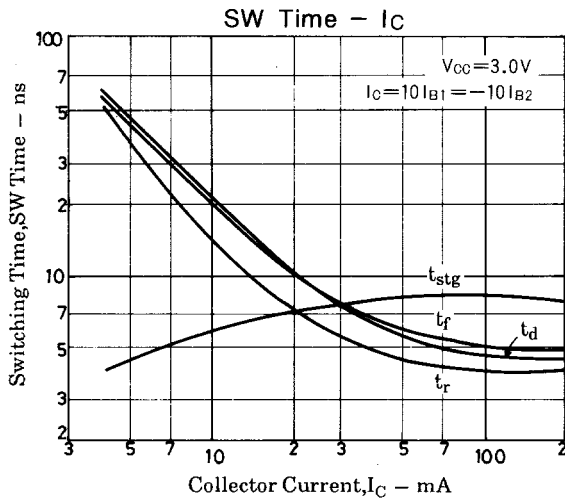
Note: The specifications shown above are for each individual transistor.

Marking: 140

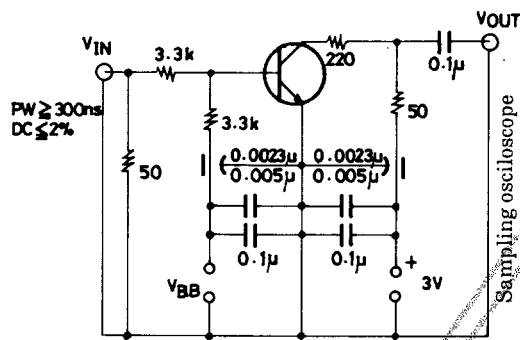
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TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

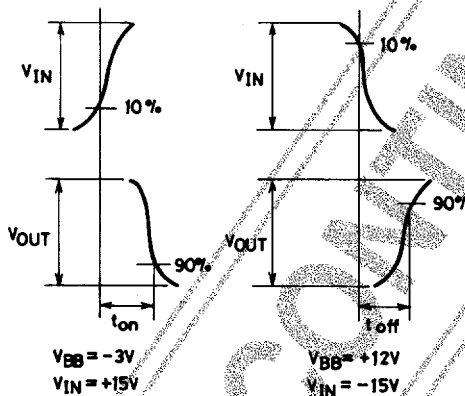




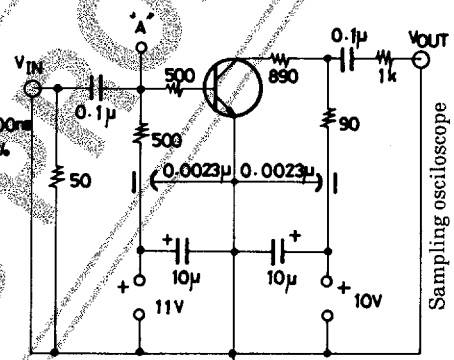
t_{on} , t_{off} Test Current



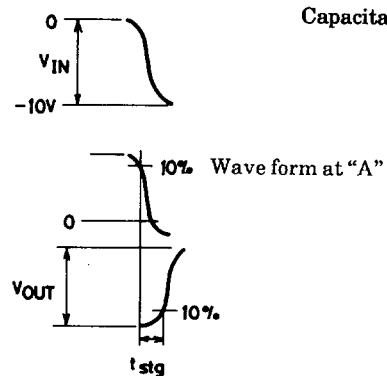
Unit (Resistance : Ω , Capacitance : F)



t_{stg} Test Circuit



Unit (Resistance : Ω , Capacitance : F)



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