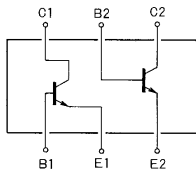


**FC140**

NPN Epitaxial Planar Silicon Composite Transistor

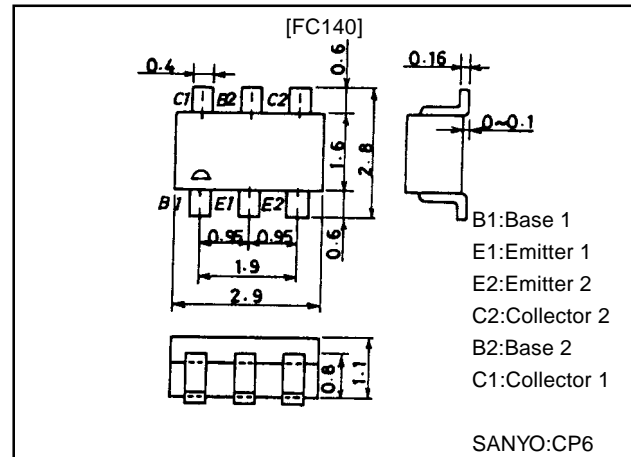
**High-Speed Switching Applications****Features**

- 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 Ta = 25°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	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=20V, I_E=0$			0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=3V, I_C=0$			0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=1V, I_C=10mA$	90		240	
DC Current Gain Ratio	$h_{FE}(\text{small/large})$	$V_{CE}=1V, I_C=10mA$	0.6	0.98		
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=10mA$	450	750		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=5V, f=1MHz$		1.4	4.0	pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=1mA$	0.13	0.25		V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=10mA, I_B=1mA$	0.80	0.85		V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	40			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	15			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	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

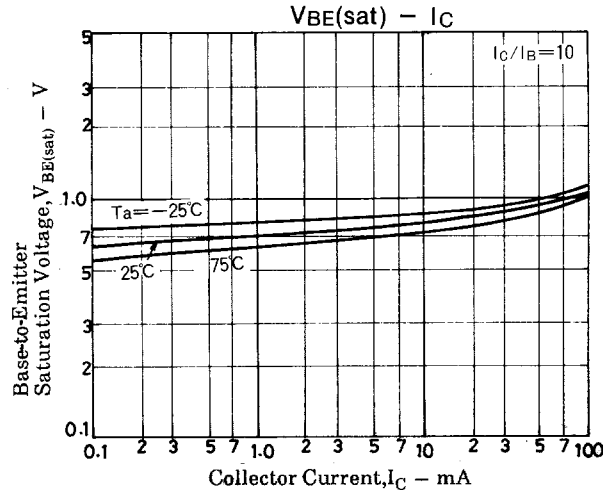
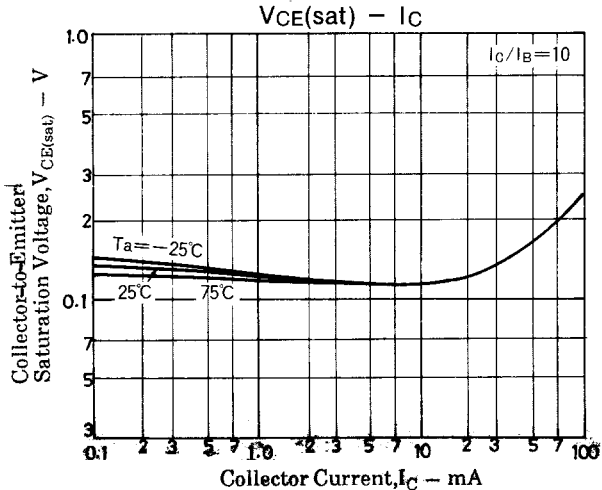
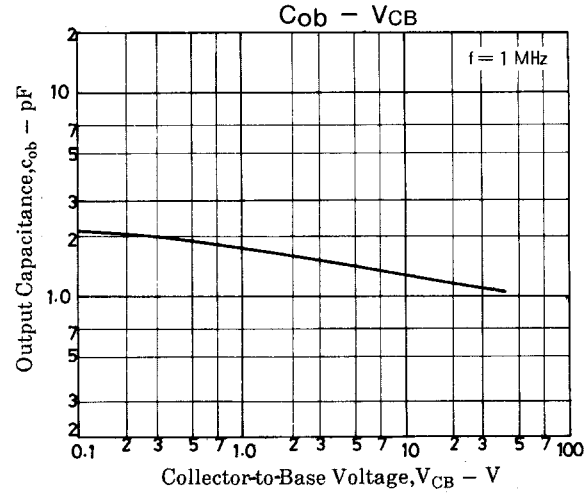
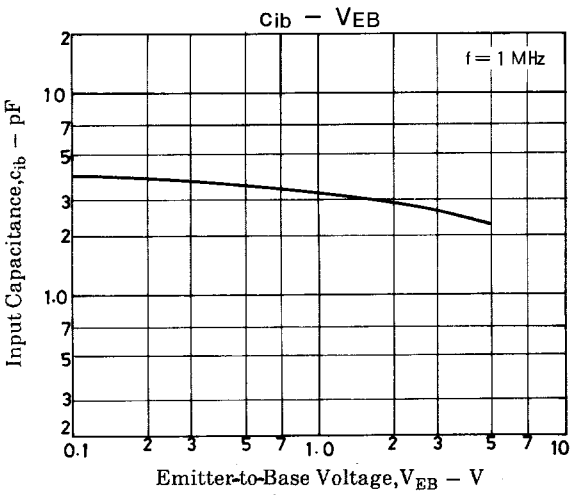
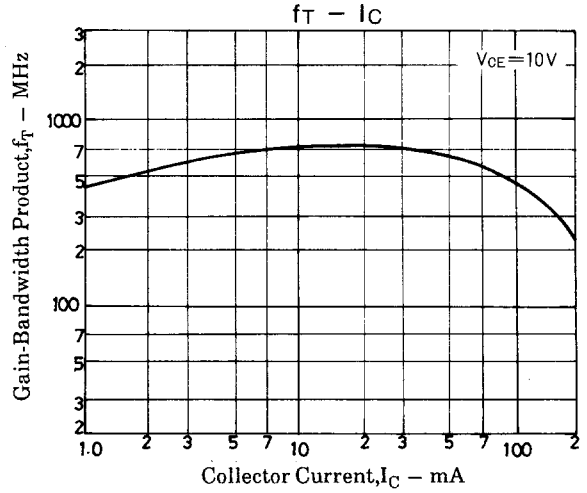
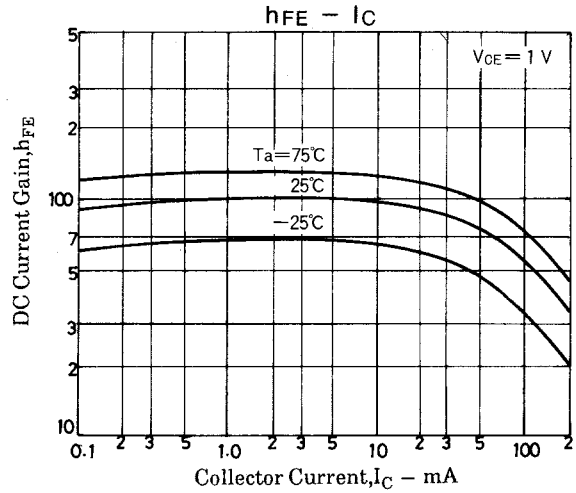
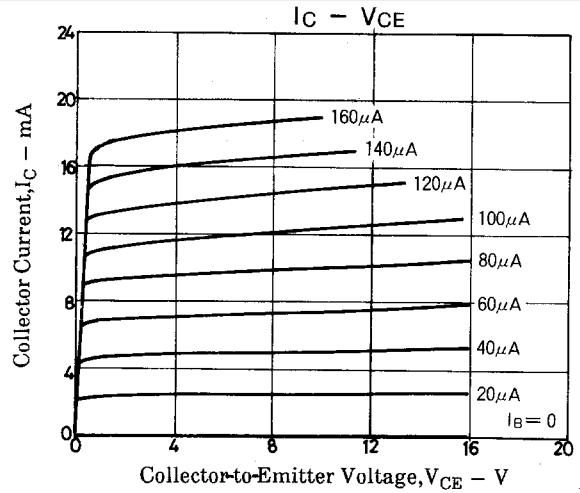
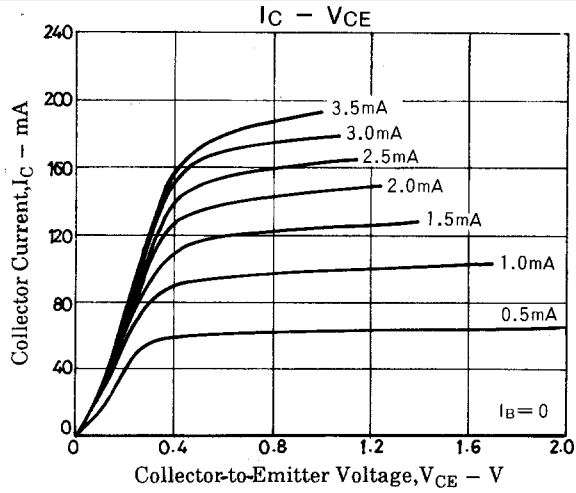
Note:The specifications shown above are for each individual transistor.

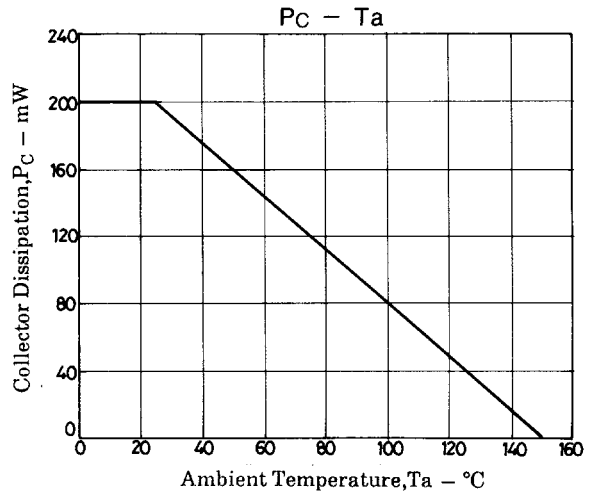
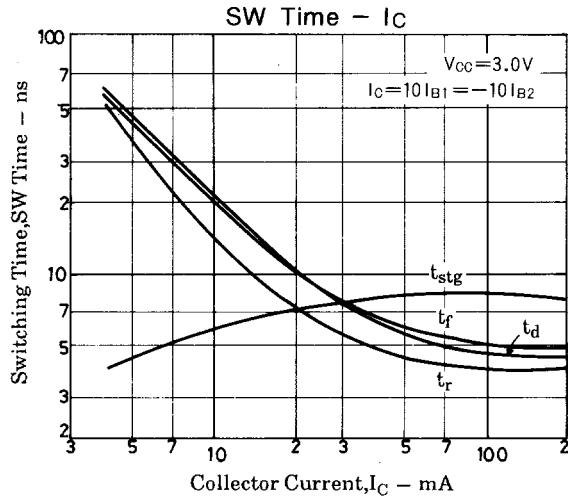
Marking:140

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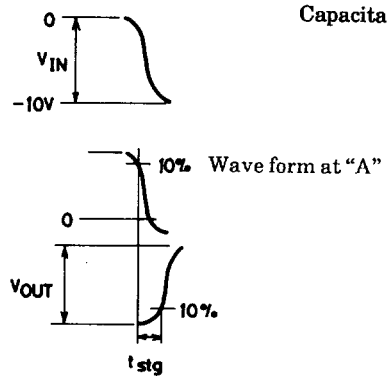
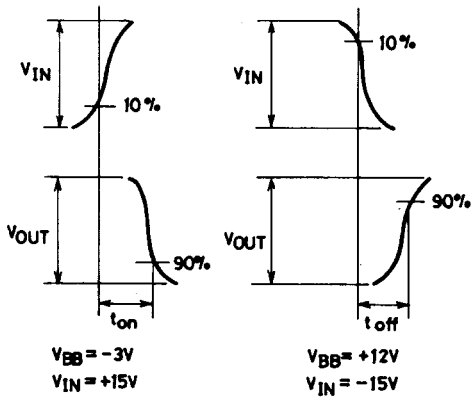
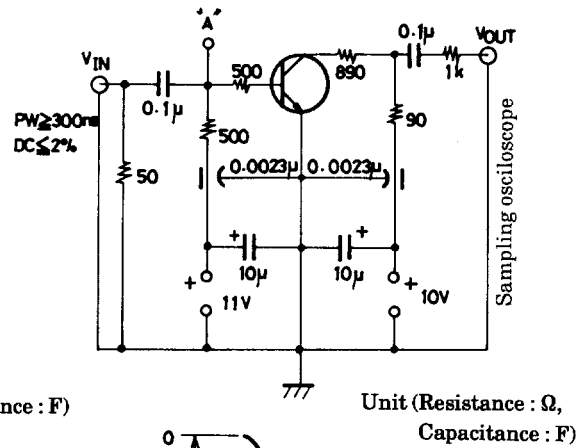
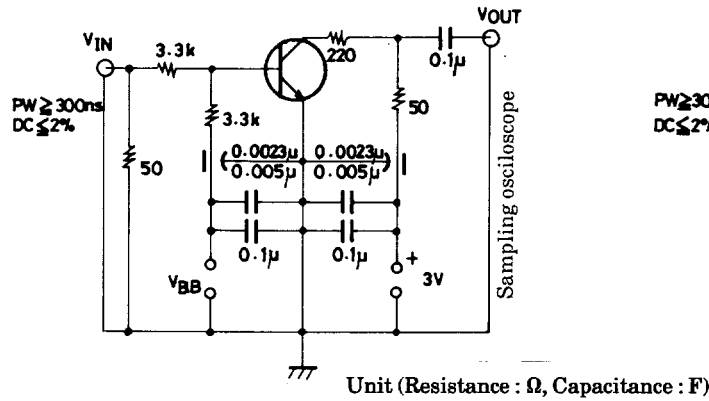
# FC140





$t_{on}$ ,  $t_{off}$  Test Current

$t_{stg}$  Test Circuit



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