



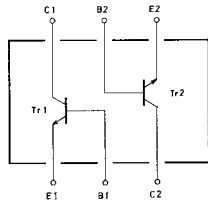
# FC139

## NPN Epitaxial Planar Silicon Composite Transistor Low-Frequency General-Purpose Amp, General Driver Applications

### Features

- Composite type with 2 transistors contained in the CP package currently in use, improving the mounting efficiency greatly.
- The FC139 is formed with two chips, being equivalent to the 2SC3689, placed in one package.
- Adoption of FBET process.
- High DC current gain ( $h_{FE}=800$  to 3200).
- High  $V_{EBO}$  ( $V_{EBO} \geq 15V$ )
- Excellent in thermal equilibrium and pair capability.

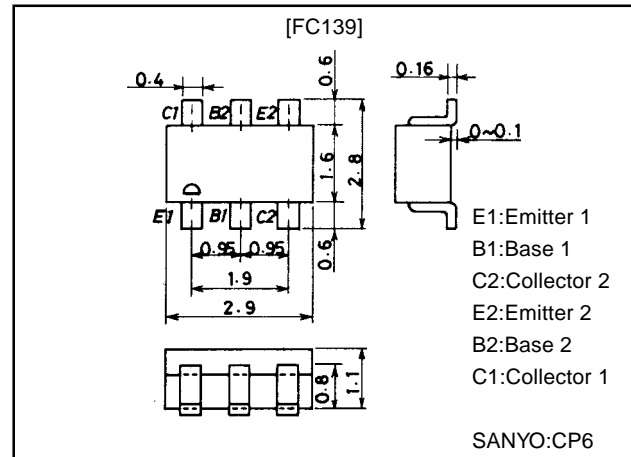
### Electrical Connection



### Package Dimensions

unit:mm

2067



### Specifications

#### Absolute Maximum Ratings at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		60	V
Collector-to-Emitter Voltage	$V_{CEO}$		50	V
Emitter-to-Base Voltage	$V_{EBO}$		15	V
Collector Current	$I_C$		100	mA
Collector Current (Pulse)	$I_{CP}$		200	mA
Base Current	$I_B$		20	mA
Collector Dissipation	$P_C$	1 unit	200	mW
Total Dissipation	$P_T$		300	mW
Junction Temperature	$T_J$		150	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ C$

#### Electrical Characteristics at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=40V, I_E=0$			0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=10V, I_C=0$			0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=5V, I_C=10mA$	800	1500	3200	
DC Current Gain Ratio	$h_{FE}(\text{small/large})$	$V_{CE}=5V, I_C=10mA$	0.8	0.98		
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=10mA$		200		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, f=1MHz$		1.5		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=50mA, I_B=1mA$		0.1	0.5	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=50mA, I_B=1mA$		0.8	1.1	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	60			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	50			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	15			V

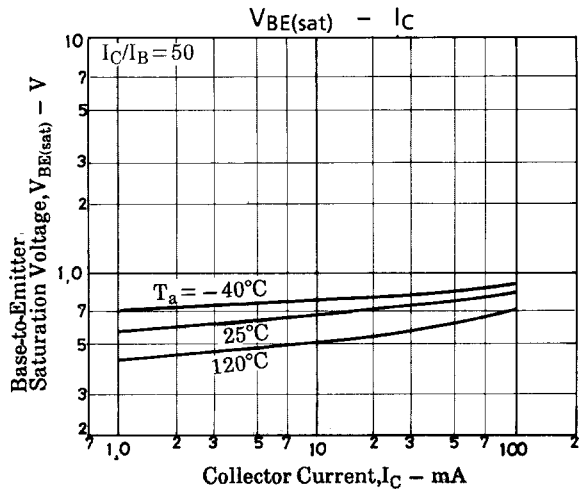
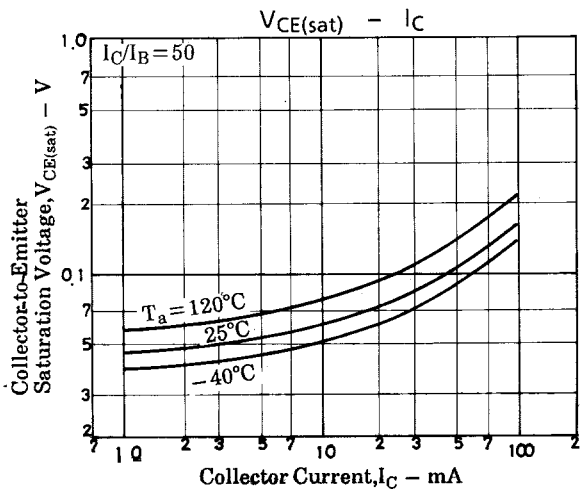
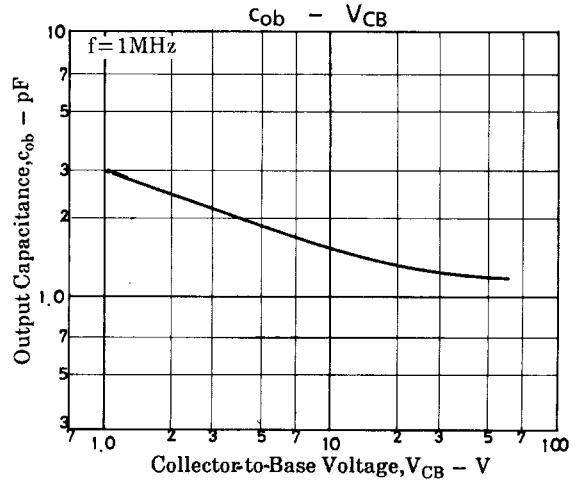
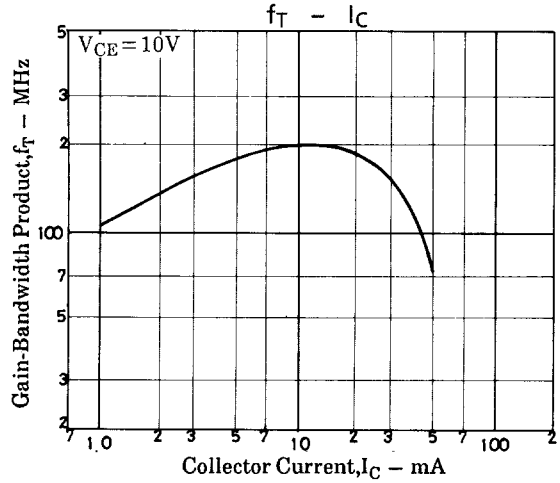
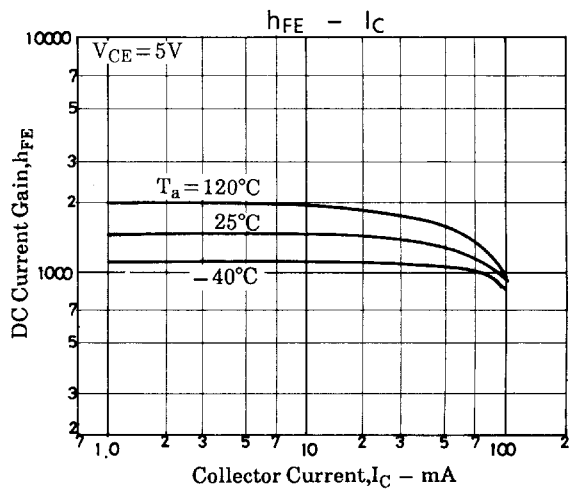
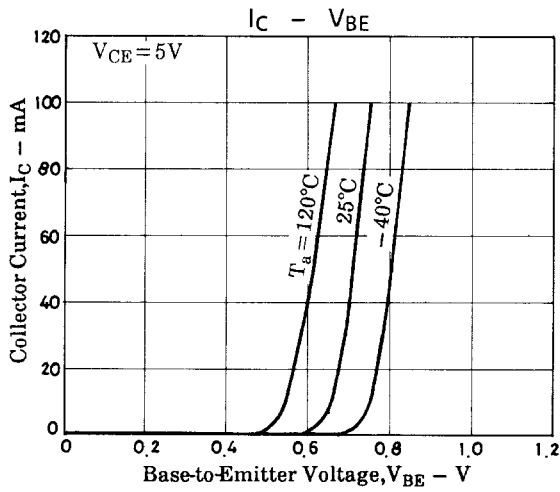
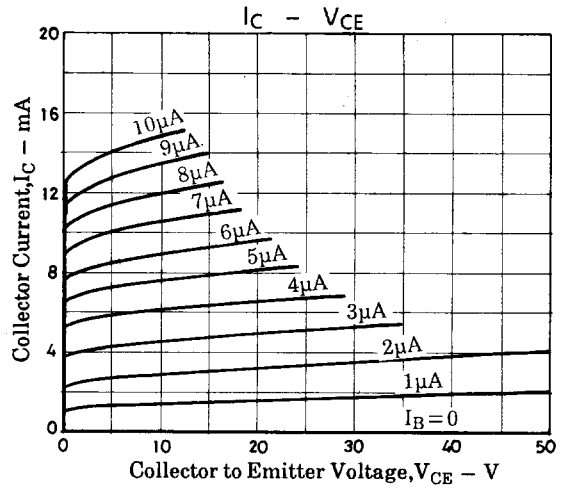
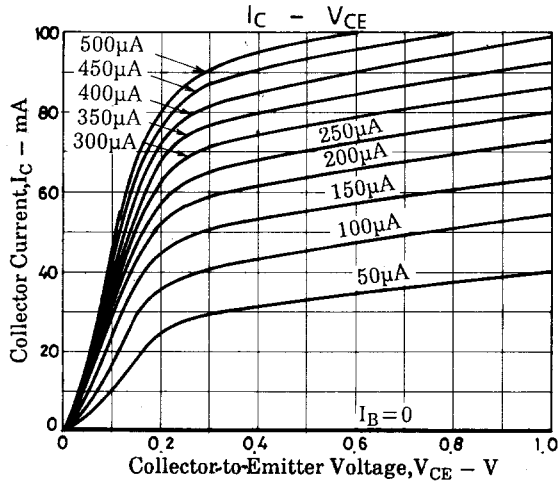
Note: The specifications shown above are for each individual transistor.

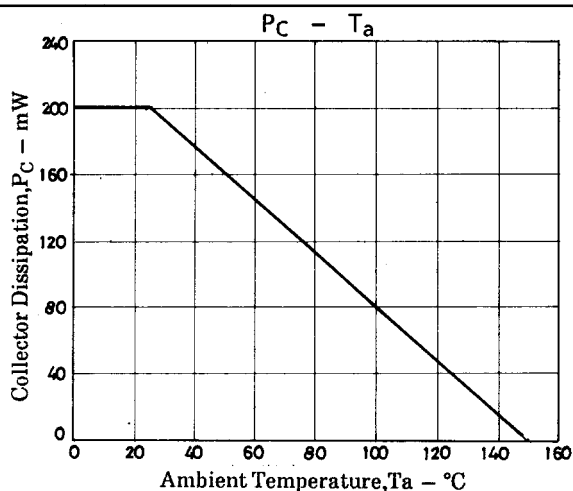
Marking:139

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# FC139





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