

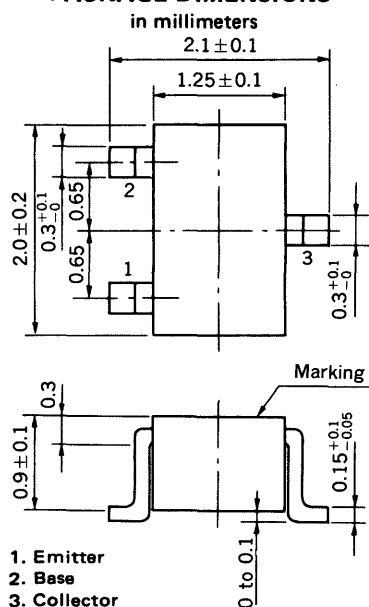
SILICON TRANSISTORS

2SC4181, 2SC4181A

AUDIO FREQUENCY AMPLIFIER, SWITCHING

NPN SILICON EPITAXIAL TRANSISTORS

PACKAGE DIMENSIONS



FEATURES

- High DC Current Gain : $h_{FE} = 1\,000$ to $3\,200$
- Low $V_{CE(sat)}$: $V_{CE(sat)} = 0.07\text{ V TYP.}$
- High V_{EBO} : $V_{EBO} = 15\text{ V (2SC4181A)}$

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Current ($T_a = 25^\circ\text{C}$)		2SC4181	2SC4181A	
Collector to Base Voltage	V_{CBO}	60		V
Collector to Emitter Voltage	V_{CEO}	50		V
Emitter to Base Voltage	V_{EBO}	12	15	V
Collector Current (DC)	I_C	150		mA
Maximum Power Dissipation				
Total Power Dissipation at 25°C Ambient Temperature	P_T	150		mW
Maximum Temperatures				
Junction Temperature	T_j	150		$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150		$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

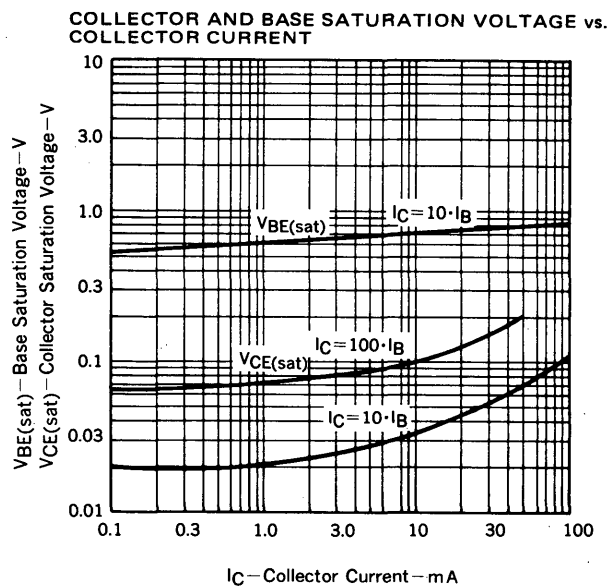
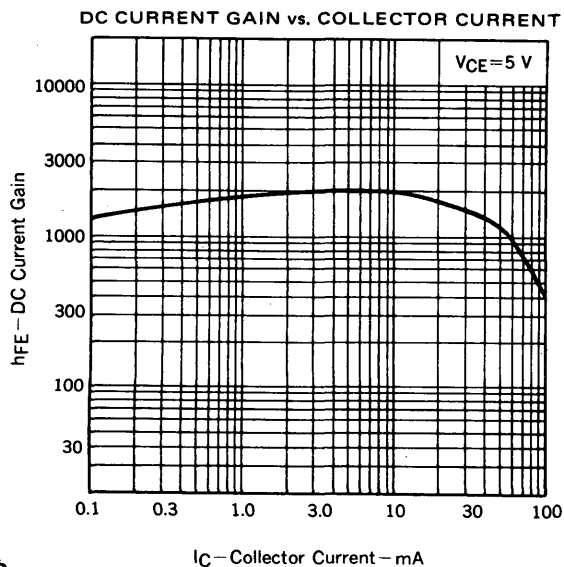
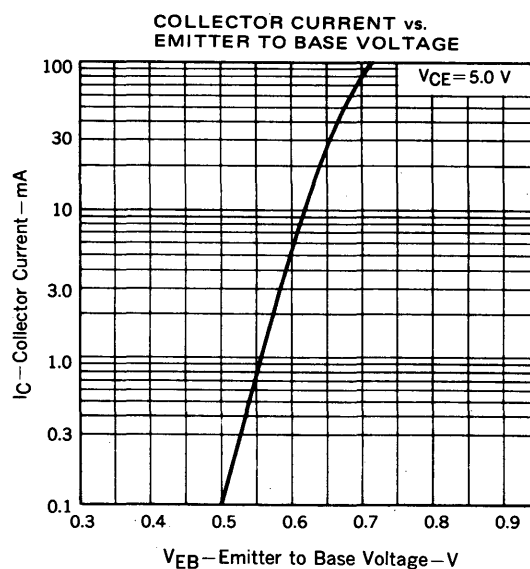
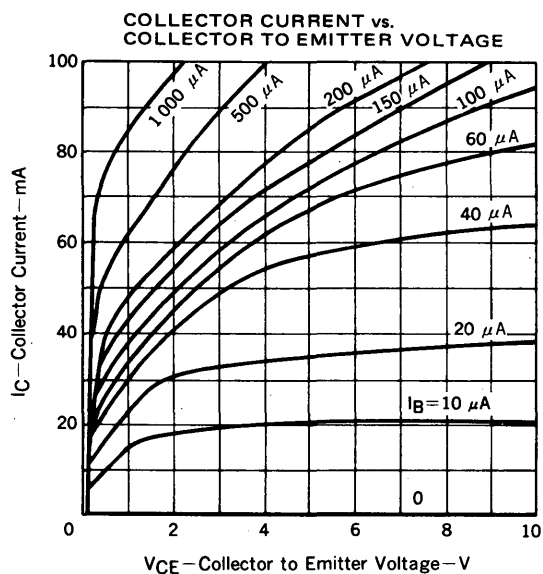
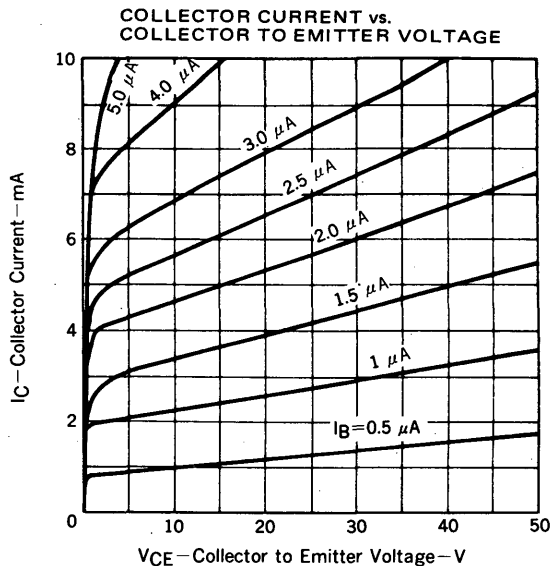
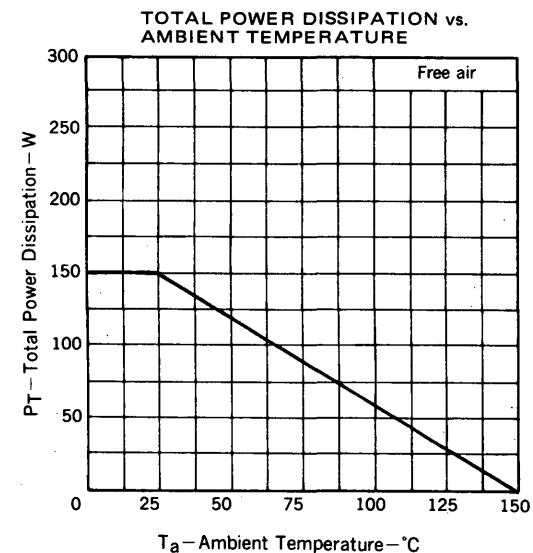
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			100	nA	$V_{CB} = 50\text{ V}, I_E = 0$
Emitter Cutoff Current	I_{EBO}			100	nA	$V_{EB} = 10\text{ V}, I_C = 0$
DC Current Gain	h_{FE1}^*	1000	1800	3200		$V_{CE} = 5.0\text{ V}, I_C = 1.0\text{ mA}$
DC Current Gain	h_{FE2}^*	200	350			$V_{CE} = 5.0\text{ V}, I_C = 100\text{ mA}$
Base to Emitter Voltage	V_{BE}^*		0.56		V	$V_{CE} = 5.0\text{ V}, I_C = 1.0\text{ mA}$
Collector Saturation Voltage	$V_{CE(sat)}^*$		0.07	0.3	V	$I_C = 50\text{ mA}, I_B = 5.0\text{ mA}$
Base Saturation Voltage	$V_{BE(sat)}^*$		0.8	1.2	V	$I_C = 50\text{ mA}, I_B = 5.0\text{ mA}$
Gain Bandwidth Product	f_T		250		MHz	$V_{CE} = 5.0\text{ V}, I_E = -10\text{ mA}$
Output Capacitance	C_{ob}		3.0		pF	$V_{CB} = 5\text{ V}, I_E = 0, f = 1.0\text{ MHz}$
Turn-on Time	t_{on}		0.13		ns	$V_{CC} = 10\text{ V}, V_{BE(off)} = -2.7\text{ V}$ $I_C = 50\text{ mA}$ $I_{B1} = -I_{B2} = 1.0\text{ mA}$
Storage Time	t_{stg}		0.72		ns	
Turn-off Time	t_{off}		1.22		ns	

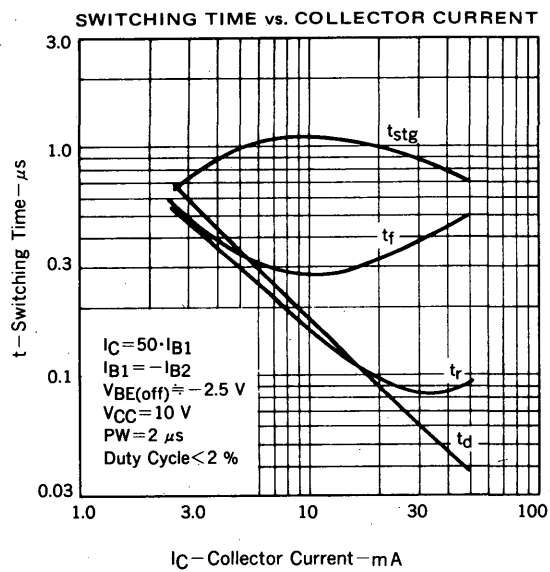
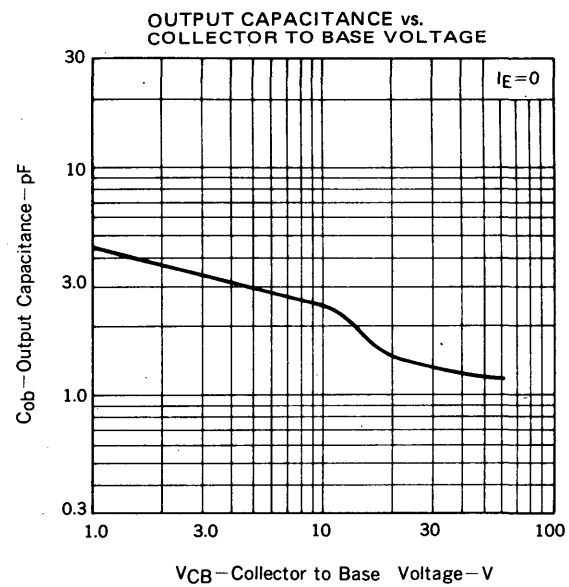
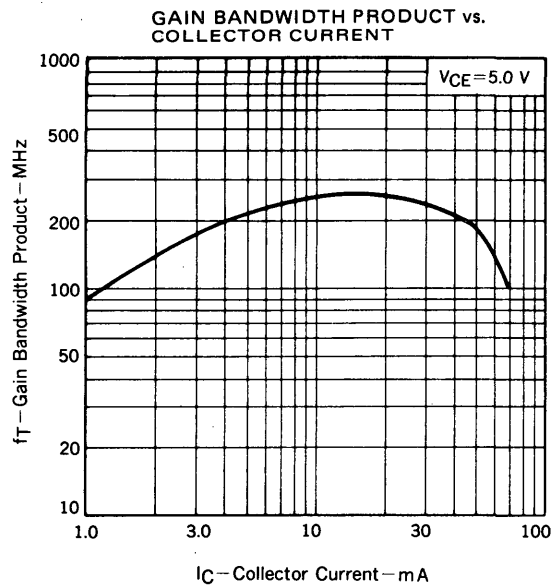
*Pulsed: $PW \leq 350\text{ }\mu\text{s}$, Duty Cycle $\leq 2\%$

h_{FE} Classification

Marking	2SC4181	L17	L18
	2SC4181A	L15	L16
h_{FE1}		1000 to 2000	1600 to 3200

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)





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