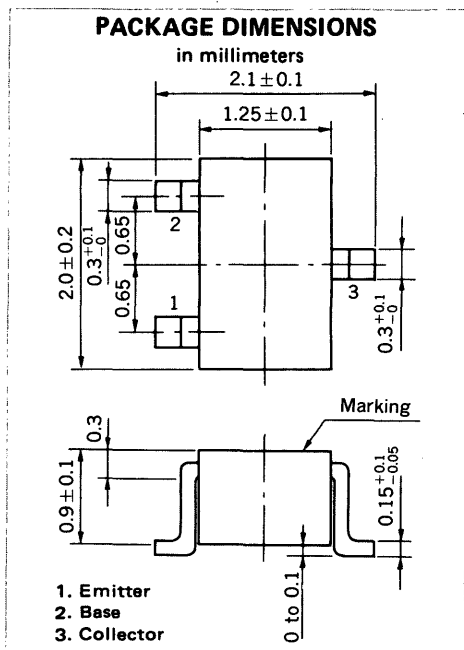


SILICON TRANSISTORS

2SC4181, 2SC4181A

AUDIO FREQUENCY AMPLIFIER, SWITCHING

NPN SILICON EPITAXIAL TRANSISTORS



FEATURES

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

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Current ($T_a = 25\ ^\circ C$)		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 $25\ ^\circ C$ Ambient Temperature	P_T	150		mW
Maximum Temperatures				
Junction Temperature	T_j	150		$^\circ C$
Storage Temperature Range	T_{stg}	-55 to +150		$^\circ C$

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

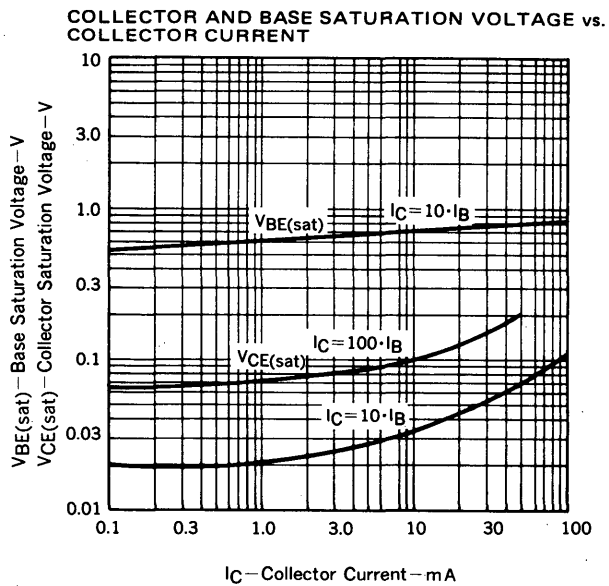
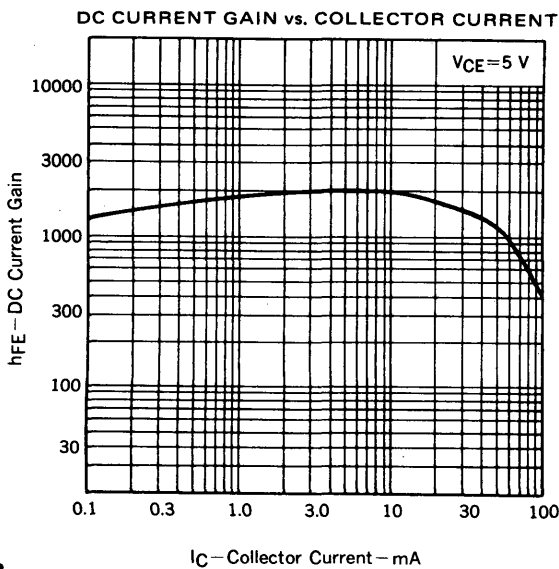
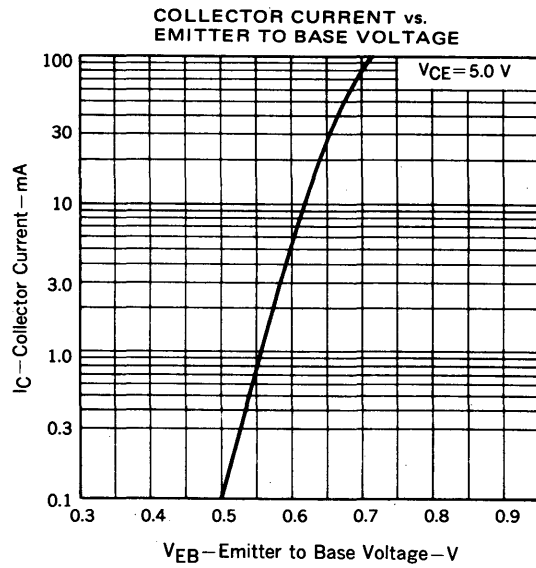
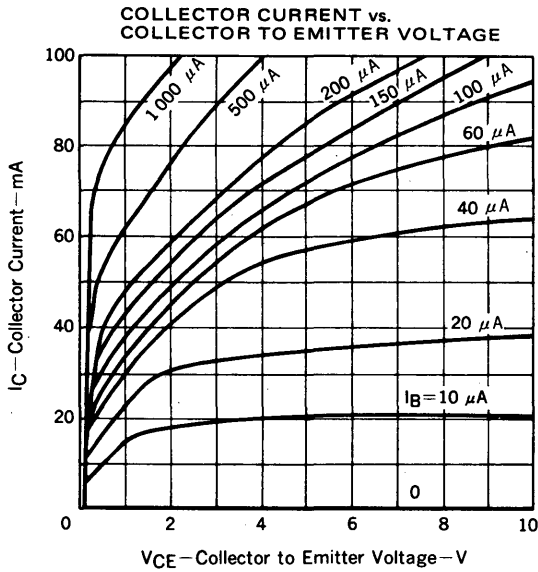
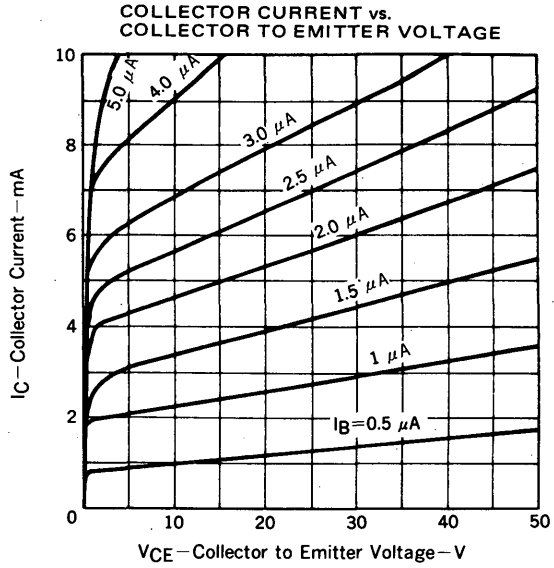
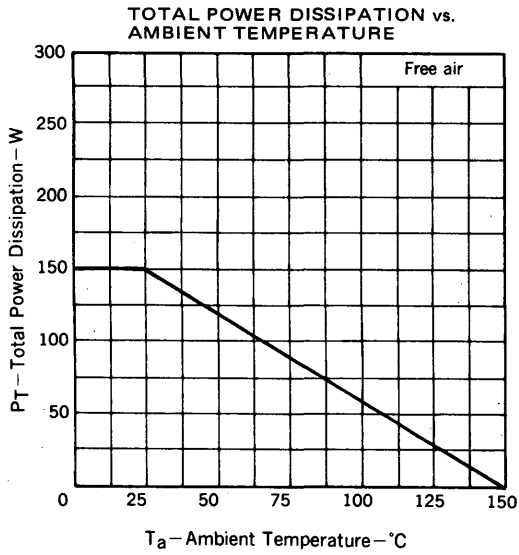
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			100	nA	$V_{CB} = 50\ V, I_E = 0$
Emitter Cutoff Current	I_{EBO}			100	nA	$V_{EB} = 10\ V, I_C = 0$
DC Current Gain	h_{FE1}^*	1000	1800	3200		$V_{CE} = 5.0\ V, I_C = 1.0\ mA$
DC Current Gain	h_{FE2}^*	200	350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

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

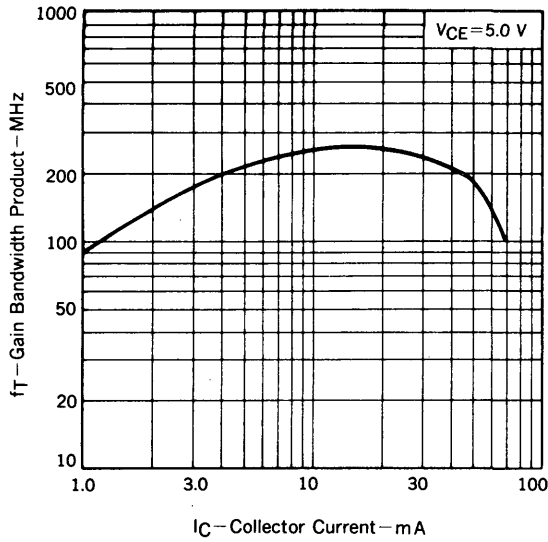
h_{FE} Classification

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

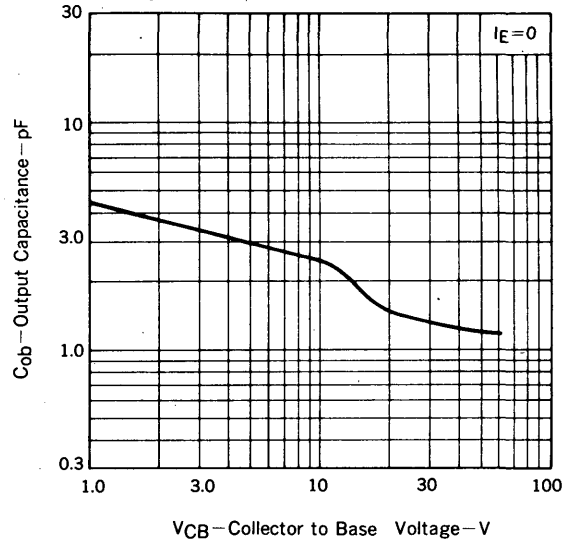
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



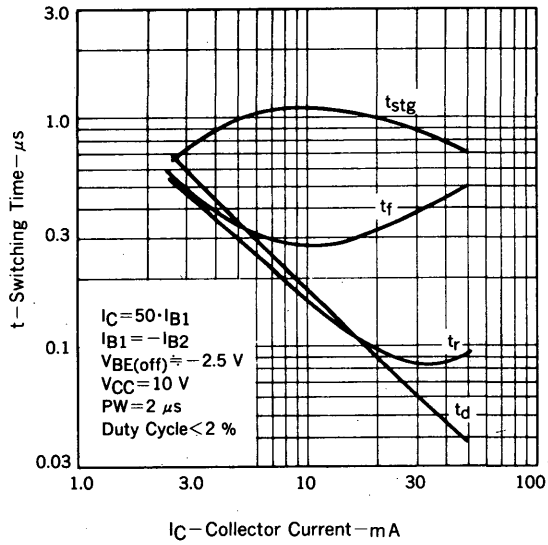
GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT



[MEMO]

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