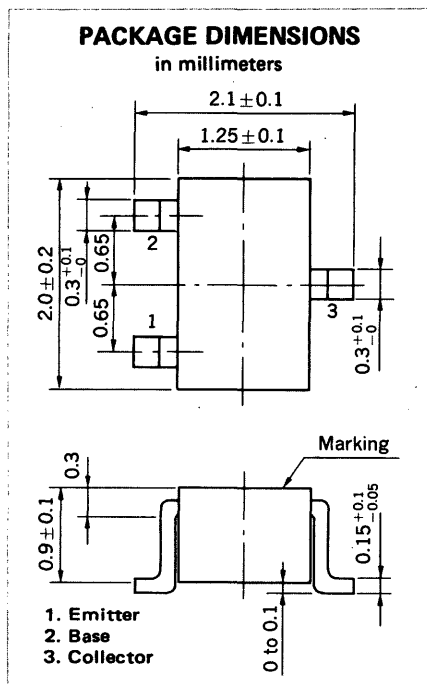


**SILICON TRANSISTOR**  
**2SC4180**

**AUDIO FREQUENCY HIGH GAIN AMPLIFIER**  
**NPN SILICON EPITAXIAL TRANSISTOR**



**FEATURES**

- Complementary to 2SA1612
- High DC Current Gain:  $h_{FE} = 600$  TYP. ( $V_{CE} = 6.0$  V,  $I_C = 1.0$  mA)

**ABSOLUTE MAXIMUM RATINGS**

Maximum Voltages and Current ( $T_a = 25^\circ\text{C}$ )

Collector to Base Voltage	$V_{CBO}$	120	V
Collector to Emitter Voltage	$V_{CEO}$	120	V
Emitter to Base Voltage	$V_{EBO}$	5.0	V
Collector Current (DC)	$I_C$	50	mA

Maximum Power Dissipation

Total Power Dissipation at $25^\circ\text{C}$ Ambient Temperature	$P_T$	150	mW
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Maximum Temperatures

Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^\circ\text{C}$

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

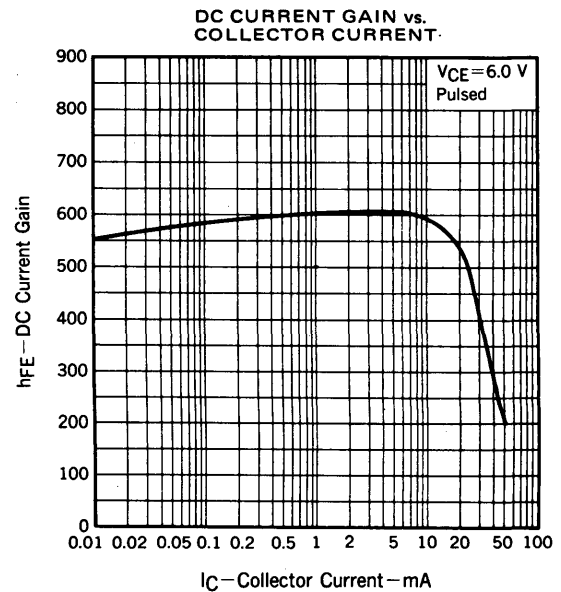
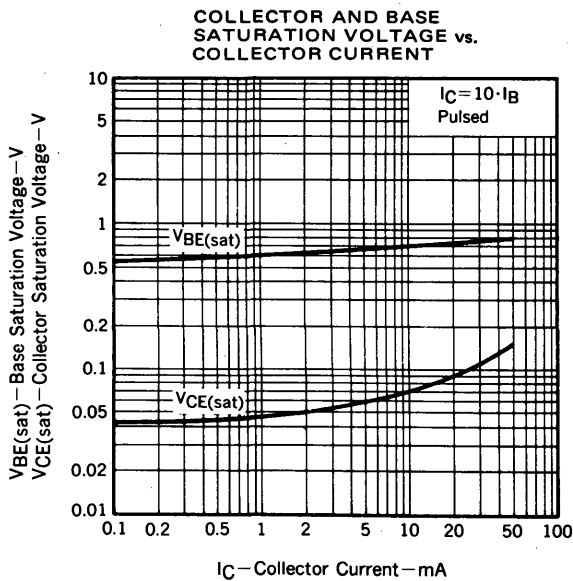
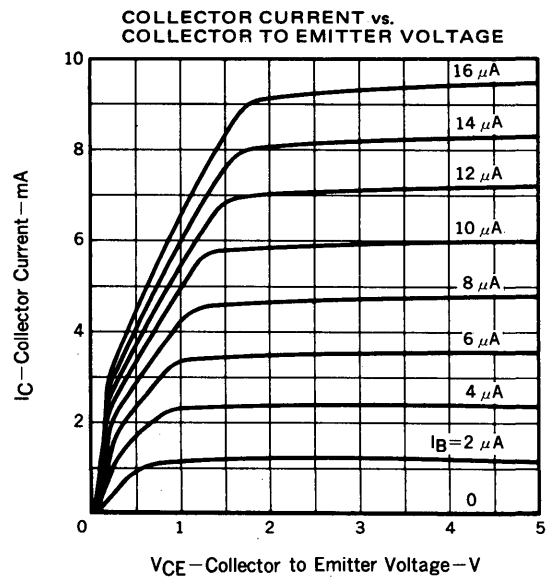
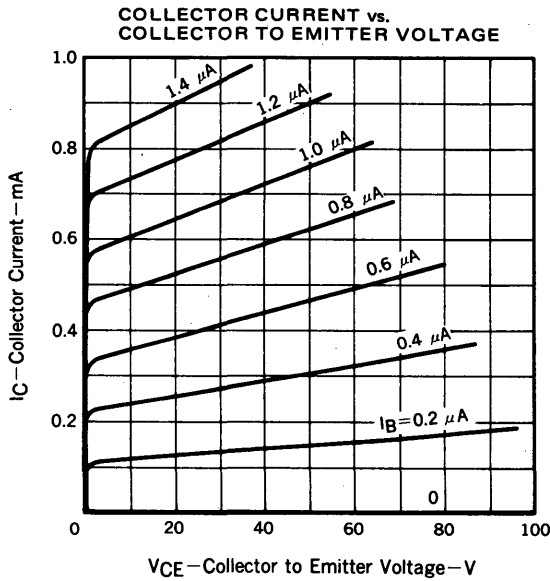
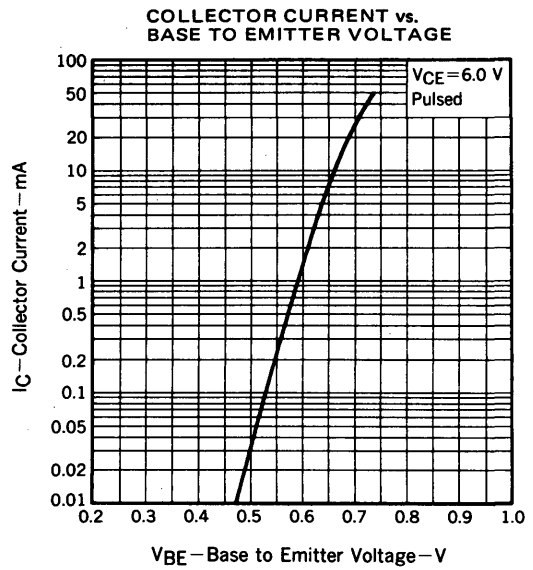
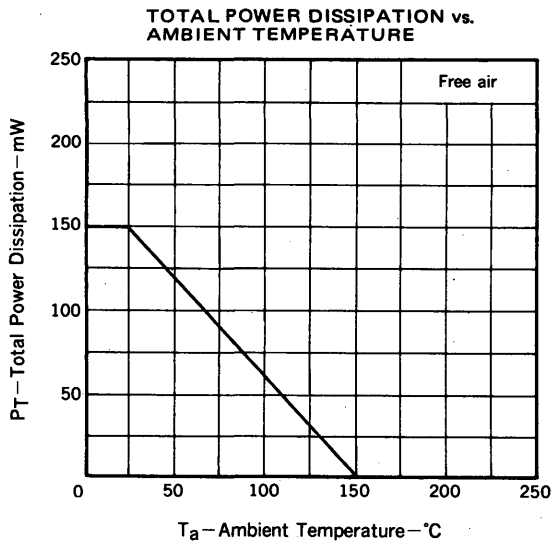
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	$I_{CBO}$			0.05	$\mu\text{A}$	$V_{CB} = 120$ V, $I_E = 0$
Emitter Cutoff Current	$I_{EBO}$			0.05	$\mu\text{A}$	$V_{EB} = 5.0$ V, $I_C = 0$
DC Current Gain	$h_{FE1}$	100	580			$V_{CE} = 6.0$ V, $I_C = 0.1$ mA
DC Current Gain	$h_{FE2}$	135	600	900		$V_{CE} = 6.0$ V, $I_C = 1.0$ mA*
Collector Saturation Voltage	$V_{CE(sat)}$		0.07	0.30	V	$I_C = 10$ mA, $I_B = 1.0$ mA
Base to Emitter Voltage	$V_{BE}$	0.55	0.59	0.65	V	$V_{CE} = 6.0$ V, $I_C = 1.0$ mA
Gain Bandwidth Product	$f_T$	50	110		MHz	$V_{CE} = 6.0$ V, $I_E = -1.0$ mA
Output Capacitance	$C_{ob}$		1.6	2.5	pF	$V_{CB} = 30$ V, $I_E = 0$ , $f = 1.0$ MHz

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

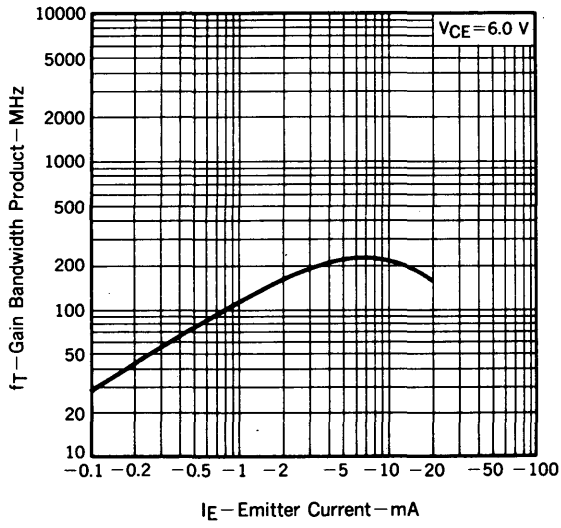
**$h_{FE}$  Classification**

Marking	D15	D16	D17	D18
$h_{FE2}$	135 to 270	200 to 400	300 to 600	450 to 900

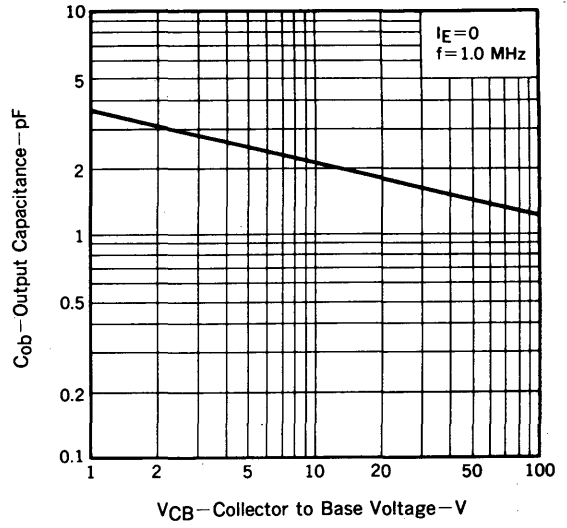
TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



**[MEMO]**

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