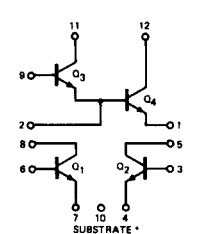
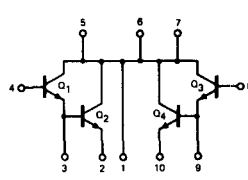
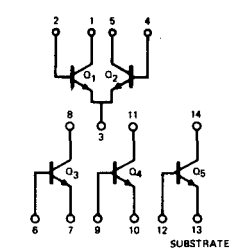
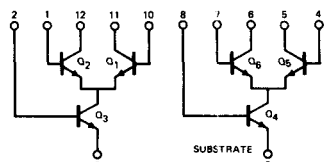
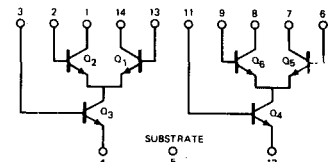
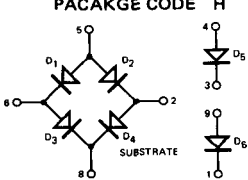
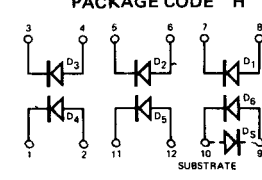


μ A3018 • μ A3018A • μ A3019 • μ A3026 • μ A3036 μ A3039 • μ A3045 • μ A3046 • μ A3054 • μ A3086 TRANSISTOR AND DIODE ARRAYS FAIRCHILD LINEAR INTEGRATED CIRCUITS

GENERAL DESCRIPTION – Fairchild Transistor and Diode Arrays consist of general purpose integrated circuit devices constructed on a single substrate, using the Fairchild Planar* epitaxial process. These arrays are arranged to offer maximum flexibility in circuit design for applications from dc to 120 MHz. Excellent transistor and diode matching and temperature tracking allow circuit techniques unavailable when using discrete devices. Multiple devices in one package permit a greater packing density and cost saving than with individually packaged transistors.

- **PRECISION MONOLITHIC MATCHING**
- **DESIGN FLEXIBILITY**
- **CUSTOM APPLICATIONS**

<p style="text-align: center;">PACKAGE OUTLINE 5D PACKAGE CODE H</p>  <p style="text-align: center;">ORDER INFORMATION</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: left;">TYPE</th> <th style="text-align: left;">PART NO.</th> </tr> </thead> <tbody> <tr> <td>μA3018</td> <td>μA3018</td> </tr> <tr> <td>μA3018A</td> <td>μA3018AHM</td> </tr> </tbody> </table>	TYPE	PART NO.	μ A3018	μ A3018	μ A3018A	μ A3018AHM	<p style="text-align: center;">PACKAGE OUTLINE 5Q PACKAGE CODE H</p>  <p style="text-align: center;">ORDER INFORMATION</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: left;">TYPE</th> <th style="text-align: left;">PART NO.</th> </tr> </thead> <tbody> <tr> <td>μA3036</td> <td>μA3036HM</td> </tr> </tbody> </table>	TYPE	PART NO.	μ A3036	μ A3036HM	<p style="text-align: center;">PACKAGE OUTLINE 6A PACKAGE CODE D</p>  <p style="text-align: center;">ORDER INFORMATION</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: left;">TYPE</th> <th style="text-align: left;">PART NO.</th> </tr> </thead> <tbody> <tr> <td>μA3045</td> <td>μA3045</td> </tr> <tr> <td>μA3046</td> <td>μA3046DC</td> </tr> <tr> <td>μA3086</td> <td>μA3086DM</td> </tr> </tbody> </table>	TYPE	PART NO.	μ A3045	μ A3045	μ A3046	μ A3046DC	μ A3086	μ A3086DM
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*Planar is a patented Fairchild process.

FAIRCHILD LIC TRANSISTOR AND DIODE ARRAYS • μ A30XX SERIES

μ A3045/3046/3086

- **LOW INPUT OFFSET VOLTAGE**
- **WIDEBAND OPERATION**
- **LOW NOISE**

APPLICATIONS

- General Use in all Types of Signal Processing Systems Operating Anywhere in the Frequency Range From DC to VHF
- Custom Designed Differential Amplifiers
- Temperature Compensated Amplifiers

ABSOLUTE MAXIMUM RATINGS (For Each Transistor)

	μ A3045		μ A3046/3086	
	Each Transistor	Total Package	Each Transistor	Total Package
Power Dissipation (Note 1)				
At $T_A = 25^\circ\text{C}$	300 mW	750 mW	300 mW	750 mW
At $T_A = 25^\circ\text{C}$ to 55°C				
At $T_A = 25^\circ\text{C}$ to 75°C	300 mW	750 mW	300 mW	750 mW
Voltages and Currents				
Collector-to-Emitter Voltage, V_{CE0}	15 V	—	15 V	—
Collector-to-Base Voltage, V_{CB0}	20 V	—	20 V	—
Collector-to-Substrate Voltage, V_{C10} (Note 2)	20 V	—	20 V	—
Emitter-to-Base Voltage, V_{EB0}	5 V	—	5 V	—
Collector Current, I_C	50 mA	—	50 mA	—
Temperature Range				
Operating Temperature	-55°C to $+125^\circ\text{C}$		(3046) 0°C to $+85^\circ\text{C}$ (3086) -40°C to $+85^\circ\text{C}$	
Storage Temperature	-65°C to $+200^\circ\text{C}$		-55°C to $+125^\circ\text{C}$	

FAIRCHILD LIC TRANSISTOR AND DIODE ARRAYS • μ A30XX SERIES

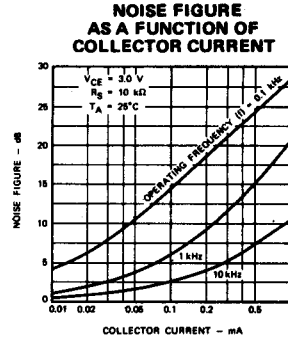
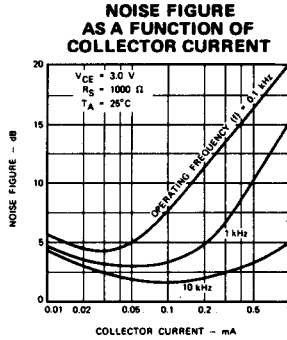
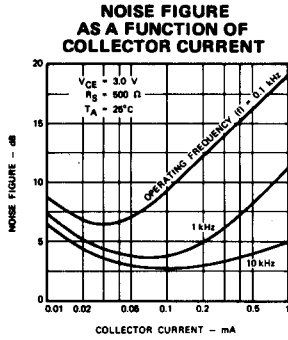
ELECTRICAL CHARACTERISTICS FOR μ A3045/3046 ($T_A = 25^\circ\text{C}$ unless otherwise specified)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V(BR)CBO	Collector-to-Base Breakdown Voltage	$I_C = 10 \mu\text{A}, I_E = 0$	20	60		V
V(BR)CEO	Collector-to-Emitter Breakdown Voltage	$I_C = 1 \text{ mA}, I_B = 0$	15	24		V
V(BR)CIO	Collector-to-Substrate Breakdown Voltage	$I_C = 10 \mu\text{A}, I_C = 0$	20	60		V
V(BR)EBO	Emitter-to-Base Breakdown Voltage	$I_E = 10 \mu\text{A}, I_C = 0$	5.0	7.0		V
I _{CBO}	Collector Cutoff Current	$V_{CB} = 10 \text{ V}, I_E = 0$		0.002	40	nA
I _{CEO}	Collector Cutoff Current	$V_{CE} = 10 \text{ V}, I_B = 0$		See Curve	0.5	μA
h _{FE}	Static Forward Current-Transfer Ratio (Static Beta)	$V_{CE} = 3 \text{ V}$ $\begin{cases} I_C = 10 \text{ mA} \\ I_C = 1 \text{ mA} \\ I_C = 10 \mu\text{A} \end{cases}$	40	100 100 54		
	Input Offset Current for Matched Pair Q ₁ and Q ₂ $ I_{O1} - I_{O2} $	$V_{CE} = 3 \text{ V}, I_C = 1 \text{ mA}$		0.3	2.0	μA
V _{BE}	Base-to-Emitter Voltage	$V_{CE} = 3 \text{ V}$ $\begin{cases} I_E = 1 \text{ mA} \\ I_E = 10 \text{ mA} \end{cases}$		0.715 0.800		V
	Magnitude of Input Offset Voltage for Differential Pair $ V_{BE1} - V_{BE2} $	$V_{CE} = 3 \text{ V}, I_C = 1 \text{ mA}$		0.45	5.0	mV
	Magnitude of Input Offset Voltage for Isolated Transistors $ V_{BE3} - V_{BE4} $, $ V_{BE4} - V_{BE5} , V_{BE5} - V_{BE3} $	$V_{CE} = 3 \text{ V}, I_C = 1 \text{ mA}$		0.45	5.0	mV
$\frac{\Delta V_{BE}}{\Delta T}$	Temperature Coefficient of Base-to-Emitter Voltage	$V_{CE} = 3 \text{ V}, I_C = 1 \text{ mA}$		-1.9		mV/ $^\circ\text{C}$
V _{CE(sat)}	Collector-to-Emitter Saturation Voltage	$I_B = 1 \text{ mA}, I_C = 10 \text{ mA}$		0.23		V
$\frac{ \Delta V_{IO} }{\Delta T}$	Temperature Coefficient: Magnitude of Input-Offset Voltage	$V_{CE} = 3 \text{ V}, I_C = 1 \text{ mA}$		1.1		$\mu\text{V}/^\circ\text{C}$
NF	Low Frequency Noise Figure	$f = 1 \text{ kHz}, V_{CE} = 3 \text{ V}, I_C = 100 \mu\text{A}$ $R_S = 1 \text{ k}\Omega$		3.25		dB
h _{fe} h _{ie} h _{oe} h _{re}	Low Frequency, Small-Signal Equivalent-Circuit Characteristics: Forward Current-Transfer Ratio Short-Circuit Input Resistance Open-Circuit Output Conductance Open-Circuit Reverse Voltage-Transfer Ratio	$f = 1 \text{ kHz}, V_{CE} = 3 \text{ V}, I_C = 1 \text{ mA}$		110 3.5 15.6 1.8×10^{-4}		k Ω μmho
Y _{fe} Y _{ie} Y _{oe} Y _{re}	Admittance Characteristics: Forward Transfer Admittance Input Admittance Output Admittance Reverse Transfer Admittance	$f = 1 \text{ MHz}, V_{CE} = 3 \text{ V}, I_C = 1 \text{ mA}$		31-j 1.5 0.3+j0.04 0.001+j0.03 See Curve		
f _T	Gain-Bandwidth Product	$V_{CE} = 3 \text{ V}, I_C = 3 \text{ mA}$	300	550		MHz
C _{EB}	Emitter-to-Base Capacitance	$V_{EB} = 3 \text{ V}, I_E = 0$		0.6		pF
C _{CB}	Collector-to-Base Capacitance	$V_{CB} = 3 \text{ V}, I_C = 0$		0.58		pF
C _{CI}	Collector-to-Substrate Capacitance	$V_{CS} = 3 \text{ V}, I_C = 0$		2.8		pF

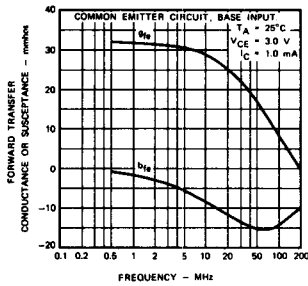
NOTES:

- μ A3046 and μ A3086 derate at 6.67 mW/ $^\circ\text{C}$ for $T_A > 55^\circ\text{C}$, μ A3045 at 8 mW/ $^\circ\text{C}$ for $T_A > 75^\circ\text{C}$.
- Substrate (Pin 13) must be connected to the most negative voltage to maintain normal operation.

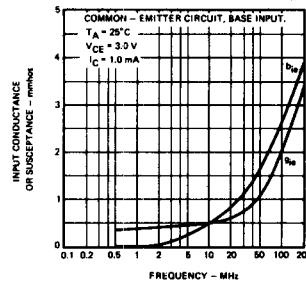
TYPICAL PERFORMANCE CURVES FOR μ A3045/3046/3086 (Cont'd)



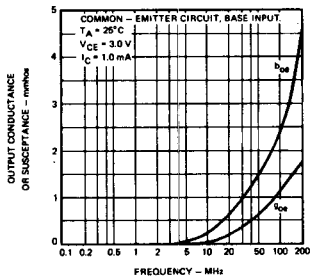
FORWARD TRANSFER ADMITTANCE AS A FUNCTION OF FREQUENCY



INPUT ADMITTANCE AS A FUNCTION OF FREQUENCY



OUTPUT ADMITTANCE AS A FUNCTION OF FREQUENCY



REVERSE TRANSFER ADMITTANCE AS A FUNCTION OF FREQUENCY

