CA3018 TRANSISTOR ARRAY

General-purpose array consisting of two isolated transistors and two transistors with a common base-emitter terminal used in 100-MHz cascode amplifier, final if amplifier and 2nd detector, 15-MHz tuned rf amplifier, video amplifier, class B amplifier, and cascode video amplifier applications. 12-lead "TO-5" package; Outline No. 2. For schematic diagram, see Fig. 297.

MAXIMUM RATINGS

Each Transistor:			
Collector-to-Emitter Voltage	V_{CEO}	15	V
Collector-to-Base Voltage	V_{CBO}	20	V
Emitter-to-Base Voltage	V_{EBO}	4	V
Collector Current	I_C	50	mA
Device Dissipation:			
Any one transistor	P_S	300	mW
Total package	P_T	300	mW
Ambient Temperature:			
Operating		—55 to 125	°C
Storage		—65 to 200	°C

TYPICAL CHARACTERISTICS (At ambient temperature = 25°C)

Each Transistor:			
Collector-to-Substrate Breakdown Voltage ($I_C = 10\mu A$, $I_{C1} = 0$)	$V_{(BR)CIO}$	20 min	V
Emitter-to-Base Breakdown Voltage ($I_E = 10\mu A$, $I_C = 0$)	$V_{(BR)EBO}$	4 min	V
Collector-to-Emitter Breakdown Voltage ($I_C = 1mA$, $I_B = 0$)	$V_{(BR)CEO}$	15 min	V

TYPICAL CHARACTERISTICS (continued)

Collector-to-Base Breakdown Voltage ($I_C = 10\mu A$, $I_E = 0$)	$V_{(BR)CBO}$	20 min	V
Collector-Cutoff Current:			
$V_{CB} = 5V$, $I_E = 0$	I_{CBO}	0.1 max	μA
$V_{CB} = 15V$, $I_B = 0$	I_{CEO}	10 max	μA
Static Forward-Current Transfer Ratio:			
Static Beta, $V_{CE} = 3V$, $I_C = 1mA$	h_{FE}	67	
Transistors with common base-emitter terminal Q_3 and Q_4, $V_{CE} = 3V$, $I_C = 1mA$	h_{FEO}	3500	
Magnitude of Static Beta Ratio, Isolated transistors Q_1 and Q_2 ($V_{CE} = 3V$, $I_{C1} = I_{C2} = 1mA$)	$\frac{h_{FE1}}{h_{FE2}}$	1	
Magnitude of Input-Offset Voltage, Isolated transistors Q_1 and Q_2 ($V_{CC} = +6V$, $V_{EE} = -6V$, $I_{C1} = I_{C2} = 1mA$)	$\lvert V_{BE1}-V_{BE2}\rvert$	1	mV
Temperature Coefficient, Magnitude of Input-Offset Voltage ($V_{CC} = +6V$, $V_{EE} = -6V$, $I_{C1} = I_{C2} = 1mA$)	$\frac{V_{BE1}-V_{BE2}}{\Delta T}$	10	$\mu V/°C$
Small-Signal Forward-Current Transfer Ratio ($V_{CE} = 3V$, $I_C = 1mA$, $f = 1kHz$)	h_{fe}	70	
Small-Signal Input Impedance ($V_{CE} = 3V$, $I_C = 1mA$, $f = 1kHz$)	h_{ie}	2800	Ω
Small-Signal Output Impedance ($V_{CE} = 3V$, $I_C = 1mA$, $f = 1kHz$)	h_{oe}	35	μmho
Small-Signal Reverse Voltage-Transfer Ratio ($V_{CE} = 3V$, $I_C = 1mA$, $f = 1kHz$)	h_{re}	6.5×10^{-4}	
Forward Transfer Admittance ($V_{CE} = 3V$, $I_C = 1mA$, $f = 1MHz$)	Y_{fe}	$31 - j\,1.5$	mmho
Input Admittance ($V_{CE} = 3V$, $I_C = 1mA$, $f = 1MHz$)	Y_{ie}	$0.3 + j\,0.05$	mmho
Output Admittance ($V_{CE} = 3V$, $I_C = 1mA$, $f = 1MHz$)	Y_{oe}	$0.02 + j\,0.05$	mmho
Gain-Bandwidth Product (Substrate (terminal 10) connected to ground)	f_T	400	MHz
Output Capacitance ($V_{CB} = 3V$, $I_E = 0$)	C_{cbo}	1.9	pF
Input Capacitance ($V_{BE} = 3V$, $I_C = 0$)	C_{ibo}	1.8	pF
Collector-to-Substrate Capacitance ($V_{C1} = 3V$, $I_C = 0$)	C_{c1o}	3.5	pF