

CATV amplifier modules

BGY584A;BGY585A

N AMER PHILIPS/DISCRETE 69E D

FEATURES

- Excellent linearity
- Extremely low noise
- Silicon nitride passivation
- Rugged construction
- Optimal reliability ensured by TiPtAu metallized crystals.

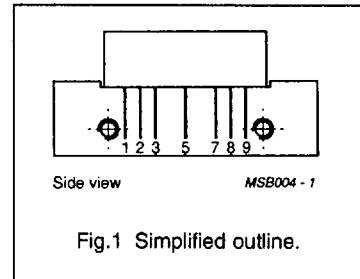
DESCRIPTION

Hybrid amplifier modules for CATV systems operating over a frequency range of 40 to 550 MHz at a voltage supply of +24 V (DC). The BGY584A is intended for use as a pre-amplifier and BGY585A as a final amplifier.

PINNING - SOT115C

PIN	DESCRIPTION
1	input
2	common
3	common
5	+V _B
7	common
8	common
9	output

PIN CONFIGURATION



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G _p	power gain	f = 50 MHz	17.7	-	18.7	dB
		f = 550 MHz	18.8	-	20	dB
I _{tot}	total current consumption	DC value; V _B = +24 V				
			BGY584A	-	180	200
	BGY585A	-	220	240	mA	

LIMITING VALUES

In accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V _i	RF input voltage	-	60	dBmV
T _{stg}	storage temperature range	-40	+100	°C
T _{case}	operating case temperature range	-20	+100	°C

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CHARACTERISTICS

Bandwidth 40 to 550 MHz; $T_{\text{case}} = 30\text{ }^{\circ}\text{C}$; $Z_S = Z_L = 75\ \Omega$

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	$f = 50\text{ MHz}$	17.7	–	18.7	dB
		$f = 550\text{ MHz}$	18.8	–	20	dB
SL	slope cable equivalent	$f = 40\text{ to }550\text{ MHz}$	0.5	–	2	dB
FL	flatness of frequency response	$f = 40\text{ to }550\text{ MHz}$	–	–	± 0.2	dB
S_{11}	input return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	–	dB
		$f = 80\text{ to }160\text{ MHz}$	19	–	–	dB
		$f = 160\text{ to }550\text{ MHz}$	18	–	–	dB
S_{22}	output return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	–	dB
		$f = 80\text{ to }160\text{ MHz}$	19	–	–	dB
		$f = 160\text{ to }550\text{ MHz}$	18	–	–	dB
CTB	composite triple beat	77 chs flat; $V_o = 44\text{ dBmV}$; measured at 547.25 MHz				
			BGY584A	–	–	–56
	BGY585A	–	–	–59	dB	
X_{mod}	cross modulation	77 chs flat; $V_o = 44\text{ dBmV}$; measured at 55.25 MHz				
			BGY584A	–	–	–59
	BGY585A	–	–	–62	dB	
CSO	composite second order distortion	60 chs flat; $V_o = 44\text{ dBmV}$; measured at 547.25 MHz				
			BGY584A	–	–	–55
	BGY585A	–	–	–59	dB	
d_2	second order distortion	note 1				
			BGY584A	–	–	–70
	BGY585A	–	–	–72	dB	
V_o	output voltage	$d_{\text{im}} = -60\text{ dB}$ note 2				
			BGY584A	59	–	–
	BGY585A	61.5	–	–	dBmV	
F	noise figure	$f = 550\text{ MHz}$				
			BGY584A	–	–	7
	BGY585A	–	–	8	dB	

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{tot}	total current consumption	DC value; $V_B = +24$ V; note 3				
	BGY584A		–	180	200	mA
	BGY585A		–	220	240	mA

Notes

- $f_p = 55.25$ MHz; $V_p = 44$ dBmV;
 $f_q = 493.25$ MHz; $V_q = 44$ dBmV;
 measured at $f_p + f_q = 548.5$ MHz
- Measured according to DIN45004B;
 $f_p = 540.25$ MHz; $V_p = V_o$;
 $f_q = 547.25$ MHz; $V_q = V_p - 6$ dB;
 $f_r = 549.25$ MHz; $V_r = V_p - 6$ dB;
 measured at $f_p + f_q - f_r = 538.25$ MHz.
- The modules normally operate at $V_B = +24$ V, but are able to withstand supply transients up to 30 V.

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CHARACTERISTICS

Bandwidth 40 to 450 MHz; $T_{case} = 30\text{ }^{\circ}\text{C}$; $Z_S = Z_L = 75\ \Omega$

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	$f = 50\text{ MHz}$	17.7	–	18.7	dB
		$f = 450\text{ MHz}$	18.6	–	19.8	dB
SL	slope cable equivalent	$f = 40\text{ to }450\text{ MHz}$	0.5	–	1.8	dB
FL	flatness of frequency response	$f = 40\text{ to }450\text{ MHz}$	–	–	± 0.2	dB
S_{11}	input return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	–	dB
		$f = 80\text{ to }160\text{ MHz}$	19	–	–	dB
		$f = 160\text{ to }450\text{ MHz}$	18	–	–	dB
S_{22}	output return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	–	dB
		$f = 80\text{ to }160\text{ MHz}$	19	–	–	dB
		$f = 160\text{ to }450\text{ MHz}$	18	–	–	dB
CTB	composite triple beat	60 chs flat; $V_o = 46\text{ dBmV}$; measured at 445.25 MHz	–	–	–57	dB
			BGY584A	–	–	–61
X_{mod}	cross modulation	60 chs flat; $V_o = 46\text{ dBmV}$; measured at 55.25 MHz	–	–	–58	dB
			BGY585A	–	–	–61
CSO	composite second order distortion	60 chs flat; $V_o = 46\text{ dBmV}$; measured at 446.5 MHz	–	–	–58	dB
			BGY585A	–	–	–61
d_2	second order distortion	note 1	–	–	–73	dB
			BGY585A	–	–	–75
V_o	output voltage	$d_{im} = -60\text{ dB}$ note 2	61.5	–	–	dBmV
			BGY585A	64	–	–
F	noise figure	$f = 450\text{ MHz}$	–	–	6	dB
			BGY585A	–	–	7

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{tot}	total current consumption	DC value; $V_B = +24$ V; note 3				
	BGY584A		–	180	200	mA
	BGY585A		–	220	240	mA

Notes

- $f_p = 55.25$ MHz; $V_p = 46$ dBmV;
 $f_q = 391.25$ MHz; $V_q = 46$ dBmV;
 measured at $f_p + f_q = 446.5$ MHz
- Measured according to DIN45004B;
 $f_p = 440.25$ MHz; $V_p = V_o$;
 $f_q = 447.25$ MHz; $V_q = V_p - 6$ dB;
 $f_r = 449.25$ MHz; $V_r = V_p - 6$ dB;
 measured at $f_p + f_q - f_r = 438.25$ MHz.
- The modules normally operate at $V_B = +24$ V, but are able to withstand supply transients up to 30 V.