CATV amplifier module

BGY85H/01

FEATURES

- Excellent linearity
- High slope of 5.1 dB so that total cable slope can be equalised by the slope of the module
- Silicon nitride passivation
- Rugged construction
- TiPtAu metallized crystals ensure optimal reliability.

PINNING - SOT115C

PIN	DESCRIPTION
1	input
2	common
3	common
5	$+V_B$
7	common
8	common
9	output

PIN CONFIGURATION

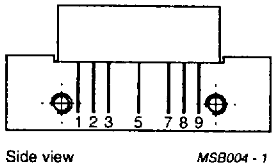

Fig.1 Simplified outline.

DESCRIPTION

High slope, pre-emphasis, hybrid amplifier module intended for use as a 20.7 dB trunk amplifier in CATV systems operating over a frequency range of 40 to 450 MHz at a voltage supply of +24 V (DC).

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	f = 50 MHz;	14.8	–	16.4	dB
		f = 450 MHz	20.2	–	21.2	dB
I_{tot}	total current consumption	DC value; $V_B = +24$ V	–	215	230	mA

LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_i	RF input voltage	–	65	dBmV
T_{stg}	storage temperature range	–40	+100	°C
T_{mb}	mounting base operating temperature range	–20	+100	°C
V_B	DC supply voltage	–	+28	V

CHARACTERISTICS

Bandwidth 40 to 450 MHz; T_{case} = 30 °C; $Z_S = Z_L$ = 75 Ω

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	f = 50 MHz;	14.8	–	16.4	dB
		f = 450 MHz	20.2	–	21.2	dB
ΔG	delta gain	f = 40 to 450 MHz	4.7	–	5.5	dB
FL	flatness of frequency response	f = 40 to 450 MHz; note 1	–	–	± 0.2	dB
S_{11}	input return losses	f = 40 to 80 MHz;	20	–	–	dB
		f = 80 to 160 MHz;	19	–	–	dB
		f = 160 to 450 MHz	18	–	–	dB
S_{22}	output return losses	f = 40 to 80 MHz;	20	–	–	dB
		f = 80 to 160 MHz;	19	–	–	dB
		f = 160 to 450 MHz	18	–	–	dB
CTB	composite triple beat	36 chs flat; V_o = 46 dBmV; measured at 433.25 MHz	–	–	–65	dB
		60 chs flat; V_o = 46 dBmV; measured at 445.25 MHz	–	–59	–	dB
X_{mod}	cross modulation	36 chs flat; V_o = 46 dBmV; measured at 55.25 MHz	–	–	–65	dB
		60 chs flat; V_o = 46 dBmV; measured at 55.25 MHz	–	–61	–	dB
d_2	second order distortion	note 2	–	–	–72	dB
V_o	output voltage	d_{im} = –60 dB				
		note 3	65	–	–	dBmV
		note 4	64	–	–	dBmV
		note 5	62.5	–	–	dBmV
F	noise figure	f = 450 MHz	–	–	6.8	dB
I_{tot}	total current consumption	DC value; V_B = +24 V; note 6	–	215	230	mA

Notes

1. Flatness calculation is based on the following formula which describes the 'ideal' gain versus frequency curve, $G_f = G_{50} + \Delta G\,[a\,(f-50) + b\,(f-50)^2 + c\,(f-50)^3]$, in which :
   G_{50} = measured gain at 50 MHz;
   ΔG = measured difference in gain between 450 and 50 MHz;
   $a = 3.132 \times 10^{-3}$
   $b = 1.993 \times 10^{-6}$
   $c = -8.934 \times 10^{-9}$

2. f_p = 55.25 MHz; V_p = 46 dBmV;
   f_q = 343.25 MHz; V_q = 46 dBmV;
   measured at $f_p + f_q$ = 398.5 MHz
3. Measured according to DIN45004B;
   f_p = 287.25 MHz; $V_p = V_o$;
   f_q = 294.25 MHz; $V_q = V_o$ –6 dB;
   f_r = 296.25 MHz; $V_r = V_o$ –6 dB;
   measured at $f_p + f_q - f_r$ = 285.25 MHz
4. Measured according to DIN45004B;
   f_p = 387.25 MHz; $V_p = V_o$;
   f_q = 394.25 MHz; $V_q = V_o$ –6 dB;
   f_r = 396.25 MHz; $V_r = V_o$ –6 dB;
   measured at $f_p + f_q - f_r$ = 385.25 MHz
5. Measured according to DIN45004B;
   f_p = 440.25 MHz; $V_p = V_o$;
   f_q = 447.25 MHz; $V_q = V_o$ –6 dB;
   f_r = 449.25 MHz; $V_r = V_o$ –6 dB;
   measured at $f_p + f_q - f_r$ = 438.25 MHz
6. The module normally operates at V_B = +24 V, but is able to withstand supply transients up to +30 V.