

Handbook SC16 1994 Update

Wideband Hybrid IC Modules

These update notes are issued to correct errors occurring in handbook SC16, and to provide additional characteristics tables for BGY785A.

PAGE	TYPE NUMBER	ACTION
43	BGD108	The CECC logo is missing from the title at top of page.
62 to 65	BGD602D	This is a PRODUCT not a PRELIMINARY specification.
85	BGE885	Refer to the figure and table on page 91 for test circuit details.
95	BGY60	This product is withdrawn.
164 and 165	BGY685AD	This is a PRODUCT not an OBJECTIVE specification.
176	BGY785A	See the additional characteristics tables on pages 2, 3 and 4 of these notes.

Supplementary sheets to Handbook SC16

May 1994

Philips Semiconductors



PHILIPS

CATV amplifier module

BGY785A

CHARACTERISTICS

Bandwidth 40 to 600 MHz; $T_{\text{case}} = 30\text{ }^{\circ}\text{C}$; $Z_S = Z_L = 75\ \Omega$.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	power gain	$f = 50\text{ MHz}$	18	19	dB
		$f = 600\text{ MHz}$	18.5	–	dB
SL	slope cable equivalent	$f = 40\text{ to }600\text{ MHz}$	0	1.5	dB
FL	flatness of frequency response	$f = 40\text{ to }600\text{ MHz}$	–	± 0.3	dB
S_{11}	input return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	dB
		$f = 80\text{ to }160\text{ MHz}$	18.5	–	dB
		$f = 160\text{ to }320\text{ MHz}$	17	–	dB
		$f = 320\text{ to }600\text{ MHz}$	16	–	dB
S_{22}	output return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	dB
		$f = 80\text{ to }160\text{ MHz}$	18.5	–	dB
		$f = 160\text{ to }320\text{ MHz}$	17	–	dB
		$f = 320\text{ to }600\text{ MHz}$	16	–	dB
CTB	composite triple beat	85 chs flat; $V_o = 44\text{ dBmV}$; measured at 595.25 MHz	–	–57	dB
X_{mod}	cross modulation	85 chs flat; $V_o = 44\text{ dBmV}$; measured at 55.25 MHz	–	–59	dB
CSO	composite second order distortion	85 chs flat; $V_o = 44\text{ dBmV}$; measured at 596.5 MHz	–	–58	dB
d_2	second order distortion	note 1	–	–70	dB
V_o	output voltage	$d_{\text{im}} = -60\text{ dB}$; note 2	61	–	dBmV
F	noise figure	$f = 50\text{ MHz}$	–	5.5	dB
		$f = 600\text{ MHz}$	–	7.5	dB
I_{tot}	total current consumption	DC value; $V_B = 24\text{ V}$; note 3	–	235	mA

Notes

- $f_p = 55.25\text{ MHz}$; $V_p = 44\text{ dBmV}$;
 $f_q = 541.25\text{ MHz}$; $V_q = 44\text{ dBmV}$;
measured at $f_p + f_q = 596.5\text{ MHz}$.
- $f_p = 590.25\text{ MHz}$; $V_p = V_o$;
 $f_q = 597.25\text{ MHz}$; $V_q = V_o - 6\text{ dB}$;
 $f_r = 599.25\text{ MHz}$; $V_r = V_o - 6\text{ dB}$;
measured at $f_p + f_q - f_r = 588.25\text{ MHz}$.
- The module normally operates at $V_B = +24\text{ V}$, but is able to withstand supply transients up to $+30\text{ V}$.

CATV amplifier module

BGY785A

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	power gain	$f = 50\text{ MHz}$	18	19	dB
		$f = 550\text{ MHz}$	18.5	–	dB
SL	slope cable equivalent	$f = 40\text{ to }550\text{ MHz}$	0	1.5	dB
FL	flatness of frequency response	$f = 40\text{ to }550\text{ MHz}$	–	± 0.3	dB
S_{11}	input return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	dB
		$f = 80\text{ to }160\text{ MHz}$	18.5	–	dB
		$f = 160\text{ to }320\text{ MHz}$	17	–	dB
		$f = 320\text{ to }550\text{ MHz}$	16	–	dB
S_{22}	output return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	dB
		$f = 80\text{ to }160\text{ MHz}$	18.5	–	dB
		$f = 160\text{ to }320\text{ MHz}$	17	–	dB
		$f = 320\text{ to }550\text{ MHz}$	16	–	dB
CTB	composite triple beat	77 chs flat; $V_o = 44\text{ dBmV}$; measured at 547.25 MHz	–	–60	dB
X_{mod}	cross modulation	77 chs flat; $V_o = 44\text{ dBmV}$; measured at 55.25 MHz	–	–60	dB
CSO	composite second order distortion	77 chs flat; $V_o = 44\text{ dBmV}$; measured at 548.5 MHz	–	–60	dB
d_2	second order distortion	note 1	–	–72	dB
V_o	output voltage	$d_{\text{im}} = -60\text{ dB}$; note 2	62	–	dBmV
F	noise figure	$f = 50\text{ MHz}$	–	5.5	dB
		$f = 550\text{ MHz}$	–	7	dB
I_{tot}	total current consumption	DC value; $V_B = 24\text{ V}$; note 3	–	235	mA

Notes

- $f_p = 55.25\text{ MHz}$; $V_p = 44\text{ dBmV}$;
 $f_q = 493.25\text{ MHz}$; $V_q = 44\text{ dBmV}$;
measured at $f_p + f_q = 548.5\text{ MHz}$.
- $f_p = 540.25\text{ MHz}$; $V_p = V_o$;
 $f_q = 547.25\text{ MHz}$; $V_q = V_o - 6\text{ dB}$;
 $f_r = 549.25\text{ MHz}$; $V_r = V_o - 6\text{ dB}$;
measured at $f_p + f_q - f_r = 538.25\text{ MHz}$.
- The module normally operates at $V_B = +24\text{ V}$, but is able to withstand supply transients up to $+30\text{ V}$.

CATV amplifier module

BGY785A

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	power gain	$f = 50\text{ MHz}$	18	19	dB
		$f = 450\text{ MHz}$	18.5	–	dB
SL	slope cable equivalent	$f = 40\text{ to }450\text{ MHz}$	0.0	1.5	dB
FL	flatness of frequency response	$f = 40\text{ to }450\text{ MHz}$	–	± 0.3	dB
S_{11}	input return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	dB
		$f = 80\text{ to }160\text{ MHz}$	18.5	–	dB
		$f = 160\text{ to }320\text{ MHz}$	17	–	dB
		$f = 320\text{ to }450\text{ MHz}$	16	–	dB
S_{22}	output return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	dB
		$f = 80\text{ to }160\text{ MHz}$	18.5	–	dB
		$f = 160\text{ to }320\text{ MHz}$	17	–	dB
		$f = 320\text{ to }450\text{ MHz}$	16	–	dB
CTB	composite triple beat	60 chs flat; $V_o = 46\text{ dBmV}$; measured at 445.25 MHz	–	–61	dB
X_{mod}	cross modulation	60 chs flat; $V_o = 46\text{ dBmV}$; measured at 55.25 MHz	–	–60	dB
CSO	composite second order distortion	60 chs flat; $V_o = 44\text{ dBmV}$; measured at 446.5 MHz	–	–61	dB
d_2	second order distortion	note 1	–	–75	dB
V_o	output voltage	$d_{\text{im}} = -60\text{ dB}$; note 2	64	–	dBmV
F	noise figure	$f = 50\text{ MHz}$	–	5.5	dB
		$f = 450\text{ MHz}$	–	6.5	dB
I_{tot}	total current consumption	DC value; $V_B = 24\text{ V}$; note 3	–	235	mA

Notes

- $f_p = 55.25\text{ MHz}$; $V_p = 46\text{ dBmV}$;
 $f_q = 391.25\text{ MHz}$; $V_q = 46\text{ dBmV}$;
measured at $f_p + f_q = 446.5\text{ MHz}$.
- $f_p = 440.25\text{ MHz}$; $V_p = V_o$;
 $f_q = 447.25\text{ MHz}$; $V_q = V_o - 6\text{ dB}$;
 $f_r = 449.25\text{ MHz}$; $V_r = V_o - 6\text{ dB}$;
measured at $f_p + f_q - f_r = 438.25\text{ MHz}$.
- The module normally operates at $V_B = +24\text{ V}$, but is able to withstand supply transients up to $+30\text{ V}$.