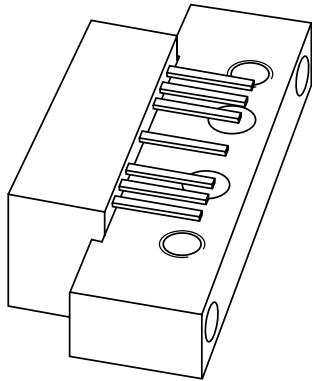


DATA SHEET



BGD906 CATV amplifier module

Product specification
Supersedes data of 1999 Mar 22

1999 Aug 17

CATV amplifier module

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FEATURES

- Excellent linearity
- Extremely low noise
- Excellent return loss properties
- Silicon nitride passivation
- Rugged construction
- Gold metallization ensures excellent reliability.

APPLICATIONS

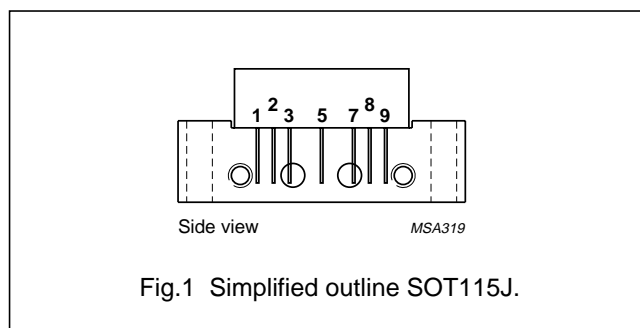
- CATV systems operating in the 40 to 900 MHz frequency range.

DESCRIPTION

Hybrid amplifier module in a SOT115J package operating with a voltage supply of 24 V (DC).

PINNING - SOTT115J

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



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G _p	power gain	f = 50 MHz	21.2	21.8	dB
		f = 900 MHz	22	23	dB
I _{tot}	total current consumption (DC)	V _B = 24 V; T _{mb} = 35 °C	405	435	mA

LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V _B	supply voltage	–	30	V
V _i	RF input voltage	–	70	dBmV
T _{stg}	storage temperature	–40	+100	°C
T _{mb}	operating mounting base temperature	–20	+100	°C

CATV amplifier module

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CHARACTERISTICSBandwidth 40 to 900 MHz; $V_B = 24$ V; $T_{mb} = 35$ °C; $Z_S = Z_L = 75$ Ω

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G _p	power gain	f = 50 MHz	21.2	21.5	21.8	dB
		f = 900 MHz	22	22.5	23	dB
SL	slope straight line	f = 40 to 900 MHz	0.5	1	1.5	dB
FL	flatness straight line	f = 40 to 900 MHz	–	–	±0.35	dB
S ₁₁	input return losses	f = 40 to 80 MHz	22	25	–	dB
		f = 80 to 160 MHz	21	24	–	dB
		f = 160 to 320 MHz	18	23	–	dB
		f = 320 to 550 MHz	17	23	–	dB
		f = 550 to 900 MHz	16	20	–	dB
S ₂₂	output return losses	f = 40 to 80 MHz	22	25	–	dB
		f = 80 to 160 MHz	21	25	–	dB
		f = 160 to 320 MHz	20	23	–	dB
		f = 320 to 550 MHz	19	22	–	dB
		f = 550 to 650 MHz	18	24	–	dB
		f = 650 to 750 MHz	17	23	–	dB
		f = 750 to 900 MHz	16	21	–	dB
S ₂₁	phase response	f = 50 MHz	–45	–	+45	deg
CTB	composite triple beat	49 chs flat; V _o = 47 dBmV; f _m = 859.25 MHz	–	–68.5	–66	dB
		77 chs flat; V _o = 44 dBmV; f _m = 547.25 MHz	–	–70	–67	dB
		110 chs flat; V _o = 44 dBmV; f _m = 745.25 MHz	–	–63	–61	dB
		129 chs flat; V _o = 44 dBmV; f _m = 859.25 MHz	–	–59	–57	dB
		110 chs; f _m = 397.25 MHz; V _o = 49 dBmV at 550 MHz; note 1	–	–62.5	–60.5	dB
		129 chs; f _m = 697.25 MHz; V _o = 49.5 dBmV at 860 MHz; note 2	–	–57	–54.5	dB
X _{mod}	cross modulation	49 chs flat; V _o = 47 dBmV; f _m = 55.25 MHz	–	–64	–62	dB
		77 chs flat; V _o = 44 dBmV; f _m = 55.25 MHz	–	–67.5	–65	dB
		110 chs flat; V _o = 44 dBmV; f _m = 55.25 MHz	–	–64	–61.5	dB
		129 chs flat; V _o = 44 dBmV; f _m = 55.25 MHz	–	–61	–60	dB
		110 chs; f _m = 397.25 MHz; V _o = 49 dBmV at 550 MHz; note 1	–	–60	–58	dB
		129 chs; f _m = 859.25 MHz; V _o = 49.5 dBmV at 860 MHz; note 2	–	–56.5	–55	dB

CATV amplifier module

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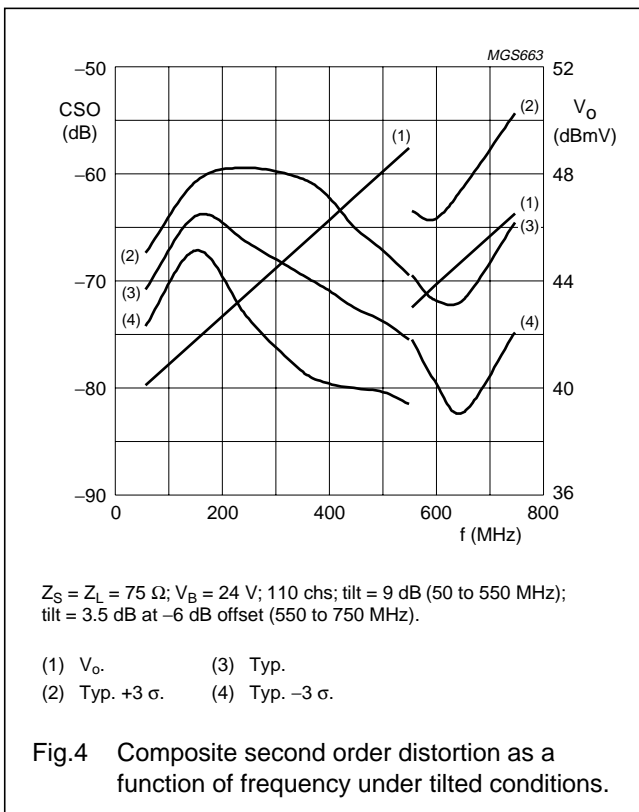
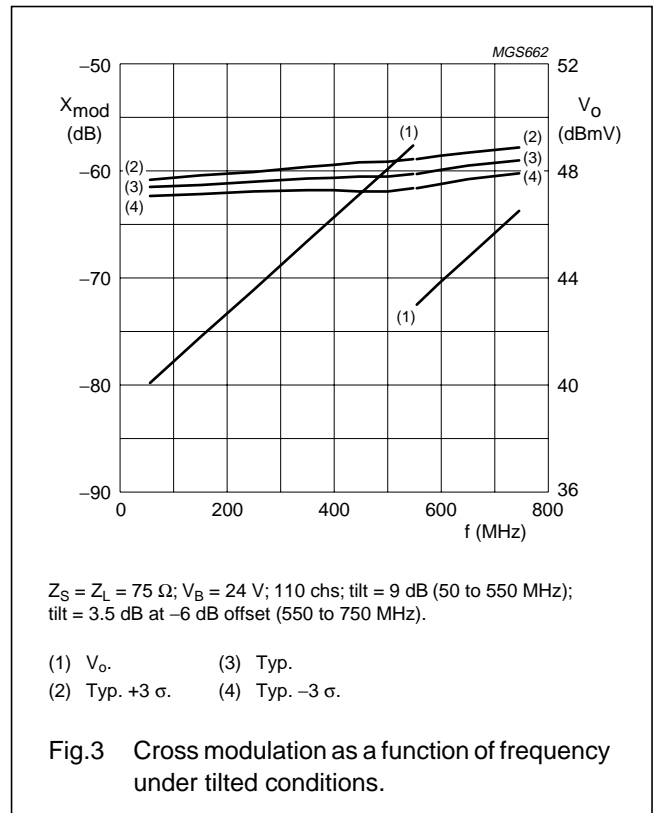
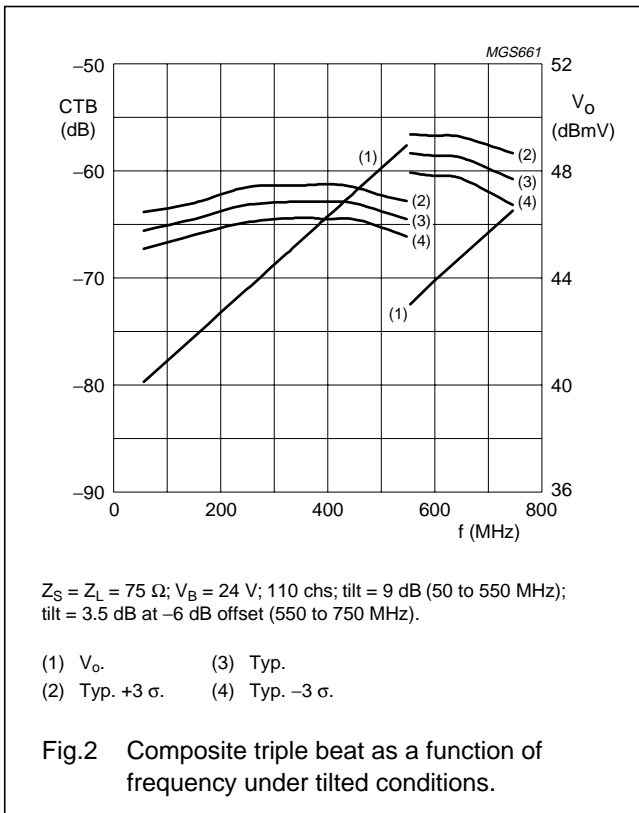
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CSO	composite second order distortion	49 chs flat; $V_o = 47$ dBmV; $f_m = 860.5$ MHz	–	–63	–59	dB
		77 chs flat; $V_o = 44$ dBmV; $f_m = 548.5$ MHz	–	–74	–65	dB
		110 chs flat; $V_o = 44$ dBmV; $f_m = 746.5$ MHz	–	–66	–58	dB
		129 chs flat; $V_o = 44$ dBmV; $f_m = 860.5$ MHz	–	–59	–54	dB
		110 chs; $f_m = 150$ MHz; $V_o = 49$ dBmV at 550 MHz; note 1	–	–64	–60	dB
		129 chs; $f_m = 150$ MHz; $V_o = 49.5$ dBmV at 860 MHz; note 2	–	–60	–54	dB
d_2	second order distortion	note 3	–	–83	–70	dB
		note 4	–	–81.5	–73	dB
		note 5	–	–79	–76	dB
V_o	output voltage	$d_{im} = -60$ dB; note 6	63.5	64.5	–	dBmV
		$d_{im} = -60$ dB; note 7	64.5	66.5	–	dBmV
		$d_{im} = -60$ dB; note 8	66.5	69	–	dBmV
		CTB compression = 1 dB; 129 chs flat; $f = 859.25$ MHz	48.5	49	–	dBmV
		CSO compression = 1 dB; 129 chs flat; $f = 860.5$ MHz	51	54	–	dBmV
NF	noise figure	$f = 50$ MHz	–	5	5.5	dB
		$f = 550$ MHz	–	4.5	5	dB
		$f = 750$ MHz	–	5	6	dB
		$f = 900$ MHz	–	6	7.5	dB
I_{tot}	total current consumption (DC)	note 9	405	420	435	mA

Notes

- Tilt = 9 dB (50 to 550 MHz)
tilt = 3.5 dB at –6 dB offset (550 to 750 MHz).
- Tilt = 12.5 dB (50 to 860 MHz).
- $f_p = 55.25$ MHz; $V_p = 44$ dBmV;
 $f_q = 805.25$ MHz; $V_q = 44$ dBmV;
measured at $f_p + f_q = 860.5$ MHz.
- $f_p = 55.25$ MHz; $V_p = 44$ dBmV;
 $f_q = 691.25$ MHz; $V_q = 44$ dBmV;
measured at $f_p + f_q = 746.5$ MHz.
- $f_p = 55.25$ 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:
 $f_p = 851.25$ MHz; $V_p = V_o$;
 $f_q = 858.25$ MHz; $V_q = V_o - 6$ dB;
 $f_r = 860.25$ MHz; $V_r = V_o - 6$ dB;
measured at $f_p + f_q - f_r = 849.25$ MHz.
- Measured according to DIN45004B:
 $f_p = 740.25$ MHz; $V_p = V_o$;
 $f_q = 747.25$ MHz; $V_q = V_o - 6$ dB;
 $f_r = 749.25$ MHz; $V_r = V_o - 6$ dB;
measured at $f_p + f_q - f_r = 738.25$ MHz.
- Measured according to DIN45004B:
 $f_p = 540.25$ MHz; $V_p = V_o$;
 $f_q = 547.25$ MHz; $V_q = V_o - 6$ dB;
 $f_r = 549.25$ MHz; $V_r = V_o - 6$ dB;
measured at $f_p + f_q - f_r = 538.25$ MHz.
- The module normally operates at $V_B = 24$ V, but is able to withstand supply transients up to 35 V.

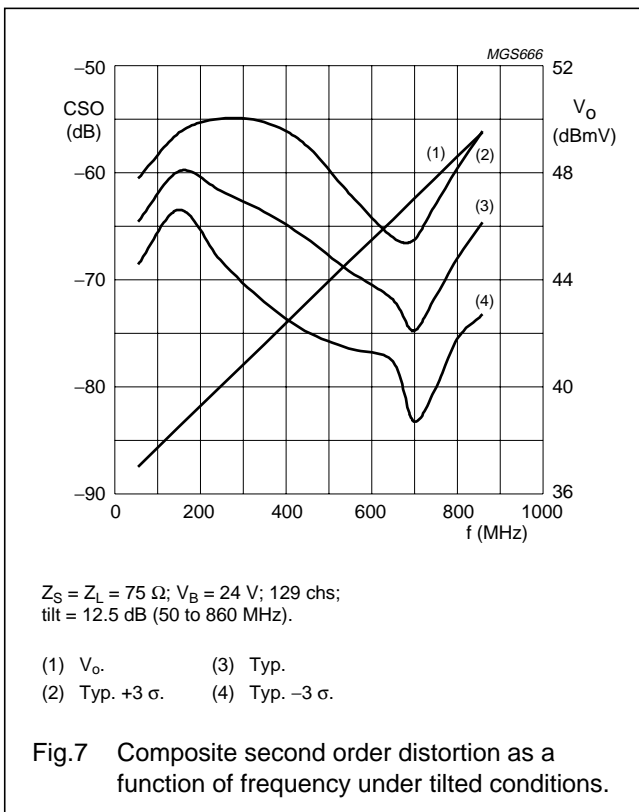
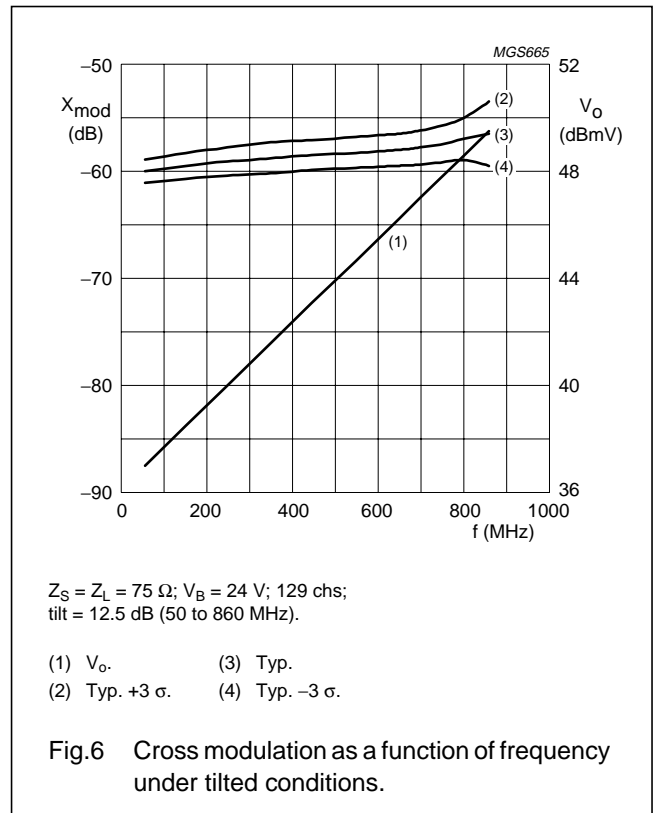
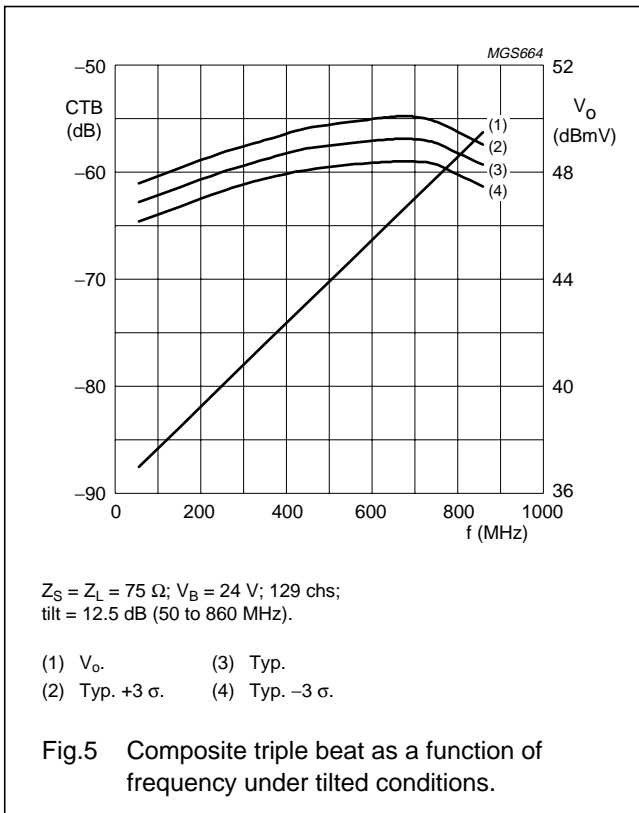
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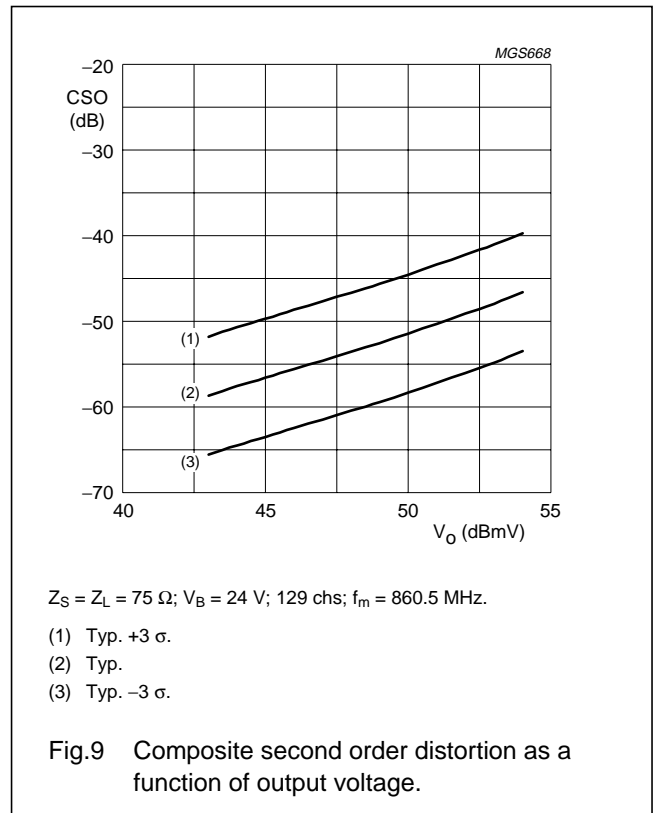
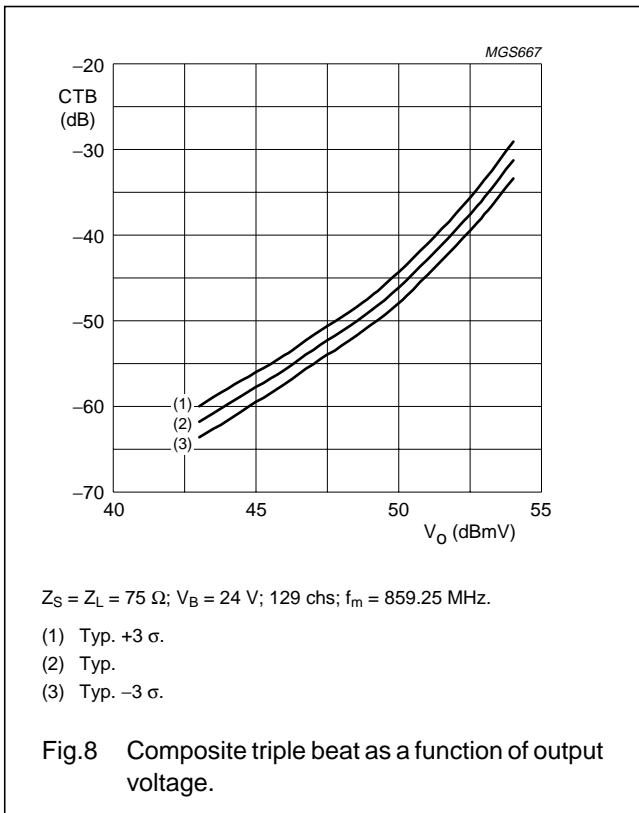
CATV amplifier module

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CATV amplifier module

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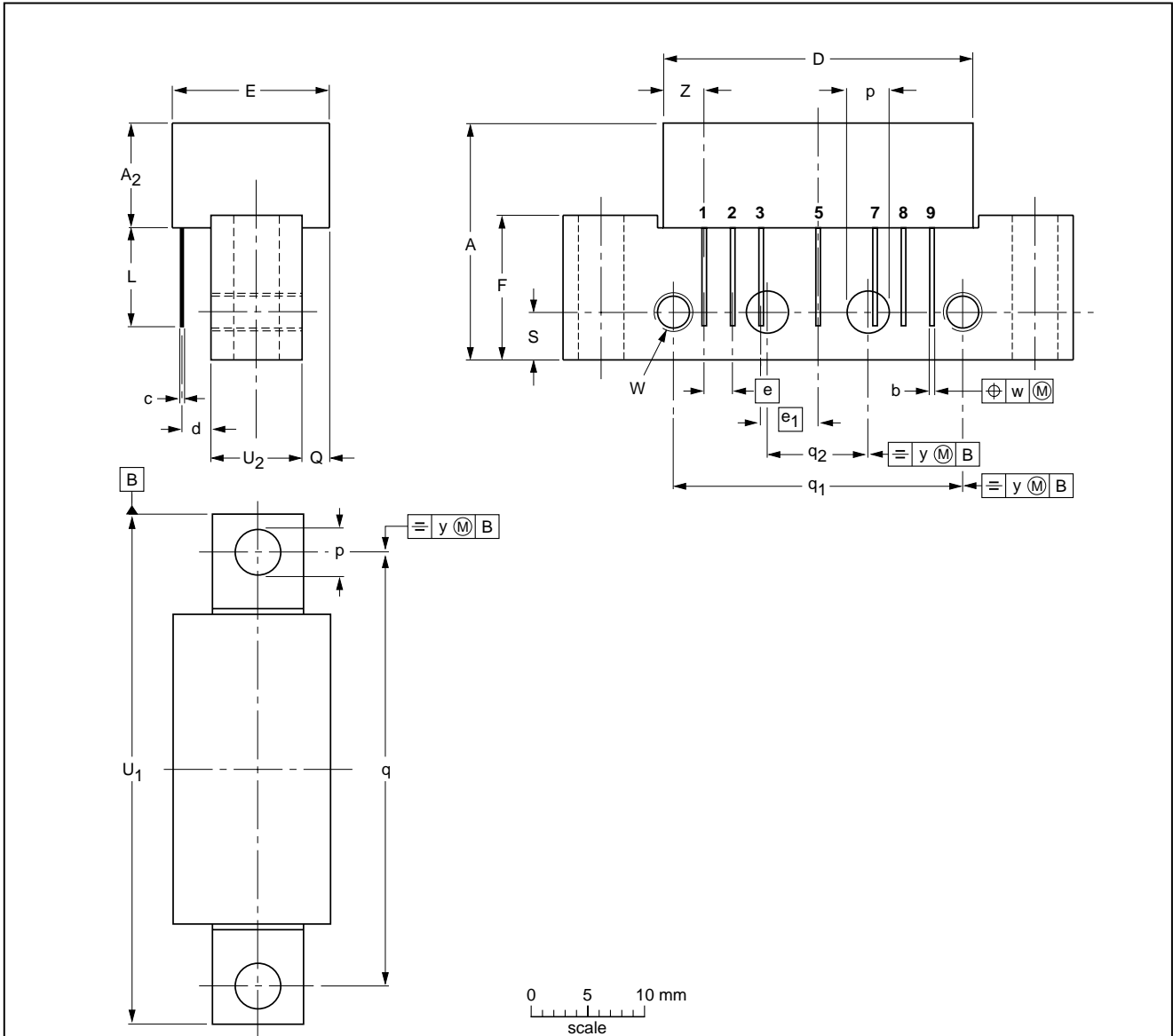
CATV amplifier module

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PACKAGE OUTLINE

Rectangular single-ended package; aluminium flange; 2 vertical mounting holes; 2 x 6-32 UNC and 2 extra horizontal mounting holes; 7 gold-plated in-line leads

SOT115J



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A ₂ max.	b	c	D max.	d max.	E max.	e	e ₁	F	L min.	p	Q max.	q	q ₁	q ₂	S	U ₁ max.	U ₂	W	w	y	Z max.
mm	20.8	9.1	0.51 0.38	0.25	27.2	2.54	13.75	2.54	5.08	12.7	8.8	4.15 3.85	2.4	38.1	25.4	10.2	4.2	44.75	8	6-32 UNC	0.25	0.1	3.8

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT115J						99-02-06

CATV amplifier module

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DEFINITIONS

Data Sheet Status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

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NOTES

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