FEATURES

- Excellent linearity
- Extremely low noise
- High gain
- Excellent return loss properties

PINNING - SOT115U

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

APPLICATIONS

- Single Integrated Circuit line extender in CATV systems operating in the 40 to 550 MHz frequency range.

DESCRIPTION

Hybrid high dynamic range Integrated Circuit operating at a supply voltage of 24 V (DC) in a SOT115J package. The module consists of two cascaded stages both in cascode Configuration.

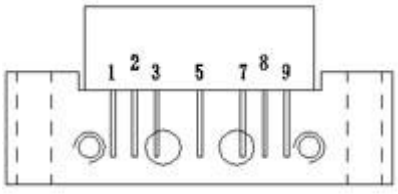


Fig.1 Simplified outline

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	power gain	f=50MHz	33.5	35.5	dB
		f=550MHz	35	-	dB
I_{tot}	total current consumption (DC)	V_B=24V	105	135	mA

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (1EC 134).

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_B	supply voltage	-	25	V
V_i	RF input voltage	-	45	dBmV
T_{stg}	storage temperature	-40	+100	℃
T_{mb}	mounting base operating temperature	-20	+100	℃

CHARACTERISTICS

Bandwidth 40 to 550 MHz; V_B=24V; T_{case}=30°C ; Z_s=Z_L=75Ω

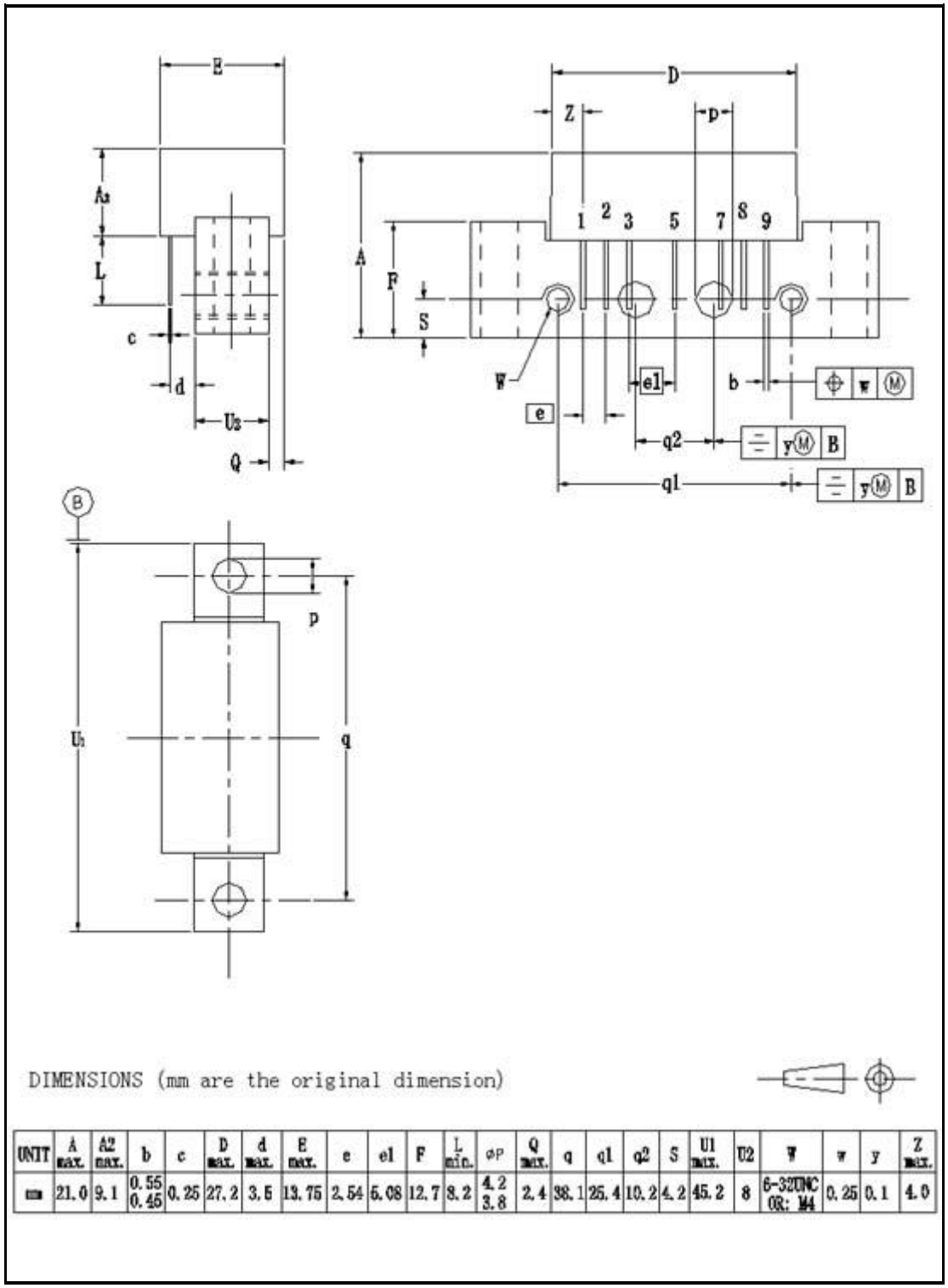
SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	power gain	f=50MHz	33.5	35	dB
		f=550MHz	35	-	dB
SL	slope cable equivalent	f=40 to 550 MHz	0.5	1.5	dB
FL	flatness of frequency response	f=40 to 550 MHz	-	±0.4	dB
S_{11}	input return losses	f=40 to 100 MHz	20	-	dB
		f=100 to 320 MHz	18	-	dB
		f=320 to 550 MHz	18	-	dB
S_{22}	output return losses	f=40 to 100 MHz	18	-	dB
		f=100 to 320 MHz	18	-	dB
		f=320 to 550 MHz	18	-	dB
CTB	composite triple beat	60 channels flat;Vo=44dBmV;measured at 543.25 MHz	-	-46	dB
X_{mod}	cross modulation	60 channels flat;Vo=44dBmV;measured at 49.75 MHz	-	-62	dB
CSO	composite second order distortion	60 channels flat;Vo=44dBmV;measured at 544.25 MHz	-	-48	dB
d_2	second order distortion	Note1	-	-64	dB
Vo	output voltage	Dim= -60 dB; note 2	59.5	-	dBmV
F	noise figure	f =550MHZ	-	6.5	dB
PM	positive match	f=40 MHz to 2 GHz	-	3	dB
I_{tot}	total current consumption (DC)	Note 3	105	135	mA

Note：

1. fp=49.75MHz; Vp=44dBmV;
   fq=495.25MHz; Vq=44dBmV;
   measured at fp+fq=545MHz.
2. Measured according to DIN45004B;
   fp=535.25MHz; Vp=Vo;
   fq=543.25MHz; Vq=Vo-6dB;
   fr=545.25MHz; Vr=Vo-6dB;
   measured at fp+fr-fq=537.25MHz.
3. The module normally operates at V_B=24V,but is able to withstand supply transients up to 26 V.

PACKAGE OUTLINE

Rectangular single-ended package; aluminum flange; 2 vertical mounting holes; 2×6-32 UNC AND 2 extra horizontal mounting holes; 7 gold-plated in-line leads



DIMENSIONS (mm are the original dimension)

UNIT	A max.	A2 max.	b	c	D max.	d max.	E max.	e	e1	F	L min.	φP	Q max.	q	q1	q2	S	U1 max.	U2	W	w	y	Z max.
mm	21.0	9.1	0.55 0.45	0.25	27.2	3.5	13.75	2.54	5.08	12.7	8.2	4.2 3.8	2.4	38.1	25.4	10.2	4.2	45.2	8	6-32UNC OR: M4	0.25	0.1	4.0