



勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-34970699
勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

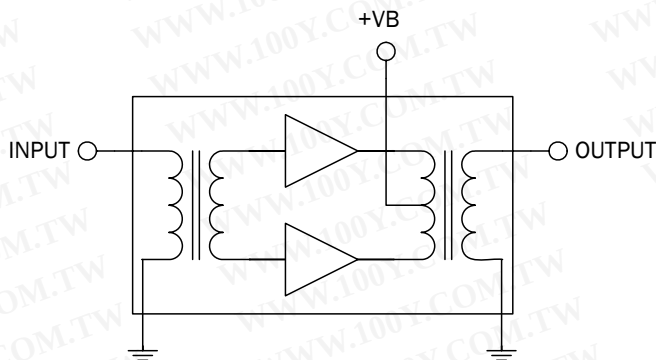
Package: SOT-115J

Product Description

The D8740180GTH is a Hybrid Power Doubler amplifier module. The part employs GaAs die and is operated from 40MHz to 870MHz. It provides excellent linearity and superior return loss performance with low noise and optimal reliability.

Optimum Technology Matching® Applied

- ☐ GaAs HBT
- ☒ GaAs MESFET
- ☐ InGaP HBT
- ☐ SiGe BiCMOS
- ☐ Si BiCMOS
- ☐ SiGe HBT
- ☐ GaAs pHEMT
- ☐ Si CMOS
- ☐ Si BJT
- ☐ GaN HEMT
- ☐ RF MEMS



Features

- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Low Noise
- Unconditionally Stable Under All Terminations
- 18.5dB Min. Gain at 870MHz
- 440mA Max. at 24VDC

Applications

- 40MHz to 870MHz CATV Amplifier Systems

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					$V_B = 24V$; $T_{MB} = 30^\circ C$; $Z_S = Z_L = 75\Omega$
Power Gain	18.5		20.0	dB	$f = 870MHz$
Slope ^[1]	0.6	1.0	1.4	dB	$f = 40MHz$ to $870MHz$
Flatness of Frequency Response			0.6	dB	$f = 40MHz$ to $870MHz$ (Peak to Valley)
Input Return Loss	20.0			dB	$f = 40MHz$ to $320MHz$
	19.0			dB	$f = 320MHz$ to $640MHz$
	17.0			dB	$f = 640MHz$ to $870MHz$
	20.0			dB	$f = 40MHz$ to $320MHz$
Output Return Loss	19.0			dB	$f = 320MHz$ to $640MHz$
	18.0			dB	$f = 640MHz$ to $870MHz$
				dB	$f = 50MHz$ to $870MHz$
Noise Figure			6.5	dB	$f = 50MHz$ to $870MHz$
Total Current Consumption (DC)		420.0	440.0	mA	

1. The slope is defined as the difference between the gain at the start frequency and the gain at the stop frequency.

Absolute Maximum Ratings

Parameter	Rating	Unit
RF Input Voltage (single tone)	75	dBmV
DC Supply Over-Voltage (5 minutes)	30	V
Storage Temperature	-40 to +100	°C
Operating Mounting Base Temperature	-30 to +100	°C



Caution! ESD sensitive device.

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability. Specified typical performance or functional operation of the device under Absolute Maximum Rating conditions is not implied.

RoHS status based on EUDirective 2002/95/EC (at time of this document revision).

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Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Distortion data 40MHz to 870MHz					$V_B = 24V$, $T_{MB} = 30^\circ C$, $Z_S = Z_L = 75\Omega$
CTB		-68	-66	dBc	79 ch. flat; $V_O = 48dBmV^{[1]}$
		-62	-60	dBc	112 ch. flat; $V_O = 48dBmV^{[2]}$
		-58	-56	dBc	132 ch. flat; $V_O = 48dBmV^{[3]}$
		-66	-64	dBc	79 ch. 7 dB tilted; $V_O = 53dBmV$ at 550MHz ^[4]
		-60	-58	dBc	112 ch. 10dB tilted; $V_O = 54dBmV$ at 750MHz ^[5]
XMOD		-62	-60	dBc	79 ch. flat; $V_O = 48dBmV^{[1]}$
		-59	-57	dBc	112 ch. flat; $V_O = 48dBmV^{[2]}$
		-57	-55	dBc	132 ch. flat; $V_O = 48dBmV^{[3]}$
		-60	-58	dBc	79 ch. 7 dB tilted; $V_O = 53dBmV$ at 550MHz ^[4]
		-53	-51	dBc	112 ch. 10dB tilted; $V_O = 54dBmV$ at 750MHz ^[5]
CSO		-70	-68	dBc	79 ch. flat; $V_O = 48dBmV^{[1]}$
		-66	-64	dBc	112 ch. flat; $V_O = 48dBmV^{[2]}$
		-64	-62	dBc	132 ch. flat; $V_O = 48dBmV^{[3]}$
		-69	-67	dBc	79 ch. 7 dB tilted; $V_O = 53dBmV$ at 550MHz ^[4]
		-65	-63	dBc	112 ch. 10dB tilted; $V_O = 54dBmV$ at 750MHz ^[5]

1. 79 channels, NTSC frequency raster: 55.25MHz to 547.25MHz, +48dBmV flat output level.

2. 112 channels, NTSC frequency raster: 55.25MHz to 745.25MHz, +48dBmV flat output level.

3. 132 channels, NTSC frequency raster: 55.25MHz to 865.25MHz, +48dBmV flat output level.

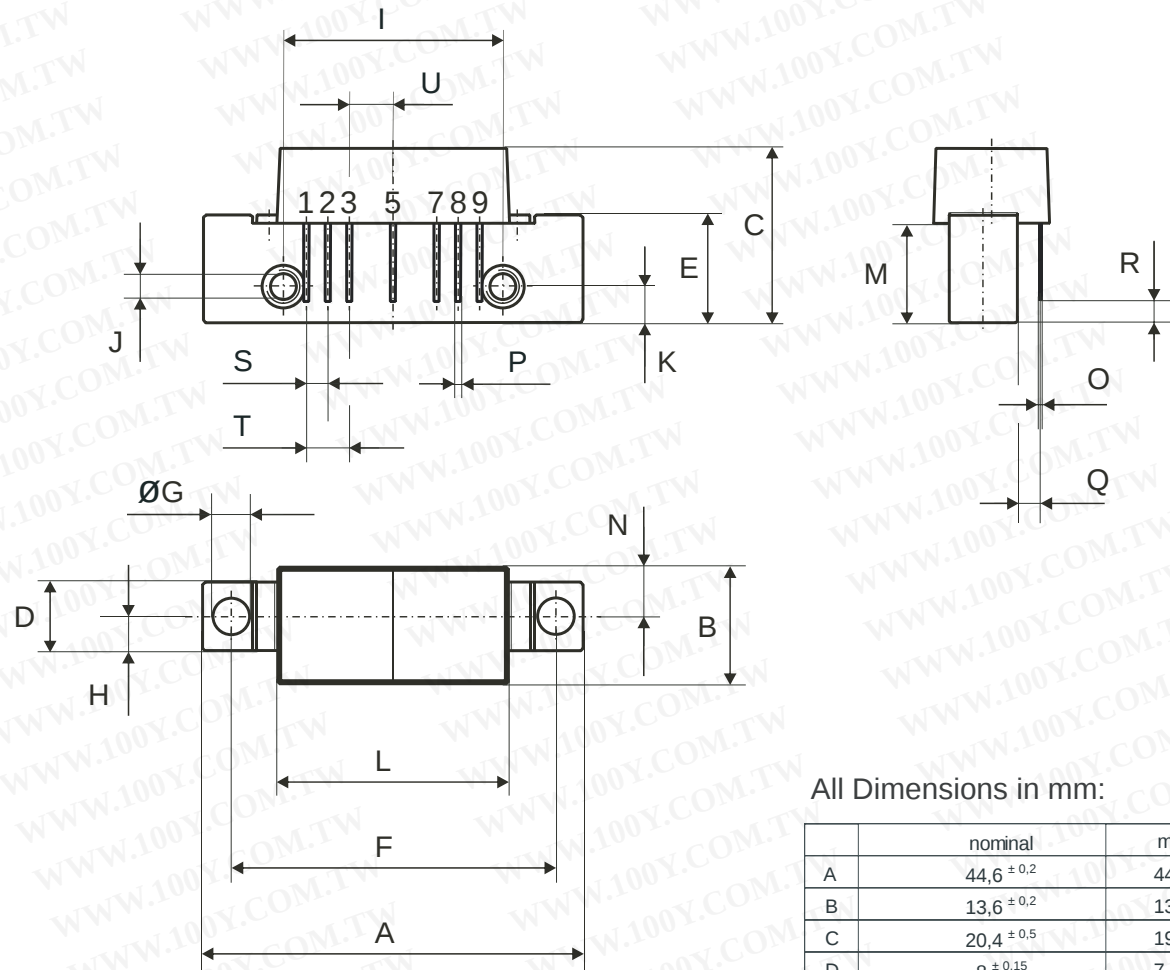
4. 79 channels, NTSC frequency raster: 55.25MHz to 547.25MHz, +46dBmV to +53dBmV tilted output level.

5. 112 channels, NTSC frequency raster: 55.25MHz to 745.25MHz, +44dBmV to +54dBmV tilted output level.

Composite Second Order (CSO) - The CSO parameter (both sum and difference products) is defined by the NCTA.

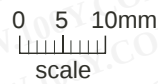
Composite Triple Beat (CTB) - The CTB parameter is defined by the NCTA.

Cross Modulation (XMOD) - Cross modulation (XMOD) is measured at baseband (selective voltmeter method), referenced to 100% modulation of the carrier being tested.



Pinning:

1	2	3	4	5	6	7	8	9
INPUT	GND	GND	+VB			GND	GND	OUTPUT



Notes:



All Dimensions in mm:

	nominal	min	max
A	44,6 ± 0,2	44,4	44,8
B	13,6 ± 0,2	13,4	13,8
C	20,4 ± 0,5	19,9	20,9
D	8 ± 0,15	7,85	8,15
E	12,6 ± 0,15	12,45	12,75
F	38,1 ± 0,2	37,9	38,3
G	4 +0,2 / -0,05	3,95	4,2
H	4 ± 0,2	3,8	4,2
I	25,4 ± 0,2	25,2	25,6
J	UNC 6-32	-	-
K	4,2 ± 0,2	4,0	4,4
L	27,2 ± 0,2	27,0	27,4
M	11,6 ± 0,5	11,1	12,1
N	5,8 ± 0,4	5,4	6,2
O	0,25 ± 0,02	0,23	0,27
P	0,45 ± 0,03	0,42	0,48
Q	2,54 ± 0,3	2,24	2,84
R	2,54 ± 0,5	2,04	3,04
S	2,54 ± 0,25	2,29	2,79
T	5,08 ± 0,25	4,83	5,33
U	5,08 ± 0,25	4,83	5,33

D8740180GTH



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