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DATASHEET
Feuille de Spécifications

P/N: 1AMPPW17012.0070
Designation : Amplificateur 20-520MHz 100W 48Vdc

Electrical features *Caractéristiques électriques*		All parameters specified @ +25°C & +48Vdc	
Electrical parameters *Paramètres électriques*	**Measuring conditions** *Conditions de mesure*	**AA-MCS specifications** *Spécifications AA-MCS*	**Units** *Unités*
Operating frequency range *fréquence*		20-520	MHz
Gain @ P1dB *Gain*	@ P1dB	50 min.	dB
Output power @ P1dB *Puissance P1dB*	CW @ P1dB	47 min.	dBm
Saturated power (Psat) *Puissance de saturation*	CW @ Psat	49 min. (20-70Mhz) 50 min. (70-520Mhz)	dBm
Gain Flatness *Platitude gain*	@ Psat	+/- 1.5 max.	dB
Input drive level without damage. *Pin max*		+10 max.	dBm
Input return loss *Adaptation d'entrée*		-10 max.	dB
In band harmonics at 100W output power : *Harmoniques à 100W*	2nd Harmonic 3rd Harmonics	-10 max. -20 typ. -10 max. -15 typ.	dBc
Third Order intercept point , 2-tone measurement, Each signal at 37dBm with 100Khz spacing: *IP3*	F1 + F2 @ 37dBm 100Khz spacing	50 min. *(26.5)*	dBm *(dBc)*
Non harmonic related spurious *Spurious*	dc – 10GHz	-60 max.	dBc
Noise figure *Bruit RF*		12 max.	dB

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1	**R.P**	**20/12/2017**	**MAJ suite proto**

Electrical features *Caractéristiques électriques*		All parameters specified @ +25°C & +48Vdc	
Electrical parameters *Paramètres électriques*	**Measuring conditions** *Conditions de mesure*	**AA-MCS specifications** *Spécifications AA-MCS*	**Units** *Unités*
Switching time @ 1khz TTL, 50% duty cycle *Temps commutation*		1.0 typ. 3.0 max.	µs
Tolerance to load mismatch - **Load VSWR mismatch** - **All phase angle** *Seuil de desadaptation*	Up to 4:1 Open/Short	Infinite 1 mn without damage	
Supply voltage *Tension d'alimentation*		46 min. 48 typ. 50 max.	V
Current consumption *Consommation courant*	**@ Pout = 50dBm**	6.5 max.	A
Shutdown Current *Courant en Shuntdown*		0.5 max.	A
Thermal overload	Min. +85° typ +90°c max. 105°c	Shuntdown temp.	

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Environmental Temperature *Temprérature environnementale*	
Base plate temperature	-40 min. / +85 max. °C
Cold start temperature	-40°C min.
Storage temperature	-40 min. / +85 max. °c
Humidity, non-condensing	95%
Altitude, to MIL-STD-810G, Method 500.3	30000 feet (External Specific Testing)
Vibration / shock to MIL-STD-810G, Notice 1, Method 514.7/516.7 (procedure I)	Airborne (External Specific Testing)

INTERFACE DETAILS / *Interface*	
RF Input	50Ω SMA fem Connector
RF Output	50Ω SMA fem Connector
DC Power and Monitoring	DB 9pts male typ.
	<u>Pinning Connector DB-9pts:</u> 1 – NC or option Mismatch indicator output 2 – Current monitor output Analogue voltage, 0-5v output range with a slope of 0.8v/A typ. 3 – Temp sense output Analogue voltage, 0-5v output range with a slope of 10mv/°c typ. Typ . 1.55v @ 25°c 4 – NC or option CAG_Vc or option VVA 5 – Shuntdown input TTL ''low'' (<0.8v) or Open circuit : enable amplifier TTL ''high'' (>3.3) : disable amplifier 6 – DC supply +48v 7 – DC supply +48v 8 – GND 9 – GND

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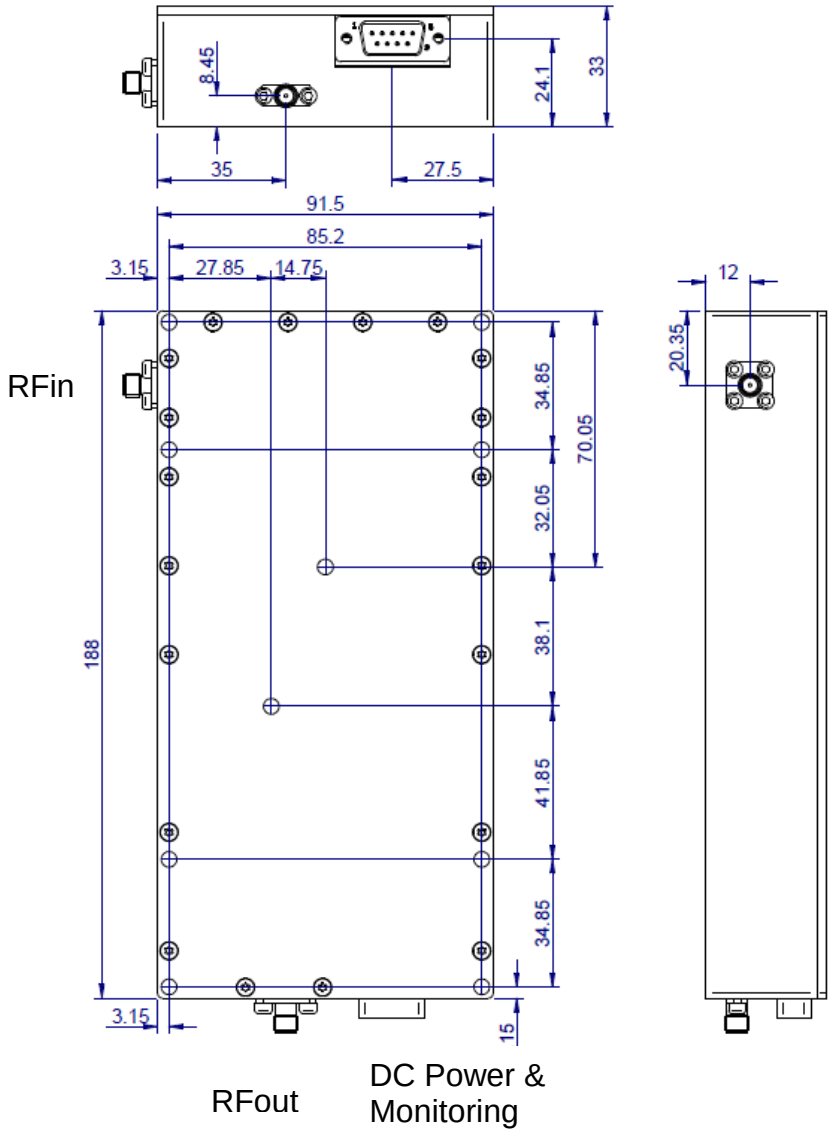
Caractéristiques mécaniques / *Mechanical features*			
Paramètres *Parameters*	**Conditions de mesure** *Measuring conditions*	**Spécifications AA-MCS** *AA-MCS specifications*	**Unités** *Units*
Longueur x largeur x Hauteur *Length x width x height*	L x W x H	188 x 91.5 x 33 (without connectors)	mm
Dissipation *Cooling*		Conduction cooled	-
Weight *Masse*		1.0 max.	kg



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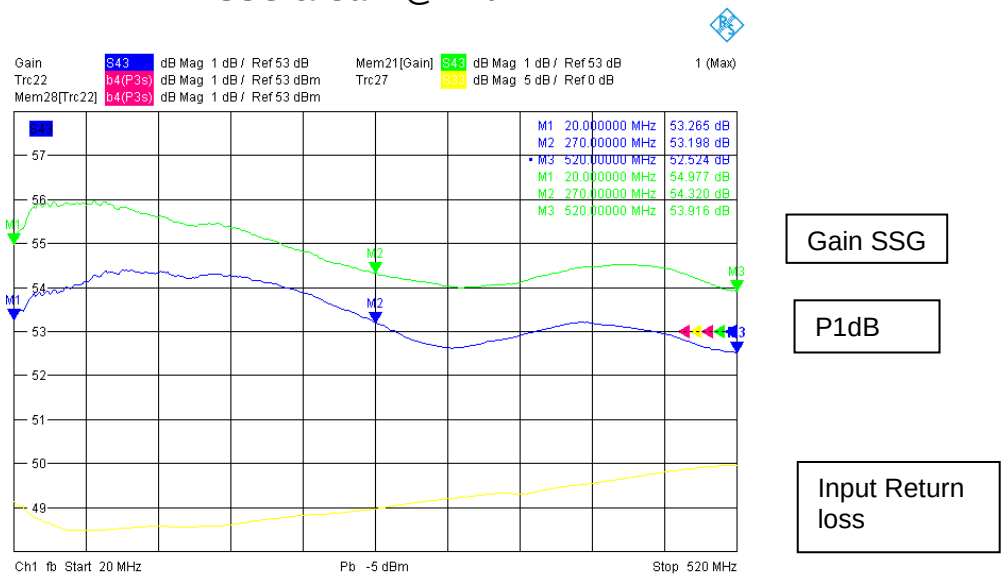
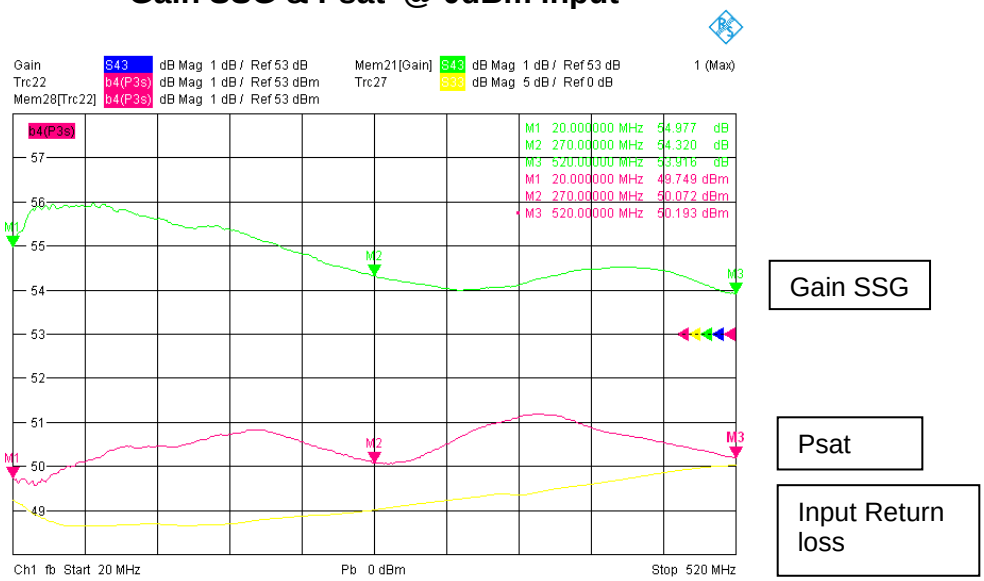
Curves and note of measure:

SSG & Gain @ P1dB



Gain SSG & Psat @ 0dBm input



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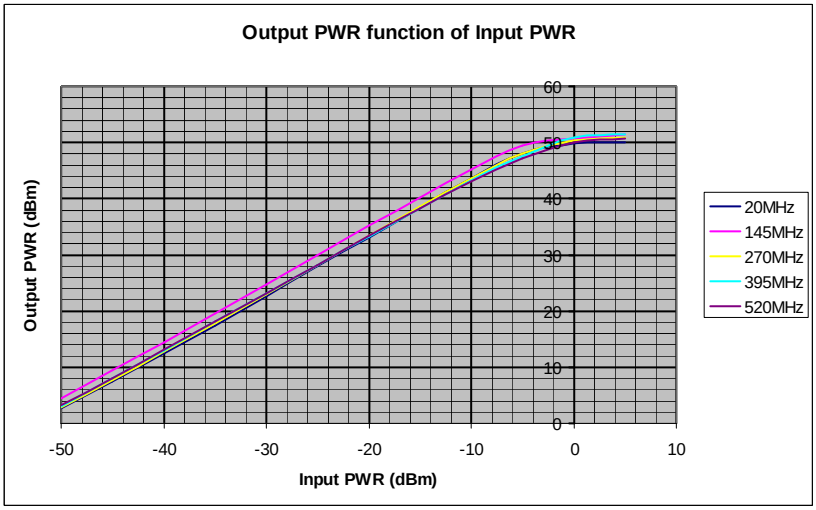

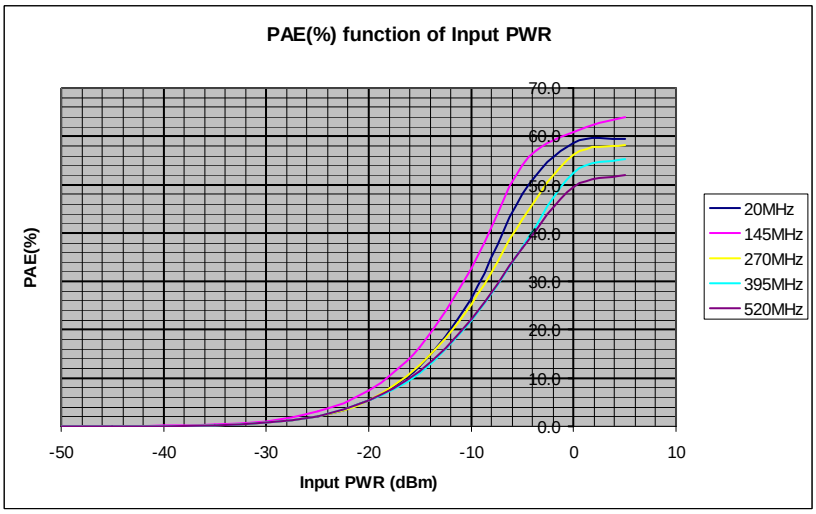

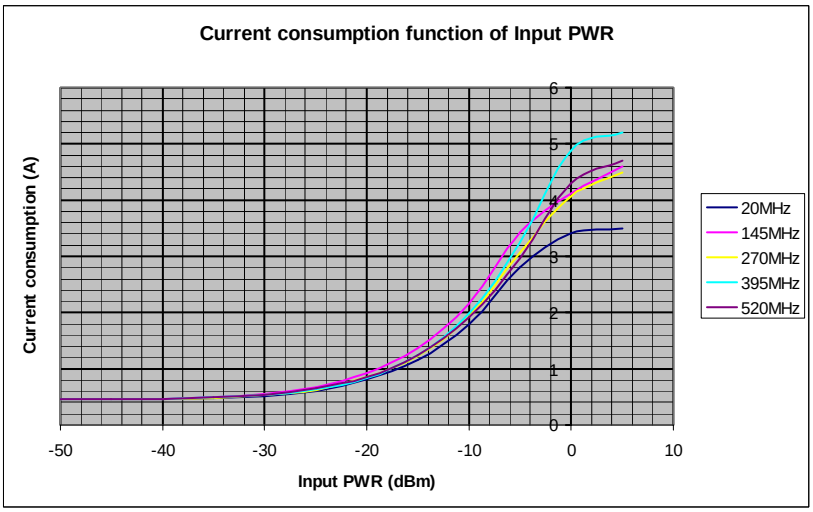

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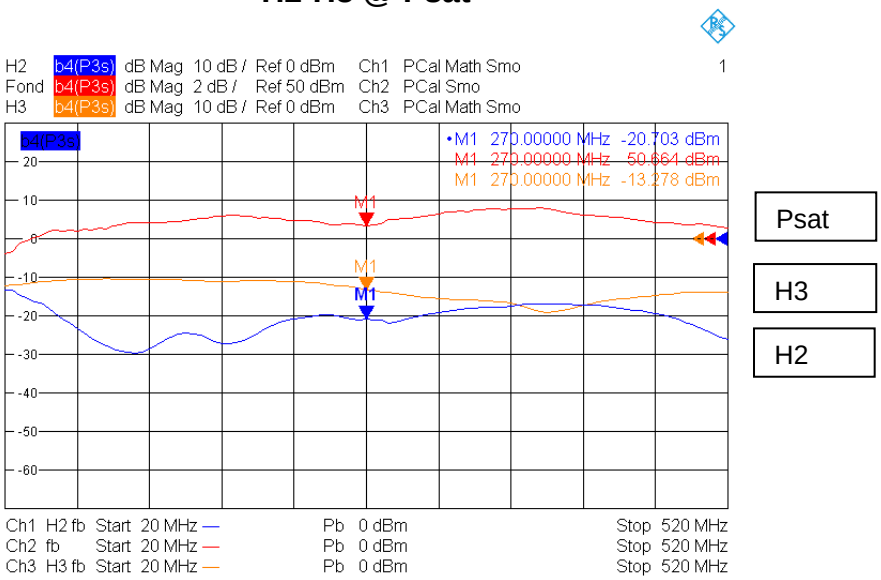
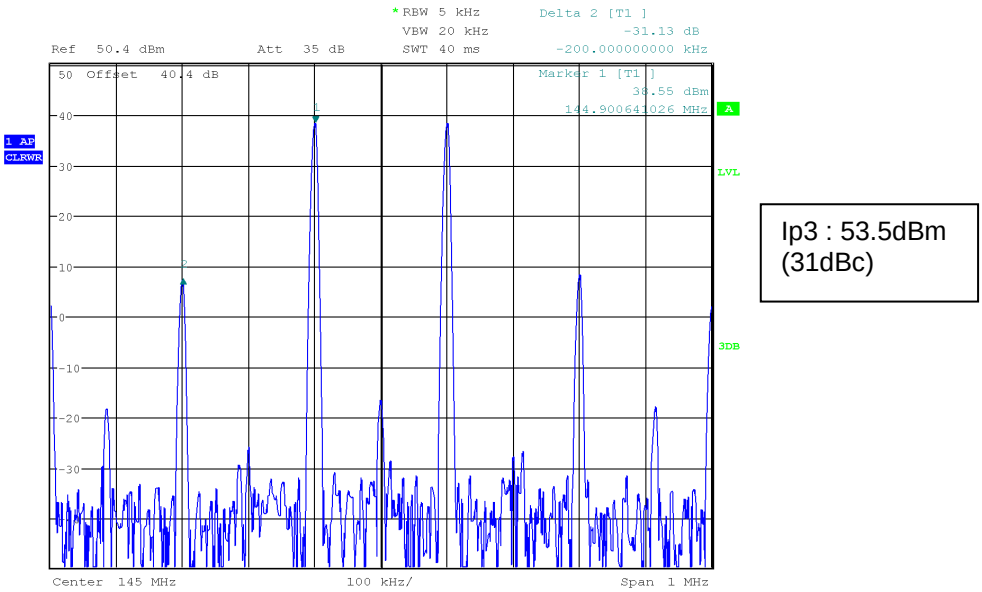
H2-H3 @ Psat



IP3 @ F = 145Mhz & Pout 37dBm



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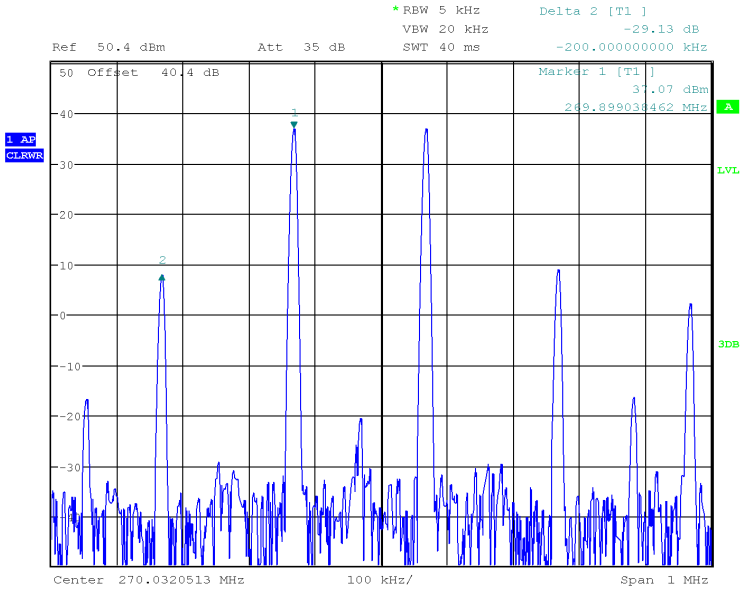
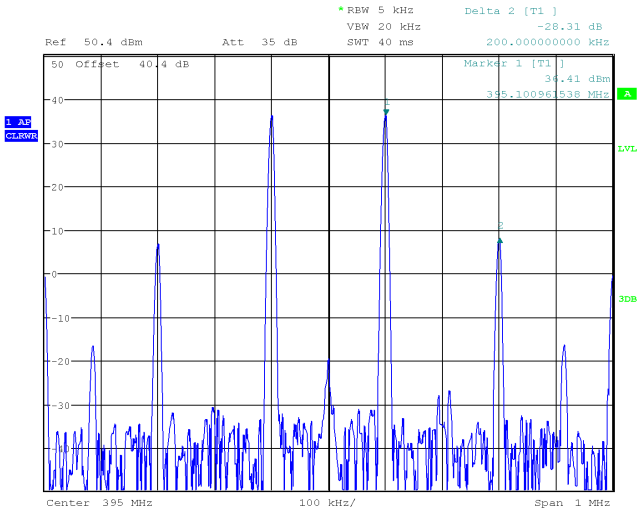
IP3 @ F = 270Mhz & Pout 37dBm



Ip3 : 51.5dBm
(29dBc)

IP3 @ F = 395Mhz & Pout 37dBm



Ip3 : 51dBm
(28dBc)

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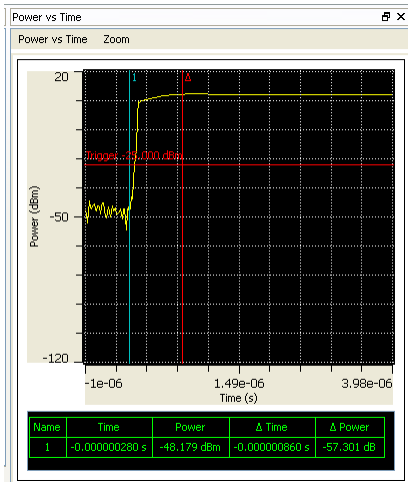
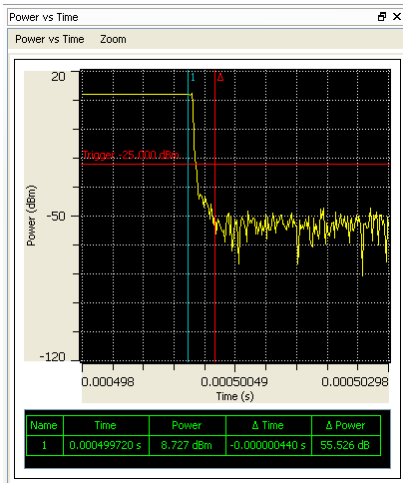
Switching time Off-On @ 270Mhz



Switching time On-Off @ 270Mhz



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Note – Tolerance to load mismatch

- Made by ALC on the reverse power
- ALC threshold : 43.5dBm typ +/-2 dB. With 0-4.5dB max. power reduction @ 45.5dBm (VSWR 4:1)

Measure ALC load VSWR infinite on 1m cable			
	30Mhz	250Mhz	520Mhz
Start CAG	45.5dBm	41.2dBm	40.5dBm
Reduction ΔdB VSWR 4:1 (45.5dBm)	Δ0.5dB	Δ2dB	Δ2dB

Method of development and measurement:
45.5dBm corresponds to 4:1 load VSWR compared to 50dBm. The threshold of the ALC is adjusted so that it starts to trigger at about 42.5dBm +/- 2dB for an infinite load VSWR (open or short circuit) at the end of a cable of 1m (Worst case). This ALC acts on a RF attenuator positioned at the input of the gain chain and is automatically set between 0-4.5dB attenuation for a load VSWR of 4:1 (45.5dBm).

Note – Signal Information on DB9pts

- Pin1 : Mismatch indicator output : TTL levels
  - low < 0.8v for no mismatch
  - high level > 2v, typ. 5v when mismatch is detected

- Pin 2 : Current monitor output (**Vic)**: 0-5v range with 0.8V/A Typ.

IC	Vic typ.
500mA @ RF small signall	0.42V
1.0A	0.83V
2.0A	1.61V
3.0A	2.35V
4.0A	3.10V

- Pin 3 : Temperature sense output (**Vtemp)**: 10mv/°c typ.

Temp.	Vtemp typ.
30°C	1.6V
40°C	1.74V
50°C	1.82V
60°C	1.91V
70°c	1.99V
80°C	2.07V
Alarm 88°c	2.15V

– Pin 4 : option

– Pin 5 : Shuntdown input -> TTL signal
TTL ''low'' (<0.8v) or Open circuit : enable amplifier -> Ok
TTL ''high'' (>3.3 to 5v) : disable amplifier -> Ok

- Pin 6, 7 and 8, 9 : Dc supply and GND -> Supply 48v / 6.5A max.