

CMM0618-BD

6.0 to 18.0 GHz 1W MMIC Amplifier

CELERITEK INC.

ADVANCED PRODUCT SPECIFICATIONS ⁽¹⁾

PRODUCT DESCRIPTION: 6-18GHz 1W MMIC Amplifier

PRODUCT APPLICATION:

PROJECT ENGINEER: Carlo Poledrelli

MASK NUMBER: M400

VERSION NUMBER:

PART NUMBER: CMM0618-BD

BM NUMBER: tbd

REVISION: 02

DATE: 10/29/04

Main Features

- ❑ 2-stage design ideal to be used in balanced configuration
- ❑ Input/output DC block integrated on chip
- ❑ 30dBm typical Psat
- ❑ 10.5dB nominal Gain
- ❑ Bias: 6V, 750mA
- ❑ Chip size: 2.815x1.980mm²

Room temperature electrical specifications at Vdd=6.5V, Idq=775mA. ⁽²⁾

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
Operating frequency band	F	6.0	-	18.0	GHz
Output power at 1dB compression	P1dB	28.0	29.0	-	dBm
Saturated output power	Psat	29.0	30.0	-	dBm
Psat peak-to-peak variation over frequency	Δ P1dB	-	-	2.0	dBm
Linear gain	Glin	8.5	-	12.5	dB
Glin peak-to-peak variation over frequency	Δ Glin	-	-	3.0	dB
Output third order intercept point @ 10GHz	OIP3	-	36.0	-	dBm
Quiescent current	Idq	700	775	850	mA
Thermal resistance	Rth			tbd	°C/W
Stability	Unconditionally stable				

⁽¹⁾ These specifications are subject to change.

⁽²⁾ Based on raw data taken using Celeritek' s connectorized fixture.

Electrical specifications over operating temperature: -35÷75°C.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
P1dB variation from room temperature value	Δ P1dB	-	-	±0.5	dBm
Glin variation from room temperature value	Δ Glin	-	-	±0.7	dB

Absolute Maximum Ratings ⁽³⁾

PARAMETER	SYMBOL	RATING		UNITS
		MIN	MAX	
Drain voltage supply	Vdd	5.0	8.0	V
Drain current	Ids	-	1.0	A
Dissipated power	Pdiss	-	8.0	W
Input power	Pin	-	25.0	dBm
Storage temperature	Tstg	-50	150	°C
Channel temperature	Tch	-	175	°C
Operating backside temperature	Tb	-40	⁽⁴⁾	°C

⁽³⁾ Operation outside any of these limits can cause permanent damage.

⁽⁴⁾ Calculate maximum operating temperature using the following formula: $T_{max} = 175 - (P_{diss} [W] \times R_{th} [^{\circ}C/W]) [^{\circ}C]$.