Preliminary

GaN Power Transistors

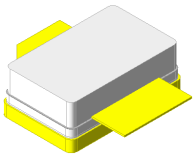
AB02ABCAB / AB02ABCAB1

Product Features

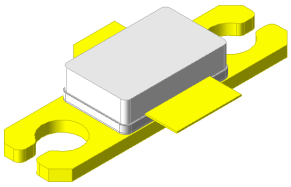
- DC - 4GHz
- 60 W Saturated Power @ 28V
- 72% Drain Efficiency @ Psat
- Unmatched transistor

Applications

- Broadband Amplifiers
- WiMAX, LTE, WCDMA, GSM
- Multi-Band, Multi-Mode
- Multi-Carrier
- High Efficiency



AB02AAGAB



AB02AAGAB1

Typical Performance Over 2300 – 2700 MHz (V_{DS}=+28V, Tc=25°C, 50Ω)

Frequency (MHz)	Signal Type	Power Gain [dB]	Drain Efficiency [%]	Pout [W]
2300	CW	11.5	62.0	47.5
2500		11.8	71.0	47.8
2700		11.4	72.0	47.4

Absolute Maximum Ratings

Rating	Symbol	Value	Unit	Condition
Drain to Source Voltage	V_{DSS}	85	V	Tc=25°C
Gate to Source Voltage	V_{GS}	-10, +2	V	Tc=25°C
Operating Voltage	V_{DD}	28	V_{DC}	
Maximum Forward Gate Current	I_{GMAX}	15	mA	Tc=25°C
Maximum Drain Current[*1]	I_{DMAX}	6	A	Tc=25°C
Power Dissipation	P_{DISS}	56	W	Tc=85°C
Storage Temperature	T_{STG}	-65, +150	°C	
Case Operating Temperature	T_C	-40, +150	°C	
Operating Junction Temperature[*2]	T_J	225	°C	
Soldering Temperature[*3]	T_S	245	°C	

Note

*1 Current Limit for long term, reliable operation.

*2 Continuous use at maximum temperature will affect MTTF.

*3 Refer to the Application Note (AN-002) on soldering - "Solder Condition for RFHIC's GaN Device"

Thermal Characteristics

Rating	Symbol	Value	Unit	Condition
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.8 *1	°C/W	Tc=85°C

Note
*1 AB02AAGAB / AB02AAGAB1 was measured at a power dissipation of 56W

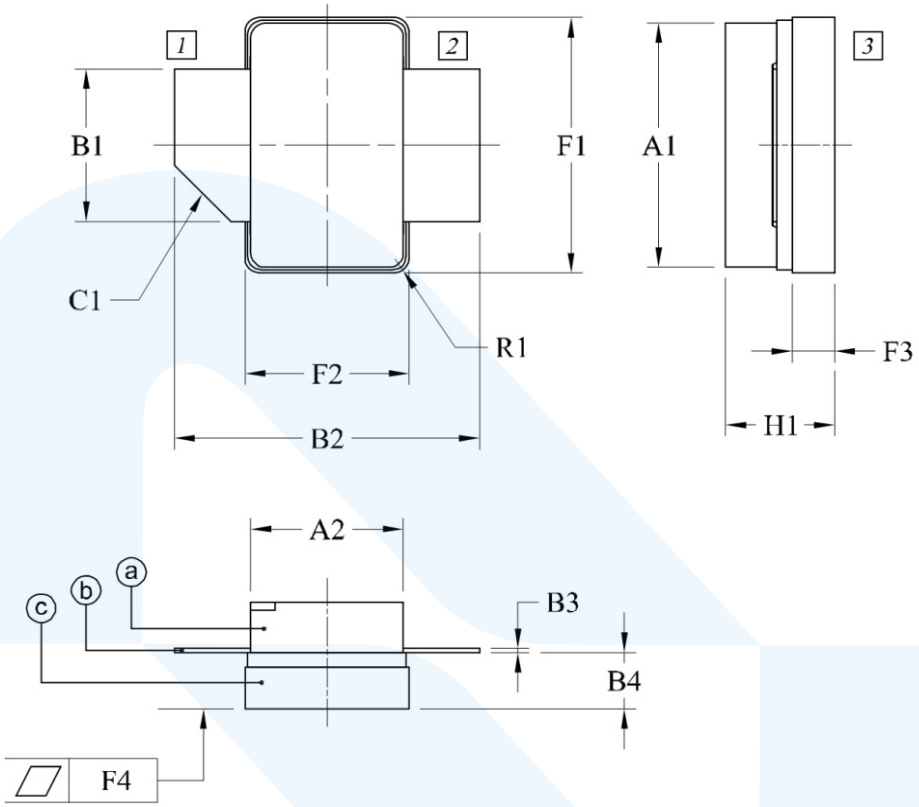
Electrical Characteristics (Tc=25°C unless otherwise noted)

Characteristics	Conditions	Symbol	Min	Typ	Max	Unit
DC Characteristics*1						
Gate Threshold Voltage	**V_{DS} = 10V** **I_D = 14.4mA**	$V_{GS(TH)}$	-3.8	-3.0	-2.3	V_{DC}
Gate Quiescent Voltage	**V_{DS} = 28V** **I_D = 400mA**	$V_{GS(Q)}$	-	-2.7	-	V_{DC}
Saturated Drain Current*2	**V_{DS} = 6V** **V_{GS} = 2V**	I_{DS}	10.4	14.4	-	A
Drain-Source Breakdown Voltage	**V_{GS} = -8V** **I_D = 14.4mA**	V_{BR}	84	-	-	V
Gate Leakage Current	**V_{GS} = -8V** **V_{DS} = 120V**	I_{GLKG}	-3.2	-	-	mA
Drain Leakage Current	**V_{GS} = -8V** **V_{DS} = 120V**	I_{DLKG}	-	-	5.8	mA
RF Characteristics (Fc = 2500MHz Unless otherwise noted)						
Saturated Output Power*3	**V_{DS} = 28V** **I_{DQ} = 400mA**	P_{SAT}	52	60	-	W
CW Drain Efficiency*3	**V_{DS} = 28V**	η	52	62	-	%

Note
*1 Measured on wafer prior to packaging.
*2 Scaled from PCM data.
*3 CW(Continuous Wave) signal operation condition.

Package Dimensions AB02AAGAB (Type: NS-BS01)

* Unit: mm[inch] | Tolerance ±0.15 [.006]



Pin Description	
Pin No	Function
1	Gate
2	Drain
3	Source

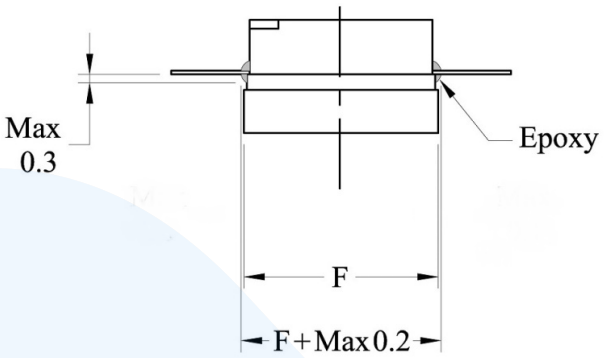
ⓐ- Lid

ⓑ- Lead Frame

ⓒ- Flange

Dim.	INCH			MILLIMETER		
	MIN	TYP	MAX	MIN	TYP	MAX
A1	.343	.346	.352	8.70	8.80	8.95
A2	.209	.213	.219	5.30	5.40	5.55
B1	.211	.217	.222	5.37	5.50	5.63
B2	.406	.425	.445	10.30	10.80	11.30
B3	.004	.005	.007	0.10	0.13	0.18
B4	.080	.085	.090	2.03	2.15	2.28
C1 (Chamfer)	.075	.079	.083	1.90	2.00	2.10
F1	.357	.362	.367	9.07	9.20	9.33
F2	.223	.228	.233	5.67	5.80	5.93
F3	.054	.059	.064	1.37	1.50	1.63
F4	-	.001	-	-	0.03	-
H1	.144	.156	.163	3.65	3.95	4.15
R1 (Radius)	.016	.020	.024	0.40	0.50	0.60

Sealing Epoxy Tolerance AB02AAGAB (Type : NS-BS01)



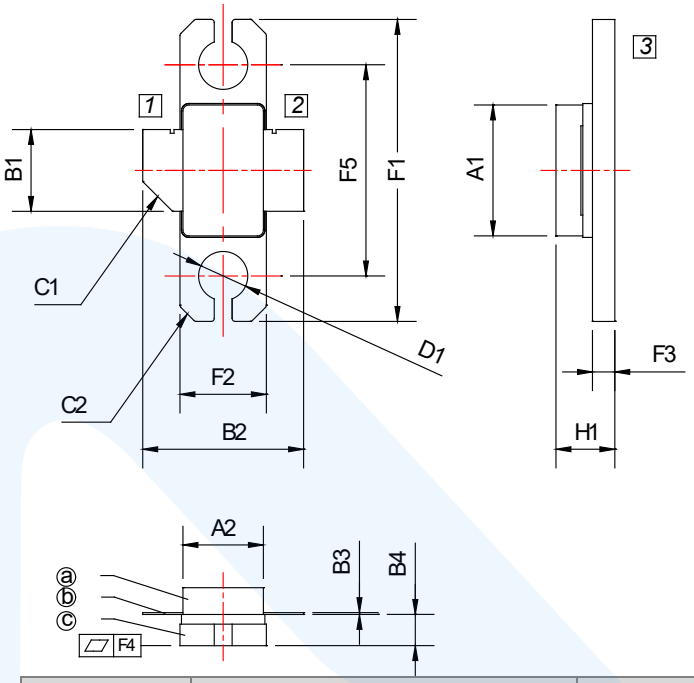
Note

Unit: mm

F is maximum size of flange

Package Dimensions AB02AAGAB1 (Type: NS-BS01P1)

* Unit: mm[inch] | Tolerance ±0.15 [.006]



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B3	.004	.005	.007	0.10	0.13	0.18
B4	.080	.085	.090	2.03	2.15	2.28
C1 (Chamfer)	.075	.079	.083	1.90	2.00	2.10
C2 (Chamfer)	.033	.039	.045	0.85	1.00	1.15
F1	.794	.799	.804	20.17	20.3	20.43
F2	.223	.228	.233	5.67	5.80	5.93
F3	.054	.059	.064	1.37	1.50	1.63
F4	-	.002	-	-	0.05	-
F5	.554	.559	.564	14.07	14.2	14.33
H1	.144	.156	.163	3.65	3.95	4.15
D1	.124	.130	.136	3.15	3.30	3.45

Revision History

Part Number	Release Date	Version	Description	Data Sheet Status
AB02AAGAB, AB02AAGAB1	Aug, 2026	0.1	Preliminary of Datasheet	Preliminary

Certification
This product is manufactured by a company that is certified for the AS9100D quality management system.