

# DATA SHEET

## **Line-ups** RF & Microwave Power Transistors and RF Power Modules

File under Discrete Semiconductors, SC19

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# RF & Microwave Power Transistors and RF Power Modules

## Line-ups

### SSB TRANSMITTERS (1.5 to 30 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (PEP) (W)	SUPPLY VOLTAGE (V)	Stud S Flange F
<b>Bipolar</b>						
30	BLY87C <sup>(1)</sup>	2 × BLY89C	–	30	13	S
30	BLV10 <sup>(1)</sup>	2 × BLW87	–	30	13	F
50	BLY88C	2 × BLW60C	–	50	13	S
50	BLV20 <sup>(1)</sup>	2 × BLW83	–	50	28	F
50	BLV11 <sup>(1)</sup>	2 × BLW85	–	50	13	F
100	BLY89C <sup>(1)</sup>	4 × BLW60C	–	100	13	S
100	BLW87 <sup>(1)</sup>	4 × BLW85	–	100	13	F
140	2 × BLW87 <sup>(1)</sup>	2 × BLW99	–	150	13	F
150	BLW83 <sup>(1)</sup>	2 × BLW76	–	150	28	F
250	2 × BLW83 <sup>(1)</sup>	2 × BLW77	–	250	28	F
220	2 × BLW86 <sup>(1)</sup>	2 × BLW97	–	300	28	F
500	2 × BLW86	4 × BLW77	–	450	28	F
680	2 × BLW78 <sup>(1)</sup>	4 × BLW97	–	600	28	F
300	2 × BLW83 <sup>(2)</sup>	2 × BLW96	–	350	50	F
600	2 × BLW50F <sup>(1)</sup>	4 × BLW95	–	500	50	F
40	BLV20 <sup>(2)</sup>	4 × BLW50F	8 × BLW96	1200	50	F
<b>PowerMOS</b>						
15	BLF244 <sup>(1)</sup>	2 × BLF246	–	150	28	–
30	BLF145 <sup>(1)</sup>	2 × BLF147	–	300	28	–
15	BLF244 <sup>(2)</sup>	2 × BLF177	–	300	50	–
60	BLF246 <sup>(1)</sup>	4 × BLF147	–	550	28	–
10	BLF175 <sup>(1)</sup>	4 × BLF177	–	550	50	–
20	2 × BLF175 <sup>(1)</sup>	8 × BLF177	–	1000	50	–

#### Notes

1. Class-A operation.
2. 28 V supply voltage in class-A operation.

# RF & Microwave Power Transistors and RF Power Modules

Line-ups

## MOBILE TRANSMITTERS (68 to 87.5 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)
<b>Bipolar/PowerMOS</b>				
1	BFG35	BLV10	8	13
1	BFG35	BLW81	10	13
1	BFG35	BLF245 <sup>(1)</sup>	12	12.5
1	BFG35	BLW29	15	13
1	BFG35	BLV11	15	13
40	BLW80	BLW87	25	13
25	BLW80	BLF225 <sup>(1)</sup>	25	12.5
30	BLW80	BLV12	30	13
70	BLW80	BLV45/12	45	13
30	BLF244 <sup>(1)</sup>	BLW85	45	13
90	BLF244 <sup>(1)</sup>	BLV75/12	75	13
150	BLV10	BLV75/12	75	13

### Note

1. PowerMOS transistor.

## BASE STATIONS (68 to 87.5 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)	Stud S Flange F
<b>PowerMOS</b>						
80	BLF242	BLF246	–	80	28	–
150	BLF244	BLF147	–	150	28	–

## FM BROADCAST TRANSMITTERS (87.5 to 108 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)	Stud S Flange F
<b>Bipolar</b>						
100	BLW90	BLW86	2 × BLV25	300	28	F
<b>PowerMOS</b>						
240	BLF244	BLF248	–	300	28	–
120	BLF244 <sup>(1)</sup>	BLF278	–	300	50	–
240	BLF244 <sup>(1)</sup>	2 × BLF278	–	550	50	–
320	BLF175	2 × BLF278	–	1000	50	–

### Note

1. 28 V supply voltage in class-A operation.

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## MILITARY COMMUNICATION TRANSMITTERS (25 to 110 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)
<b>PowerMOS</b>					
150	BLF242 <sup>(1)</sup>	2 × BLF244	–	12	12.5
150	BLF242 <sup>(1)</sup>	BLF245B	–	12	12.5
500	BLF244 <sup>(1)</sup>	2 × BLF245	–	60	28
100	BLF242 <sup>(1)</sup>	BLF245 <sup>(1)</sup>	2 × BLF246	150	28

**Note**

1. Class-A operation.

## AM AIRCRAFT TRANSMITTERS (108 to 144 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)
<b>PowerMOS</b>				
100	BLF242	BLF246	20	28
80	BLF244	BLF147	35	28
120	BLF242 <sup>(1)</sup>	BLF278	75	50

**Note**

1. 28 V supply voltage in class-A operation.

## AM AIRCRAFT TRANSMITTERS (118 to 136 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)	Stud S Flange F
<b>Bipolar</b>						
240	BLV20	BLW86	–	12	13 or 28	F

## AM AIRCRAFT TRANSMITTERS (100 to 400 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)	Stud S Flange F
<b>PowerMOS</b>						
30	BLF521 <sup>(1)</sup>	BLF522 <sup>(1)</sup>	BLF545	40	28	–
25	BLF521 <sup>(1)</sup>	BLF543	BLF546	80	28	–
30	BLF521 <sup>(1)</sup>	BLF543	BLF547	100	28	–
100	BLF521 <sup>(1)</sup>	BLF544	BLF548	150	28	–

**Note**

1. V<sub>DS</sub> = 12.5 V.

**RF & Microwave Power Transistors  
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**PORTABLE and MOBILE TRANSMITTERS (132 to 174 MHz)**

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)	Stud S Flange F
<b>Bipolar/PowerMOS</b>						
35	BLW80	BLV10	–	8	13	S/F
1	BFG35	BLF245 <sup>(1)</sup>	–	12	12.5	F
45	BLW80	BLW29	–	14	13	S
150	BLF522 <sup>(1)</sup>	BLF225 <sup>(1)</sup>	–	25	12.5	–
100	BLW80	BLV12	–	30	12.5	S/F
35	BLW80	BLV10	BLV45/12	45	13	S/F
40	BLW80	BLW29	BLV75/12	75	13	S/F

**Note**

- 1. PowerMOS transistor.

**BASE STATIONS (132 to 174 MHz)**

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)	Stud S Flange F
<b>Bipolar</b>						
200	BLV20	BLW84	–	25	28	F
<b>PowerMOS</b>						
220	BLF242	BLF246	–	80	28	–
250	BLF244	BLF247B	–	150	28	–

# RF & Microwave Power Transistors and RF Power Modules

Line-ups

## TV TRANSPOSERS (BAND III: 174 to 230 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>o(sync)</sub> (W)	P <sub>o(sat)</sub> (W)	SUPPLY VOLTAGE (V)
<b>PowerMOS</b>						
5	BLF242	2 × BLF244	BLF348	40	60	28
5	BLF242	BLF245B	BLF348	40	60	28
12	BLF244	2 × BLF245	2 × BLF348	75	115	28
20	BLF244	2 × BLF346	4 × BLF348	140	220	28

## TV TRANSMITTERS (BAND III: 174 to 230 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>o(sync)</sub> (W)	SUPPLY VOLTAGE (V)
<b>PowerMOS</b>					
25	BLF242	BLF175	2 × BLF276	150	50
50	BLF242	2 × BLF244	BLF368	300	32
50	BLF242	BLF245B	BLF368	300	32
100	BLF242	2 × BLF245	2 × BLF368	550	32
160	BLF242	2 × BLF346	4 × BLF368	1000	32
50	BLF242 <sup>(1)</sup>	2 × BLF175	6 × BLF378	1250	50

### Note

1. 28 V supply voltage in class-A operation.

## PORTABLE and MOBILE TRANSMITTERS (400 to 512 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)	Stud S Flange F
<b>Bipolar</b>						
45	BLV90	BLU99	–	3	7.5	S
400	BLU99	BLU20/12	–	20	13	S/F
280	BLU99	BLU20/12	BLU45/12	45	13	S/F
400	BLU99	BLU20/12	BLU60/12	60	13	S/F
<b>PowerMOS</b>						
50	BLF521	BLF522	–	5	12.5	–

# RF & Microwave Power Transistors and RF Power Modules

Line-ups

**BASE STATIONS (400 to 470 MHz)**

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)
<b>PowerMOS</b>					
35	BLF521 <sup>(1)</sup>	BLF522 <sup>(1)</sup>	BLF545	40	28
40	BLF521 <sup>(1)</sup>	BLF543	BLF546	80	28
45	BLF521 <sup>(1)</sup>	BLF544	BLF547	100	28
150	BLF521 <sup>(1)</sup>	BLF544	BLF548	150	28

**Note**1. V<sub>DS</sub> = 12.5 V.**TV TRANSPOSERS (BAND IV/V: 470 to 860 MHz)**

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	4 <sup>th</sup> STAGE	P <sub>o(sync)</sub> (W)	P <sub>o(sat)</sub> (W)	SUPPLY VOLTAGE (V)
<b>Bipolar</b>							
5	BFQ34	BFQ68	2 × BFQ68	–	1.4	1.4	15
6	BLW32	BLW33	2 × BLW34	–	4.4	5.7	25
2	BLW32	BLW33	2 × BLW34	2 × BLW98	8	8	25
3	BLW32	BLW33	2 × BLW34	2 × BLV57	13	15	25
3	BFQ68	BLW34	BLW98	2 × BLV58	25 <sup>(1)</sup>	30	25
500	2 × BLW898	2 × BLV859	–	–	40	–	25

**Note**

1. 25 W sync, –51 dB (–8, –16, or –7 dB).

**TV TRANSMITTERS (BAND IV/V: 470 to 860 MHz)**

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	4 <sup>th</sup> STAGE	P <sub>o(sync)</sub> (W)	SUPPLY VOLTAGE (V)
<b>Bipolar</b>						
12	BFG97	BFQ68	2 × BLW34	2 × BLV59	60	28
15	BFQ34	BLW34	BLV58	BLV862	150	28
30	BFQ34	2 × BLW33	2 × BLV58	4 × BLV862	500	28

# RF & Microwave Power Transistors and RF Power Modules

Line-ups

## ANALOG CELLULAR (AMPS, (E)TACS, NMT) 900 MHz

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)
<b>Bipolar</b>					
1	BFG540/X	BLT80	BLT81	1.2	6
1	BFG540/X	BLT70	BLT71	1.2	4.8

## DIGITAL CELLULAR (GSM) 900 MHz

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)
<b>Bipolar</b>					
1	BFG540W/X	BFG10W/X	BLT82	3.5 pulsed	6

## PORTABLE TRANSMITTERS (860 to 960 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)
<b>Bipolar</b>					
1	BFG540	BLT80	BLT81	1.2	6
15	BFG91A	BLT80	BLT92/SL	3	7.5

## MOBILE TRANSMITTERS (860 to 960 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)	Stud S Flange F
<b>Bipolar</b>						
110	BLU86	BLV91/SL	BLV93	8	13	S/F
100	BLV90	BLV92	BLV194	15	13	S/F



# RF & Microwave Power Transistors and RF Power Modules

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## BASE STATIONS (860 to 960 MHz) CLASS-AB OPERATION

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	4 <sup>th</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)	FREQUENCY (MHz)
<b>Bipolar</b>							
270	BLV904	BLV934	–	–	30	26	960
220	BLV904	BLV935	–	–	30	26	960
65	BLV99/SL	BLV910	BLV946	–	40	26	960
25	BGY916	BLV958	–	–	75	26	960
75	BLV904	BLV920	BLV958	–	75	26	960
75	BLV904	BLV920	2 × BLV946	–	80	26	960
35	BLV99/SL	BLV103	BLV897	BLV950	120	25	900
20	BLV99/SL	BLV103	BLV897	BLV950	150 (PEP)	25	900 <sup>(1)</sup>
250	BLV904	BLV934	BLV950	–	150	26	960

**Note**1. d<sub>IM</sub> = –30 dB.

## BASE STATIONS (1800 to 2000 MHz) CLASS AB OPERATION

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)	FREQUENCY (MHz)
<b>Bipolar</b>						
60	BLV2042	BLV2042	BLV2044	15	26	2000
120	BLV2042	BLV2044	BLV2045	25	26	2000
35	BGY1816	BLV2046	–	50	26	1900
250	BLV2042	BLV2044	2 × BLV2045	50	26	2000
30	BGY1816	BLV2047	–	60	26	1900
30	BGY1916	BLV2047	–	60	26	2000
35	BGY1916	BLV2046	–	50	26	2000
120	BLV2042	BLV2044	BLV2047	60	25	2000
160	BLV2042	BLV2044	BLV2046	50	26	2000

## NARROW BAND (1800 MHz)

INPUT POWER (mW)	1 <sup>st</sup> STAGE	2 <sup>nd</sup> STAGE	3 <sup>rd</sup> STAGE	P <sub>L</sub> (W)	SUPPLY VOLTAGE (V)
<b>Bipolar</b>					
50	LBE2009S	LLE18040X	LLE18300X	27	24
100	LBE2009S	LLE18100X	2 × LLE18300X	50	24

**RF & Microwave Power Transistors  
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**APPLICATION INFORMATION FOR MICROWAVE LINE-UPS**

**CW applications for avionics and SATCOM**

<b>INPUT POWER (mW)</b>	<b>1<sup>st</sup> STAGE</b>	<b>2<sup>nd</sup> STAGE</b>	<b>3<sup>rd</sup> STAGE</b>	<b>P<sub>L</sub> (W)</b>	<b>SUPPLY VOLTAGE (V)</b>
<b>1.5 to 1.7 GHz - narrow band</b>					
50	LBE2009S	LLE16045X	LLE16350X	32	24
100	BLV2042	LLE16120X	2 × LLE16350X	60	24
<b>1.6 GHz - mobile VSAT</b>					
50	BLV2042	PLB16004U	PLB16030U	30	28

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