

**SCOPE: FIXED/ADJUSTABLE, LOW POWER CMOS, STEP-UP SWITCHING REGULATOR**

| <u>Device Type</u> | <u>Generic Number</u> |
|--------------------|-----------------------|
| 01                 | MAX631AM(x)/883B      |
| 02                 | MAX631BM(x)/883B      |
| 03                 | MAX632AM(x)/883B      |
| 04                 | MAX632BM(x)/883B      |
| 05                 | MAX633AM(x)/883B      |
| 06                 | MAX633BM(x)/883B      |

Case Outline(s). The case outlines shall be designated in Mil-Std-1835 and as follows:

| <u>Outline Letter</u> | <u>Mil-Std-1835</u>  | <u>Case Outline</u> | <u>Package Code</u> |
|-----------------------|----------------------|---------------------|---------------------|
| MAXIM SMD<br>JA P     | GDIP1-T8 or CDIP2-T8 | 8 LEAD CERDIP       | J8                  |

Absolute Maximum Ratings

|  |                              |
|--|------------------------------|
| Supply Voltage, $V_{OUT}$ .....                  | +18V                         |
| Output Voltage, $L_X$ and LBO .....              | +18V                         |
| Input Voltage, LBI, VFB .....                    | -0.3V to ( $+V_{OUT}+0.3V$ ) |
| $L_X$ Output Current .....                       | 450 mA Peak                  |
| LBO Output Current .....                         | 50mA                         |
| Lead Temperature (soldering, 10 seconds) .....   | +300°C                       |
| Storage Temperature .....                        | -65°C to +150°C              |
| Continuous Power Dissipation .....               | $T_A=+70^\circ C$            |
| 8 lead CERDIP(derate 8.0mW/°C above +70°C) ..... | 640mW                        |
| Junction Temperature $T_J$ .....                 | +150°C                       |
| Thermal Resistance, Junction to Case             |                              |
| 8 lead CERDIP, $\Theta_{JC}$ : .....             | 55°C/W                       |
| Thermal Resistance, Junction to Ambient          |                              |
| 8 lead CERDIP, $\Theta_{JA}$ : .....             | 125°C/W                      |

Recommended Operating Conditions.

|  |                     |
|--|---------------------|
| Ambient Operating Range ( $T_A$ ) .....  | -55°C to +125°C     |
| Input Voltage Range ( $V_{IN}$ ).....    | 2.4V dc to 16.5V dc |
| Output Voltage Range ( $V_{OUT}$ ) ..... | 2.4V dc to 16.5V dc |

Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

TABLE 1 ELECTRICAL TESTS

| PARAMETER                                | Symbol             | CONDITIONS<br>-55 °C ≤ T <sub>A</sub> ≤ +125 °C<br>V <sub>IN</sub> =+3.0V<br>Unless otherwise specified                               | Group A<br>Subgroup | Device<br>type                   | Limits<br>Min<br>1/                          | Limits<br>Max<br>1/                          | Units              |
|--|--------------------|---|---------------------|----------------------------------|--|--|--------------------|
| Operating Voltage                        | +V <sub>S</sub>    | Voltage at V <sub>OUT</sub>   | 1,2,3               | All                              | 2.4  | 16.4   | V                  |
| Start-up Voltage                         | V <sub>SU</sub>    | Voltage at V <sub>OUT</sub>   | 1<br>2,3            | All                              | 1.5<br>2.0                                   |  | V                  |
| Supply Current<br>NOTE 2                 | I <sub>S</sub>     | L <sub>X</sub> Off, V <sub>OUT</sub> =+5V<br>L <sub>X</sub> Off, V <sub>OUT</sub> =+12V<br>L <sub>X</sub> Off, V <sub>OUT</sub> =+15V | 1,2,3               | 01,02<br>03,04<br>05,06          |  | 0.4<br>2.0<br>2.5                            | mA                 |
| Reference Voltage                        | V <sub>REF</sub>   |   | 1<br>2,3            | All                              | 1.24<br>1.20                                 | 1.38<br>1.42                                 | μA                 |
| Output Voltage                           | V <sub>OUT</sub>   | No load, V <sub>FB</sub> =GND, NOTE 2   | 1,2,3               | 01<br>02<br>03<br>04<br>05<br>06 | 4.75<br>4.5<br>11.4<br>10.8<br>14.25<br>13.5 | 5.25<br>5.5<br>12.6<br>13.2<br>15.75<br>16.5 | V                  |
| Line Regulation                          | VR <sub>LINE</sub> | R3=816kΩ, R4=100kΩ NOTE 3<br>3V < V <sub>IN</sub> < 6V  | 1,2,3               | All                              |  | 0.2  | %/V <sub>OUT</sub> |
| Load Regulation                          | VR <sub>LOAD</sub> | R3=816kΩ, R4=100kΩ NOTE 3<br>V <sub>IN</sub> =6V, I <sub>OUT</sub> =1mA, 20mA   | 1,2,3               | All                              |  | 1.0  | %/V <sub>OUT</sub> |
| Oscillator Duty<br>Cycle                 | O <sub>DC</sub>    | NOTE 2  | 4                   | All                              | 40   | 60   | %                  |
| LX On Resistance                         | R <sub>LXON</sub>  | I <sub>X</sub> =100mA, V <sub>OUT</sub> =5V   | 1                   | All                              |  | 12   | Ω                  |
| Low-Battery Input<br>Bias Current        | I <sub>LBI</sub>   |   | 1                   | All                              |  | 10   | nA                 |
| Leakage Current                          | I <sub>LX</sub>    | V <sub>LX</sub> =16.5V  | 1<br>2,3            | All                              |  | 1<br>100                                     | μA                 |
| Low Battery Input<br>Threshold Voltage   | V <sub>LBI</sub>   |   | 1                   | All                              | 1.18   | 1.44   | V                  |
| Low-Battery<br>Output Current            | I <sub>LBO</sub>   | V <sub>LBO</sub> =0.4V, V <sub>LBI</sub> =1.18V   | 1,2,3               | All                              | 500  |  | μA                 |
| Oscillator<br>Frequency Range<br>NOTE 2  | f <sub>O</sub>     | V <sub>OUT</sub> =+5V   | 4                   | 01<br>02                         | 40<br>35                                     | 50<br>60                                     | kHz                |
|  |                    | V <sub>OUT</sub> =+12V  | 4                   | 03<br>04                         | 45.5<br>40                                   | 56<br>65                                     |                    |
|  |                    | V <sub>OUT</sub> =+15V  | 4                   | 05<br>06                         | 45.5<br>40                                   | 56<br>65                                     |                    |
| VFB Input Bias<br>Current                | I <sub>FB</sub>    |   | 1                   | All                              |  | 10   | nA                 |
| Diode Forward<br>Voltage                 | V <sub>F</sub>     | I <sub>F</sub> =100mA   | 1                   | All                              |  | 1.0  | V                  |
| On Resistance, CP<br>Leakage Current     | RCP <sub>ON</sub>  | V <sub>OUT</sub> =5.0V, I <sub>OUT</sub> =±10mA   | 1                   | All                              |  | 140  | Ω                  |
| Low Battery<br>Output Leakage<br>Current | I <sub>LBOL</sub>  | V <sub>LBO</sub> =+16.5V, V <sub>LBI</sub> =+1.44V  | 1,2,3               | All                              |  | 3.0  | μA                 |

NOTE 1: The algebraic convention, whereby the most negative value is a minimum and the most positive a maximum, is used in this table. Negative current shall be defined as conventional current flow out of a device terminal.

NOTE 2: S1 set to B and S2 open provides a nominal output voltage of 5 volts for device types 01 and 02; 12 volts for device types 03 and 04; 15 volts for device types 05, 06.

NOTE 3: R3 and R4 give a nominal output voltage of 12 volts with S1 set to A and S2 closed.

| ORDERING INFORMATION | MAXIM PART NUMBER | SMD NUMBER      |
|----------------------|-------------------|-----------------|
| 01                   | MAX631AMJA/883B   | 5962-9214101MPA |
| 02                   | MAX631BMJA/883B   | 5962-9214102MPA |
| 03                   | MAX632AMJA/883B   | 5962-9214103MPA |
| 04                   | MAX632BMJA/883B   | 5962-9214104MPA |
| 04                   | MAX633AMJA/883B   | 5962-9214105MPA |
| 05                   | MAX633BMJA/883B   | 5962-9214106MPA |

| TERMINAL NUMBER | 8 LEAD CERDIP   |
|-----------------|-----------------|
| 1               | LBI             |
| 2               | LBO             |
| 3               | GND             |
| 4               | LX              |
| 5               | VOUT            |
| 6               | CP              |
| 7               | V <sub>FB</sub> |
| 8               | COMP            |

## QUALITY ASSURANCE

Sampling and inspection procedures shall be in accordance with MIL-Prf-38535, Appendix A as specified in Mil-Std-883.

Screening shall be in accordance with Method 5004 of Mil-Std-883. Burn-in test Method 1015:

1. Test Condition, A, B, C, or D.
2. TA = +125°C minimum.
3. Interim and final electrical test requirements shall be specified in Table 2.

Quality conformance inspection shall be in accordance with Method 5005 of Mil-Std-883, including Groups A, B, C, and D inspection.

Group A inspection:

1. Tests as specified in Table 2.
2. Selected subgroups in Table 1, Method 5005 of Mil-Std-883 shall be omitted.

Group C and D inspections:

- a. End-point electrical parameters shall be specified in Table 1.
- b. Steady-state life test, Method 1005 of Mil-Std-883:
  1. Test condition A, B, C, D.
  2. TA = +125°C, minimum.
  3. Test duration, 1000 hours, except as permitted by Method 1005 of Mil-Std-883.

**TABLE 2. ELECTRICAL TEST REQUIREMENTS**

| Mil-Std-883 Test Requirements                                | Subgroups<br>per Method 5005, Table 1 |
|--|---------------------------------------|
| Interim Electric Parameters<br>Method 5004                   | 1                                     |
| Final Electrical Parameters<br>Method 5005                   | 1*, 2, 3, 4                           |
| Group A Test Requirements<br>Method 5005                     | 1, 2, 3, 4                            |
| Group C and D End-Point Electrical Parameters<br>Method 5005 | 1                                     |

\* PDA applies to Subgroup 1 only.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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