

"PLUG" for MED427A-1
TARGET DATASHEET
DESCRIPTION

The MSC-LX1802 is the IC2 "Plug" for the MED427A-1 module. The "Plug" chip has peak rectifier, level shifter, and switch. This full wave peak rectifier converts the peak to peak AC input waveform to a DC level. The charge builds up on both terminals of the storage capacitor to step up the DC level during a full wave input signal. The charge dissipates via a resistor when the AC input signal stops. The level shifter is a source follower transistor with a resistive load. The input connects to the peak rectifier output and the output connects to IGBT_G. If the input voltage is below threshold, the output (IGBT_G) equals IGBT_E voltage. If the input voltage exceeds the threshold voltage of the transistor, the output steps up to the bootstrap voltage $V_{hi} + IGBT_E$ at the IGBT_G output. The switch supplements the discharge of the capacitor in the peak rectifier when the AC input signal stops. The switch remains open when there is an AC signal since a virtual ground forms at its input and prevents a channel from forming in the active device. The opposite occurs when the AC signal stops and the input builds a potential greater than a threshold voltage.

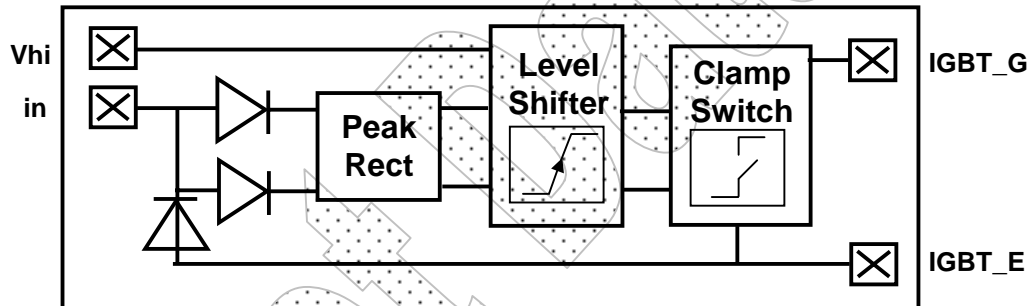
IMPORTANT: For the most current data, consult *MICROSEMI's* website: <http://www.microsemi.com>

KEY FEATURES

- Low peak current consumption: <2mA
- Small form factor 0.889 mm²
- Solder bumped die

APPLICATIONS

- Implantable Cardio. Defib

BLOCK DIAGRAM


Simplified Block Diagram

PACKAGE ORDER INFO

| T_J (°C) | Package Number |
|------------|----------------|
| 10 to 55 | LX1802 |



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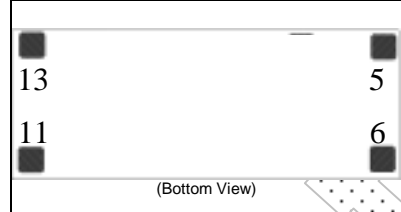
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ABSOLUTE MAXIMUM RATINGS

Voltage potential..... 0.0V to +20.0V
 ESD Voltage..... 2kV
 Storage Temperature Range(T_{STOR})..... 10°C to 55°C
 Storage humidity..... 10% to 90%

Note: Exceeding these ratings could cause damage to the device. All voltages are with respect to Ground. Currents are positive into, negative out of specified terminal.

PACKAGE PIN OUT



FUNCTIONAL PIN DESCRIPTION

| PIN NAME | PIN No 16 PIN DIP | DESCRIPTION |
|----------|----------------------|--------------------------|
| IGBT_G | 5 | Connects to IGBT gate |
| IGBT_E | 6 | Connects to IGBT emitter |
| IN | 11 | Input AC signal |
| VDDHI | 13 | High voltage supply |

EXTERNAL COMPONENTS

| Symbol | Value | Tolerance | Function |
|--------|-------|-----------|----------|
| | | | |



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OPERATING CONDITIONS

| Parameter | Symbol | Min | Typ | Max | Unit |
|-------------------|------------------|-----|-----|-----|------|
| Voltage potential | Vp | 15 | 16 | 18 | Volt |
| Input frequency | f | 5 | 7.5 | 10 | MHz |
| Operating temp | T _{AMB} | 31 | 37 | 43 | °C |

ELECTRICAL CHARACTERISTICS

Unless otherwise specified, the following specifications apply over the operating ambient temperature T_A=37°C except where otherwise noted. Test conditions: V_{HI}=16V, IGBT_E=800V, f_{in}=10MHz, IGBT_G load=3nF.

| Parameter | Symbol | Test Conditions | LX1801 | | | Units |
|-------------------------------|---------------------|---|--------|-----|-----|-------|
| | | | Min | Typ | Max | |
| Voltage drop limit for IGBT_G | V _{drop} | -5MHz 0-6V 50% @ pin in - V _{drop} =18V-IGBT_G(pk) | | | 1 | V |
| Rise time for IGBT_G | t _{rise,G} | -5MHz 0-6V 50% @ pin in -10%-90%*IGBT_G(pk) | | | 5 | us |
| Fall time for IGBT_G | t _{fall,G} | -90%-10%*IGBT_G(pk) | | | 5 | us |
| Enable time for IGBT_G | t _{en,G} | -Measure enable of 5MHz 0-18V 50% @ pin in to IGBT_G=90%*IGBT_G(pk) | | | 5 | us |
| Disable time for IGBT_G | t _{dis,G} | -Measure disable of 5MHz 0-18V 50% @ pin in to IGBT_G=10%*IGBT_G(pk) | | | 5 | us |



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MECHANICALS

4-Pin Bare Die



(0,0)

Pad Locations are (Xmin, Ymin) and are in um

| Dim | MILLIMETERS | | INCHES | |
|-----|-------------|-------|--------|-------|
| | MIN | MAX | MIN | MAX |
| X | | 1.40 | | 0.055 |
| Y | | 0.635 | | 0.025 |

Note:

- Dimensions do not include mold flash or protrusions; these shall not exceed 0.155mm(.006") on any side. Lead dimension shall not include solder coverage.

www.Microsemi.com

MECHANICALS

This datasheet has been download from:

www.datasheetcatalog.com

Datasheets for electronics components.