

## ISL8560MR

DC/DC Power Switching Regulator

FN6621

Rev 1.00

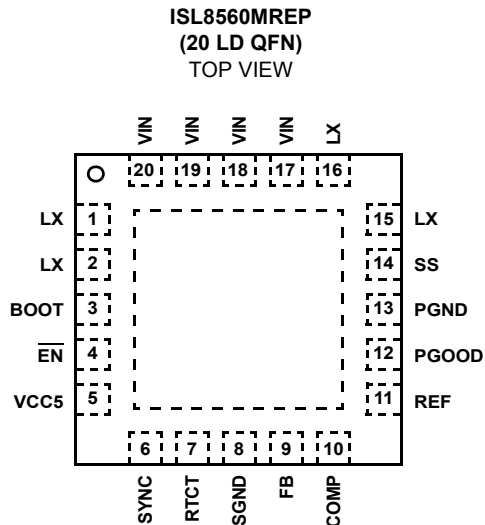
November 11, 2011

The ISL8560MREP is a step down DC/DC power switching regulator which accepts 9.0V to 60V input and provides a 2A output current. The output voltage can be set in the range between 1.21V and 55V by means of an external divider. The device uses an internal power DMOS transistor with a typical  $r_{DS(ON)}$  of  $0.19\Omega$  to obtain very high efficiency and high switching speed. A switching frequency in the range of 100kHz to 600kHz can be realized (the maximum power dissipation of the various packages must be observed). Notable features of this next generation of DC/DC converter includes pulse-by-pulse current limit for FET protection, hiccup mode for short circuit protection, voltage feedforward regulation, Frequency SYNC, soft-start, low standby current of  $60\mu A$  typical in the disabled state, and thermal shut-down. The device is available in a 20 Ld QFN package.

### Device Information

The specifications for an Enhanced Product (EP) device are defined in a Vendor Item Drawing (VID), which is controlled by the Defense Logistics Agency (DLA). "Hot-links" to the applicable VID and other supporting application information are provided on our website.

### Pinout



### Features

- Specifications per DLA VID V62/08608
- Full Mil-Temp Electrical Performance from  $-55^{\circ}C$  to  $+125^{\circ}C$
- Controlled Baseline with One Wafer Fabrication Site and One Assembly/Test Site
- Full Homogeneous Lot Processing in Wafer Fab
- No Combination of Wafer Fabrication Lots in Assembly
- Full Traceability Through Assembly and Test by Date/Trace Code Assignment
- Enhanced Process Change Notification
- Enhanced Obsolescence Management
- Eliminates Need for Up-Screening a COTS Component
- Voltage Feedforward Mode
- Step Down DC/DC Supporting up to 2A Based on Max  $T_J$  and VIN/VOUT
- Input Voltage Range of 9.0V to 60V
- Internal Reference of  $1.21V \pm 1\%$
- Adjustable Output Voltage Range of 1.21V to 55V
- Adjustable Switching Frequency 100kHz to 600kHz
- Frequency SYNC Pin
- Zero Load Current Operation
- Pulse by Pulse Mode Current Limit and Hiccup mode
- Low Standby Current of  $60\mu A$  Typical
- Thermal Shut-down
- Load Dump to 100V for 400ms

### Applications

- Industrial and Avionics power supplies
- Portable computers
- Battery chargers
- Distributed power systems

### Related Literature

- Technical Brief TB363 "Guidelines for Handling and Processing Moisture Sensitive Surface Mount Devices (SMDs)"

## Ordering Information

| VENDOR PART NUMBER<br>(Notes 1, 2) | VENDOR ITEM DRAWING | PART<br>MARKING | TEMP.<br>RANGE (°C) | PACKAGE       | PKG. DWG. # |
|------------------------------------|---------------------|-----------------|---------------------|---------------|-------------|
| ISL8560MREP                        | V62/08608-01XB      | ISL8560MREP     | -55 to +125         | 20 Ld 6x6 QFN | L20.6x6B    |

NOTES:

1. Refer to TB347 for details on reel specifications.
2. Devices must be procured to the VENDOR PART NUMBER.

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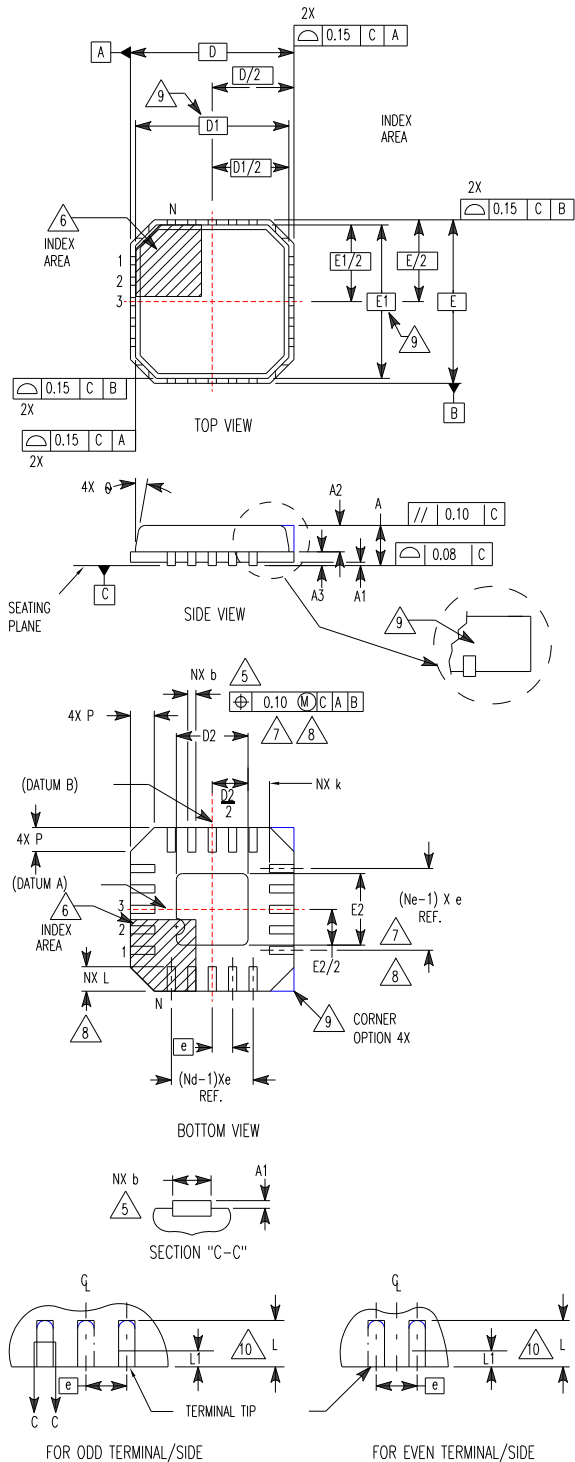
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**Quad Flat No-Lead Plastic Package (QFN)  
Micro Lead Frame Plastic Package (MLFP)**



**L20.6x6B**

20 LEAD QUAD FLAT NO-LEAD PLASTIC PACKAGE  
(COMPLIANT TO JEDEC MO-220VJJB ISSUE C)

| SYMBOL | MILLIMETERS |         |      | NOTES |
|--------|-------------|---------|------|-------|
|        | MIN         | NOMINAL | MAX  |       |
| A      | 0.80        | 0.90    | 1.00 | -     |
| A1     | -           | -       | 0.05 | -     |
| A2     | -           | -       | 1.00 | 9     |
| A3     | 0.20 REF    |         |      | 9     |
| b      | 0.28        | 0.33    | 0.38 | 5, 8  |
| D      | 6.00 BSC    |         |      | -     |
| D1     | 5.75 BSC    |         |      | 9     |
| D2     | 3.33        | 3.43    | 3.53 | 7, 8  |
| E      | 6.00 BSC    |         |      | -     |
| E1     | 5.75 BSC    |         |      | 9     |
| E2     | 3.33        | 3.43    | 3.53 | 7, 8  |
| e      | 0.80 BSC    |         |      | -     |
| k      | 0.635       | -       | -    | -     |
| L      | 0.50        | 0.60    | 0.70 | 8     |
| L1     | -           | -       | 0.15 | 10    |
| N      | 20          |         |      | 2     |
| Nd     | 5           |         |      | 3     |
| Ne     | 5           |         |      | 3     |
| P      | -           | -       | 0.60 | 9     |
| θ      | -           | -       | 12   | 9     |

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**NOTES:**

1. Dimensioning and tolerancing conform to ASME Y14.5-1994.
2. N is the number of terminals.
3. Nd and Ne refer to the number of terminals on each D and E.
4. All dimensions are in millimeters. Angles are in degrees.
5. Dimension b applies to the metallized terminal and is measured between 0.15mm and 0.30mm from the terminal tip.
6. The configuration of the pin #1 identifier is optional, but must be located within the zone indicated. The pin #1 identifier may be either a mold or mark feature.
7. Dimensions D2 and E2 are for the exposed pads which provide improved electrical and thermal performance.
8. Nominal dimensions are provided to assist with PCB Land Pattern Design efforts, see Intersil Technical Brief TB389.
9. Features and dimensions A2, A3, D1, E1, P & θ are present when Anvil singulation method is used and not present for saw singulation.
10. Depending on the method of lead termination at the edge of the package, a maximum 0.15mm pull back (L1) maybe present. L minus L1 to be equal to or greater than 0.3mm.