

### POWER MANAGEMENT

#### Description

The SC1116 is a low cost controller for low power linear DDR power supplies.

The SC1116 comes in a space saving SOT-23 6 pin package.

The SC1116 provides a dual gate drive for the top serial and bottom parallel MOSFETs with internal shoot through protection.

The wide range of input voltages (3V to 15V) allows the chip to work in many various applications.

The variable output voltage is programmable from the outside with an input divider or an external reference.

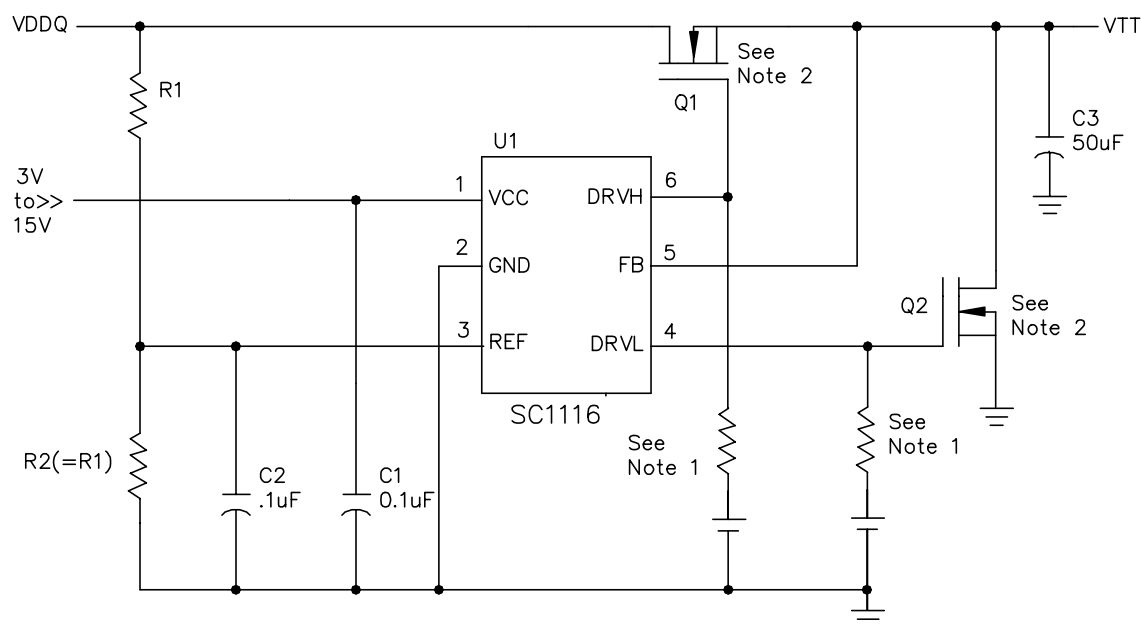
#### Features

- ◆ User can select FETs to optimize system current rating/dropout/cost
- ◆ 0°C to +85°C
- ◆ External compensation capable for low ESR loads
- ◆ Minimum external components
- ◆ 0.6 mA Quiescent current
- ◆ Guaranteed no shoot through
- ◆ SOT-23 6L small package

#### Applications

- ◆ DDR supplies
- ◆ SCSI
- ◆ Line termination
- ◆ Source / Sink LDOs

#### Typical Application Circuit



Note:

- (1) Values used for optional compensation are 1K and 4.7nF typical.
- (2) When using 3V as Vcc, use of low threshold FETs is a must.

## POWER MANAGEMENT

### Absolute Maximum Rating

Exceeding the specifications below may result in permanent damage to the device, or device malfunction. Operation outside of the parameters specified in the Electrical Characteristics section is not implied.

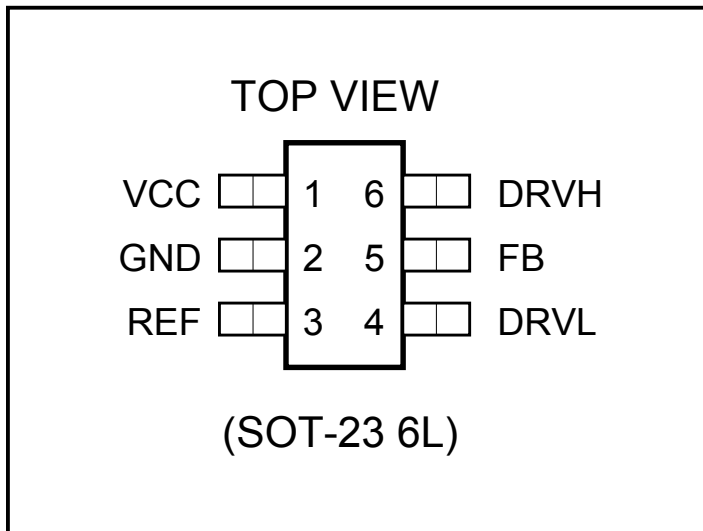
| Parameter                                     | Symbol        | Maximum       | Units |
|-----------------------------------------------|---------------|---------------|-------|
| Input Supply Voltage                          | $V_{CC}$      | -0.3 to +16.5 | V     |
| Operating Ambient Temperature Range           | $T_A$         | 0 to +85      | °C    |
| Operating Junction Temperature Range          | $T_J$         | 0 to +150     | °C    |
| Storage Temperature Range                     | $T_{STG}$     | -65 to +150   | °C    |
| Thermal Impedance Junction to Ambient         | $\theta_{JA}$ | 95.7          | °C/W  |
| Thermal Impedance Junction to Case            | $\theta_{JC}$ | 61.7          | °C/W  |
| Power Dissipation at $T_A = 25^\circ\text{C}$ | $P_D$         | 250           | mW    |
| Lead Temperature (Soldering) 10 seconds       | $T_{LEAD}$    | 300           | °C    |
| ESD Rating (Human Body Model)                 | ESD           | 2             | kV    |

### Electrical Characteristics

| Parameter                         | Test Conditions             | Min | Typ            | Max | Units |
|-----------------------------------|-----------------------------|-----|----------------|-----|-------|
| Supply Voltage                    |                             | 3   |                | 15  | V     |
| Load Regulation                   | IL: 0 -> 2A<br>IL: 0 -> -2A |     | -1<br>+1       |     | %     |
| Quiescent Current/Standby Current |                             |     | 600            |     | uA    |
| <b>Gate Drive</b>                 |                             |     |                |     |       |
| Peak Drive Source Current         |                             |     | 2.5            |     | mA    |
| Peak Drive Sink Current           |                             |     | 2.5            |     | mA    |
| Output Low                        |                             |     | 0.1            |     | V     |
| Output High                       |                             |     | $V_{CC} - 0.1$ |     | V     |

## POWER MANAGEMENT

### Pin Configuration



### Ordering Information

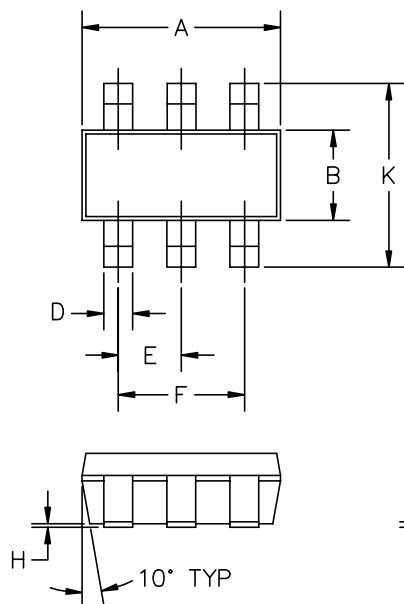
| Part Number                | Package   |
|----------------------------|-----------|
| SC1116ISKTR <sup>(1)</sup> | SOT-23 6L |

Note:

(1) Only available in tape and reel packaging. A reel contains 3000 devices.

### Pin Descriptions

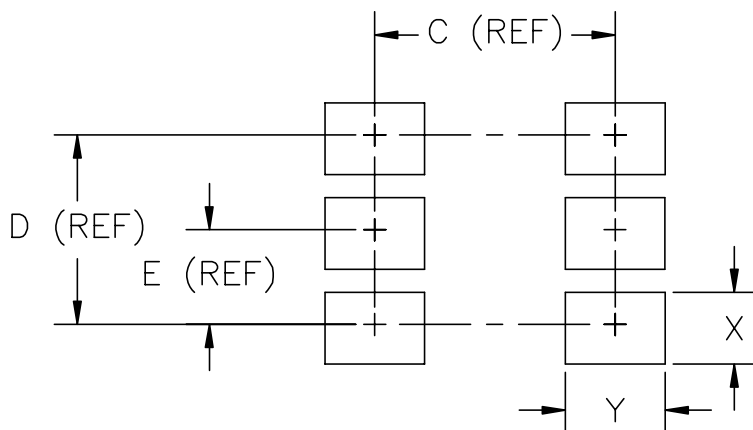
| Pin # | Pin Name | Pin Function                                                                                  |
|-------|----------|-----------------------------------------------------------------------------------------------|
| 1     | VCC      | Supply pin, connect a 3V to 15V supply and decouple to ground with a 0.1μF ceramic capacitor. |
| 2     | GND      | Power and signal ground.                                                                      |
| 3     | REF      | Reference input. Output voltage will be regulated to this voltage.                            |
| 4     | DRVL     | Low side FET drive output.                                                                    |
| 5     | FB       | Feedback pin.                                                                                 |
| 6     | DRVH     | High side FET drive output.                                                                   |

**POWER MANAGEMENT**
**Outline Drawing - SOT-23-6**


| DIMENSIONS ①     |        |      |      |      |      |
|------------------|--------|------|------|------|------|
| DIM <sup>N</sup> | INCHES |      | MM   |      | NOTE |
|                  | MIN    | MAX  | MIN  | MAX  |      |
| A                | .110   | .120 | 2.80 | 3.05 | —    |
| B                | .059   | .070 | 1.50 | 1.75 | —    |
| C                | .036   | .051 | .90  | 1.30 | —    |
| D                | .014   | .020 | .35  | .50  | —    |
| E                | .033   | .040 | .85  | 1.05 | —    |
| F                | .067   | .083 | 1.7  | 2.1  | —    |
| H                | .0004  | .006 | .010 | .150 | —    |
| J                | .0035  | .008 | .090 | .20  | —    |
| K                | .102   | .118 | 2.6  | 3.00 | —    |

② PACKAGE OUTLINE EXCLUSIVE OF MOLD FLASH AND METAL BURR.

① CONTROLLING DIMENSIONS: MILLIMETERS.

**Minimum Land Pattern - SOT-23-6**


| DIMENSIONS       |        |     |      |
|------------------|--------|-----|------|
| DIM <sup>N</sup> | INCHES | MM  | NOTE |
| C                | .094   | 2.4 | —    |
| D                | .074   | 1.9 | —    |
| E                | .037   | .95 | —    |
| X                | .028   | .7  | —    |
| Y                | .039   | 1.0 | —    |

**Contact Information**

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