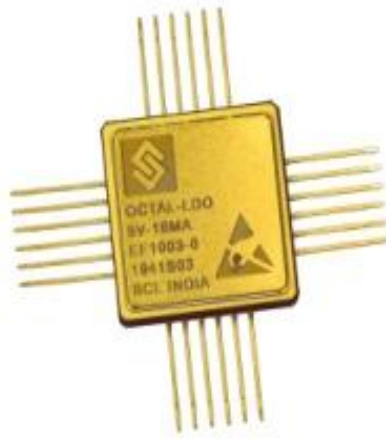


OCTAL-CORE LINEAR VOLTAGE
REGULATOR
(EF10030)



DATA SHEET
Version 1.0 MARCH 2020



Semi-Conductor Laboratory
Government of India
S.A.S. Nagar, Punjab-160071
www.scl.gov.in



OCTAL-CORE LINEAR VOLTAGE REGULATOR (EF10030)

PRODUCT DESCRIPTION:

The multichannel linear regulator is designed targeting transducer excitation modules with current limit feature. The input voltage range is 5.5 V to 7.5 V, and it can deliver up to 16 mA of output current. Typical ground current consumption is 2.6mA at room temperature. Internally, this linear regulator consists of a reference, an error amplifier, and a P-channel MOSFET pass transistor. Output current is delivered via the PMOS pass device, which is controlled by the error amplifier. The error amplifier compares the reference voltage with the feedback voltage from the output and amplifies the difference. If the feedback voltage is lower than the reference voltage, the gate of the PMOS device is pulled lower, allowing more current to pass and increasing the output voltage. If the feedback voltage is

higher than the reference voltage, the gate of the PMOS device is pulled higher, allowing less current to pass and decreasing the output voltage.

FEATURES:

- **Input supply : 5.5V to 7.5V**
- **Temperature: -55°C to 125°C**
- **No. of channels : 8**
- **Output Voltage : 5V**
- **Current driving capability: Up to 16mA**
- **Dropout Voltage < 0.5V**
- **Fold-back current limiting at 19mA**
- **AMS's 0.35µm high voltage process H35B4D3**

DEVICE SUMMARY:

Reference	Package	Pins	Description	Temp. range
EF10030	Ceramic Flat Package(CFP)	24 Ld	Engineering Model	-55°C to +125°C

Table 1: Device Summary



OCTAL-CORE LINEAR VOLTAGE REGULATOR (EF10030)

PIN DESCRIPTION (PACKAGE):

PIN NO.	PIN NAME	TYPE	DESCRIPTION
1	VDDH	Power	Input Supply
2	BG	Out	Band Gap Reference Output
3	PRCH	Out	Low Voltage Output
4	GND	Power	Lowest Potential
5	-	-	NC
6	-	-	NC
7	-	-	NC
8	-	-	NC
9	OUT 8	Out	LDO output 8
10	OUT 7	Out	LDO output 7
11	-	-	NC
12	-	-	NC
13	-	-	NC
14	OUT 6	Out	LDO output 6
15	-	-	NC
16	OUT 5	Out	LDO output 5
17	OUT 4	Out	LDO output 4
18	-	-	NC
19	-	-	NC
20	-	-	NC
21	OUT 3	Out	LDO output 3
22	OUT 2	Out	LDO output 2
23	OUT 1	Out	LDO output 1
24	-	-	NC

Table 2: Pin description for package



ELECTRICAL SPECIFICATIONS:

Test condition: All these tests are conducted at $T_A = 23 \pm 2^\circ\text{C}$. $C_{IN} = 0.1\mu\text{F}$ and $C_{OUT} = 0.1\mu\text{F}$

PARAMETER	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Input Voltage	-	5.5	6.5	7.5	V
Nominal Voltage	$V_s = 6.5\text{ V}$, Load = 15mA	4.9	4.98	5	V
Dropout Voltage	Load = 15mA	400	443.8	470	mV
Quiescent Current	$V_s = 5.5\text{ V to } 7.5\text{ V}$, Load = 15mA	-	2.6	5	mA
Line Regulation	$V_s = 5.5\text{ V to } 7.5\text{ V}$, Load = 15mA	-	0.03	0.1	% / V
Load Regulation	$V_s = 5.5\text{ V to } 7.5\text{ V}$ Load = 0 to 15mA	-	0.42	1	%

Table 3: Electrical Specification

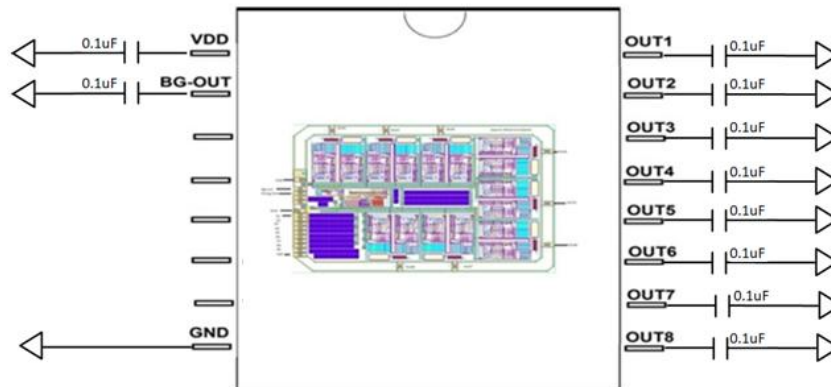
OVERVIEW:

- Dropout Voltage:** Dropout voltage is defined as the difference between the input and output voltages at the point when a further decrease in input voltage causes output voltage regulation to fail. In the dropout condition, the pass element operates in the linear region and behaves like a resistor.
- Load Regulation:** Load regulation is defined as the output voltage change for a given load change. This is typically from no load to full load.
- Line Regulation:** Line regulation is the output voltage change for a given input voltage change. Since line regulation is also dependent on the performance of the pass element and closed-loop DC gain, dropout operation is often not included when considering line regulation. Hence, the minimum input voltage for line regulation must be higher than the dropout voltage.
- Quiescent Current:** The quiescent current (or ground current) of an LDO is the combination of the bias current and drive current of the pass element, and is normally kept as low as possible.

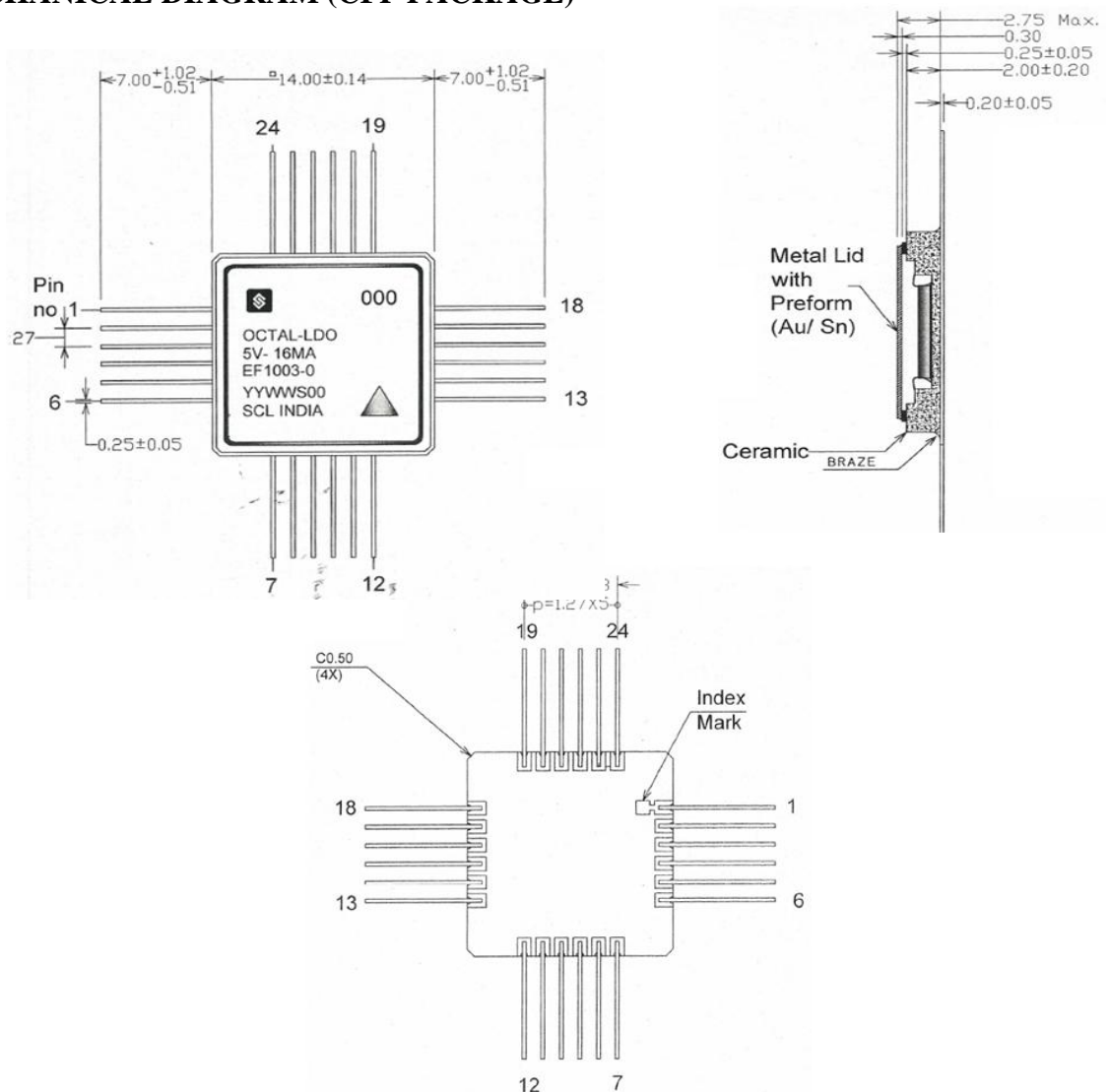


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APPLICATION DIAGRAM



MECHANICAL DIAGRAM (CFP PACKAGE)





REVISION HISTORY

Doc. name	Release Date	Data sheet status	Version
Product Data Sheet	March - 2020	Development	Ver1.0

Table 3: Revision History

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