

Negative High Voltage System Power Management and Protection IC with PMBus

General Description

The LM5064 combines a high performance hot swap controller with a PMBus compliant SMBus/I²C interface to accurately measure, protect and control the electrical operating conditions of systems connected to a backplane power bus. The LM5064 continuously supplies real-time power, voltage, current, temperature and fault data to the system management host via the SMBus interface.

The LM5064 control block includes a unique hot swap architecture that provides current and power limiting to protect sensitive circuitry during insertion of boards into a live system backplane, or any other "hot" power source. A fast acting circuit breaker prevents damage in the event of a short circuit on the output. The input under-voltage and over-voltage levels and hysteresis are configurable, as well as the insertion delay time and fault detection time. A temperature monitoring block on the LM5064 interfaces with a low-cost external diode for monitoring the temperature of the external MOSFET or other thermally sensitive components. The PGD output provides a fast indicator when the input and/or output voltages are outside their programmed ranges.

The LM5064 monitoring block computes both the real-time and average values of subsystem operating parameters (V_{IN} , I_{IN} , P_{IN} , V_{OUT}) as well as the peak power. Accurate power averaging is accomplished by averaging the product of the input voltage and current. A black box (Telemetry/Fault Snapshot) function captures and stores telemetry data and device status in the event of a warning or a fault.

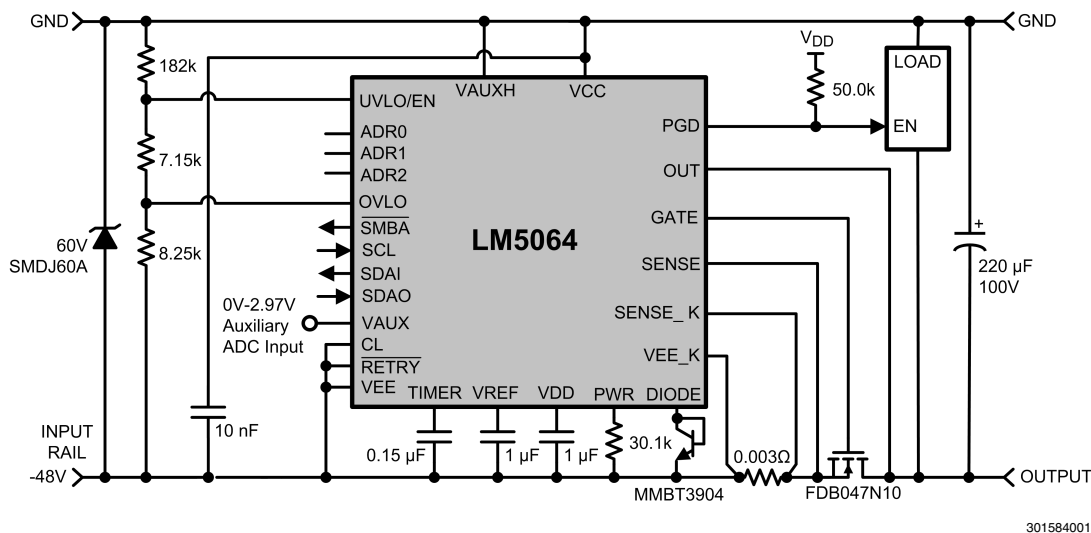
Features

- Input voltage range: -10V to -80V
- Programmable 26 mV or 50 mV Current Limit Threshold with Power Limiting (MOSFET Power Dissipation Limiting)
- Real time monitoring of V_{IN} , V_{OUT} , I_{IN} , P_{IN} , V_{AUX} with 12-bit resolution and 1 kHz sampling rate
- Configurable Circuit Breaker protection for hard shorts
- Configurable Under-Voltage and Over-Voltage protection
- Remote temperature sensing with programmable warning and shutdown thresholds
- Detection and notification of damaged MOSFET condition
- True Input Power averages dynamic power readings
- Averaging of V_{IN} , I_{IN} , P_{IN} , and V_{OUT} over programmable interval ranging from 0.001 to 4 seconds
- Programmable WARN and FAULT thresholds with SMBA notification
- Black box capture of telemetry measurements and device status triggered by WARN or FAULT condition
- I²C/SMBus interface and PMBus compliant command structure
- Full featured application development software
- eTSSOP-28 package

Applications

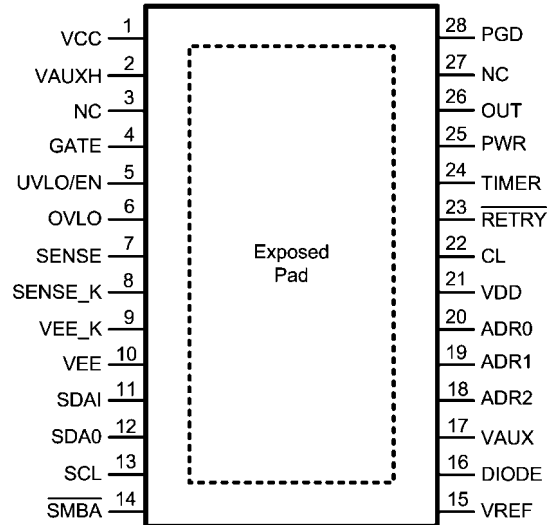
- Base Station Power Distribution Systems
- Intelligent Solid State Circuit Breaker
- -24V/-48V Industrial Systems

Simplified Application Circuit



301584001

Connection Diagram



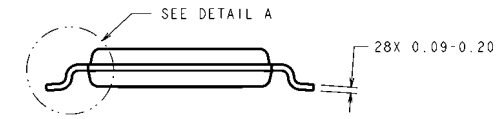
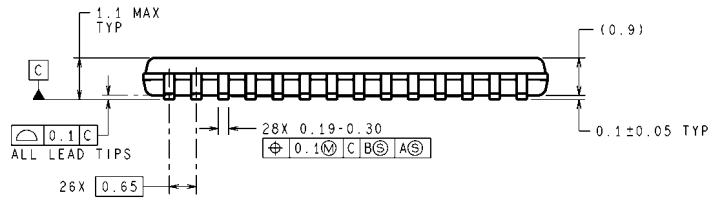
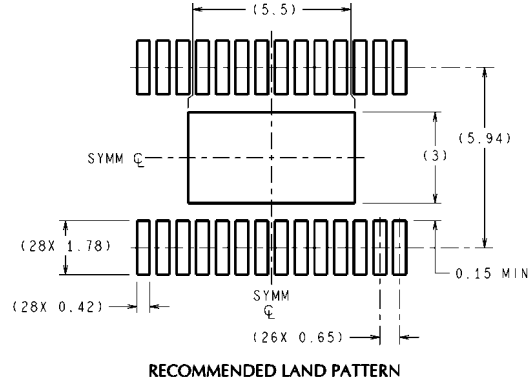
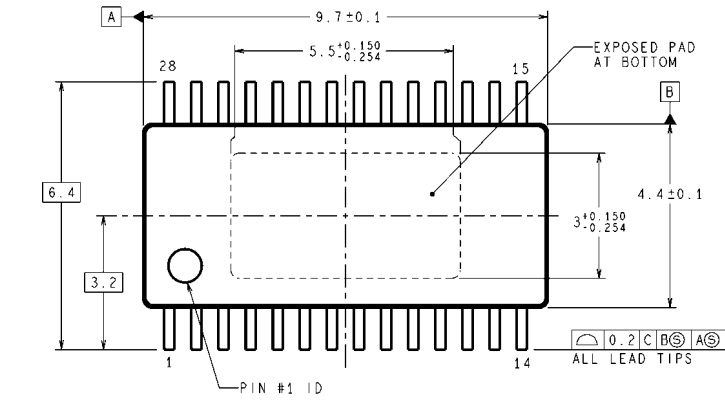
301584002

Top View
 28-Lead eTSSOP
 9.7 mm x 4.4 mm x 0.9 mm
 NS Package Number MXA28A

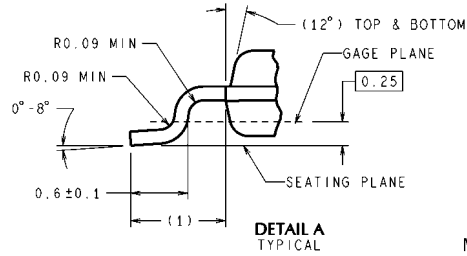
Ordering Information

Order Number	Package Type	NSC Package Drawing	Supplied As
LM5064PMH	eTSSOP-28	MXA28A	48 units in rail
LM5064PMHE			250 units in tape & reel
LM5064PMHX			2500 units in tape & reel

Physical Dimensions inches (millimeters) unless otherwise noted



DIMENSIONS ARE IN MILLIMETERS
DIMENSIONS IN () FOR REFERENCE ONLY



28-Lead eTSSOP Package
NS Package Number MXA28A

MXA28A (Rev D)

Notes

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