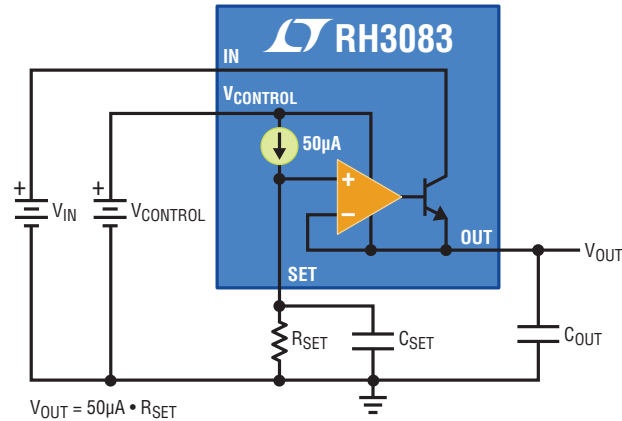


# Rethinking Radiation Hardened Low Dropout Regulators



The RH3083 is a 2.8A low dropout linear regulator with a unique architecture, featuring a precision current source and voltage follower which allows the output to be programmed to any voltage between 0V and 18V. Multiple regulators can be easily paralleled to increase total output current and spread heat over a system PC board with no need for heat sinking.

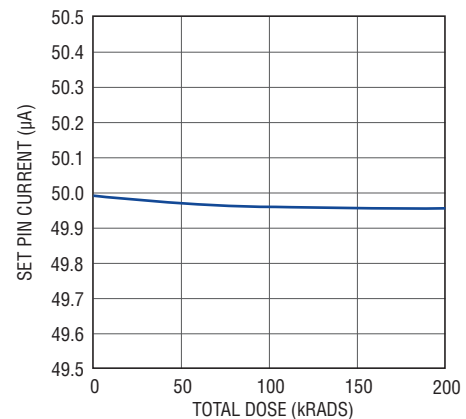
## Features

- Processed in Compliance with Linear's Certified MIL-PRF-38535 Class V Flow
- Wide Input Range: 1.2V to 23V
- Output Current: 2.8A
- Low Dropout Voltage: 310mV
- Output Adjustable to 0V
- 50µA Set Pin, ±2% Accurate to 200kRad TID
- Stable with 10µF Ceramic Output Capacitor
- Current Limit and Thermal Protection
- Easy to Parallel for Higher Current

## Radiation Performance

- Total Ionizing Dose (TID) Tolerance, per TM1019.8, MIL-STD-883 Up to:
  - 200kRad (Si), per Condition A at 50Rads (Si)/sec
  - 100kRad (Si), per Condition D at 10mRads (Si)/sec
  - ELDRS Pass 100kRad (Si)
- Displacement Damage Defect (DDD) Tolerance
  - Up to 1E12 Neutrons/cm<sup>2</sup>
- Single Event Latchup (SEL) Threshold Linear Energy Transfer (LET)
  - ≥ 110MeV.cm<sup>2</sup>/mg at T<sub>CASE</sub> = 100°C

SET Pin Current



3083 G01

## Availability

RH3083MK class V compliant dice are available from Linear Technology for use in custom hybrids.

Packaged products are developed by our trusted partners, Cobham (Aeroflex) and Anaren (MSK).

- Cobham (Aeroflex) part numbers: VRG8669, VRG8697, VRG8698
- Anaren (MSK) part numbers: MSK5983RH, MSK5984RH, MSK5985RH, MSK5986RH



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# Radiation Hardened Product Range

AMPLIFIERS				
Part Type	Description	Typical GBW (MHz)	Package	Partner Products
RH101A	Operational Amplifier	0.1	DICE, TO-5, DIP-8, FP-10	MSK0041, MSK106
RH1078	Dual Micropower Precision Op Amp, 120µV Offset	0.2	DICE, TO-5, DIP-8, FP-10	
RH07	Precision Operational Amplifier	0.4	DICE, TO-5, DIP-8, FP-10	
RH108A	General Purpose Operational Amplifier	0.5	DICE, TO-5, DIP-8, FP-10	
RH1013	Dual Precision Operational Amplifier, 300µV Offset	0.5	DICE, TO-5, DIP-8, FP-10	
RH1014	Quad Precision Operational Amplifier	0.5	DIP-14, FP-14	
<b>RH6105</b>	<b>Rail-to-Rail Current Sense Amplifier</b>	<b>1.0</b>	<b>DICE</b>	<b>MSK196, MSK496 (Quad), MSK6000</b>
RH27A	Precision Operational Amplifier, 35µV Offset	5.0	FP-10	
RH27	Precision Operational Amplifier, 55µV and 100µV Offset	5.0	DICE, TO-5, DIP-8, FP-10	
RH1056A	Precision High Speed JFET Input Operational Amplifier	6.5	TO-5, FP-10	
RH1056	Precision High Speed JFET Input Operational Amplifier	6.5	DICE	
RH1498	Dual 6V/µs Rail-to-Rail Input/Output Precision C-Load	10	DICE, FP-10	MSK198RHL
RH1499	Quad 6V/µs Rail-to-Rail Input/Output Precision C-Load	10	FP-14	
RH118	Precision/High Speed Operational Amplifier	15	TO-5, DIP-8, FP-10	
RH1128	Ultralow Noise Precision Op Amp, $A_V \geq 1$	20	DICE, FP-10	
RH37	Precision 45MHz Operational Amplifier	45	DICE, TO-5, DIP-8, FP-10	
RH1028	Ultralow Noise Precision Op Amp, $A_V \geq 2$ or $A_V \leq -1$	75	DICE, FP-10	
RH1814	Dual 3mA, 100MHz, 750V/µs Operational Amplifier	100	DICE	
RH1814	Quad 3mA, 100MHz, 750V/µs Operational Amplifier	100	FP-14	
RH6200	165MHz, Rail-to-Rail I/O, 0.95nV/√Hz Low Noise, Op Amp	165	DICE, FP-10	
COMPARATORS				
Part Type	Description	Typical $t_{PD}$ (ns)	Package	Partner Products
RH1016	UltraFast™ 10ns Precision Comparator	10	DICE, FP-10	
RH119	Dual High Performance Comparator	80	DICE, TO-5, DIP-8, FP-10	
RH1011	Precision Voltage Comparator	150	DICE, TO-5, DIP-8, FP-10	
RH111	Voltage Comparator, (Please Use RH1011 for New Designs)	200	TO-5, DIP-8, FP-10	
VOLTAGE REFERENCES				
Part Type	Description	T.C. Max ppm/°C	Package	Partner Products
RH1034-1.2	1.2V Micropower Dual Reference with 7V Aux	60	TO-46, FP-10	
5962R8961002	2.5V Precision Reference - SMD Version of RH1009	35	TO-46, FP-10	
RH1009	2.5V Precision Reference - SCD Version	35	DICE, TO-46, FP-10	MSK109, MSK110 (Dual)
RH1021-5	5V Precision Reference	5-20	DICE, TO-5, FP-10	
RH129A	6.9V Precision Reference	10	TO-46	
RH1021-7	7V Precision Reference	5-20	TO-5	
RH1021-10	10V Precision Reference	5-20	DICE, TO-5, FP-10	
DATA CONVERTORS				
Part Type	Description	$F_S$ (ksps)	Package	Partner Products
LTC1604	16-Bit, 333ksps Sampling ADC with Shutdown	333	SSOP-36	
RH1419	14-Bit, 800ksps Sampling ADC with Shutdown	800	DICE	RAD1419
VOLTAGE REGULATOR DRIVER				
Part Type	Description	Accuracy (%)	Package	Partner Products
RH1573	10V, LDO Regulator Driver, Up to 5A with External PNP	1.0	DICE	MSK5800, MSK5805, MSK5810, MSK5820, MSK5821, MSK5822, MSK5823, MSK5824, MSK5825, MSK5826, MSK5950
POSITIVE LINEAR REGULATORS				
Part Type	Description	$I_{OUT}$ (A)	Package	Partner Products
RH1086H	25V, 0.5A Positive Adjustable Voltage LDO Regulator	0.5	DICE, TO-39	
RH117H	40V, 0.5A Positive Adjustable Regulator	0.5	DICE, TO-39	
RH3080	40V, 0.9A Adjustable, Single Resistor LDO Regulator	0.9	DICE	MSK5976, MSK5977, MSK5978, VRG8666, Dual Regulators: MSK5953, VRG8667, VRG8668
<b>RH1965</b>	<b>20V, 1A Rugged, Low Noise, Adjustable LDO Regulator with Shutdown</b>	<b>1.0</b>	<b>DICE</b>	<b>MSK5965</b>
RH1086K	25V, 1.5A Positive Adjustable Voltage LDO Regulator	1.5	DICE, TO3	MSK5970, VRG8662, Dual Regulators: VRG8657, VRG8658, Positive + Negative Regulators: VRG8651, VRG8652
RH117K	40V, 1.5A Positive Adjustable Regulator	1.5	DICE, TO3	MSK5972, VRG8660, Dual Regulators: VRG8607, VRG8608, Positive + Negative Regulators: MSK5911, MSK5912, MSK5913, MSK5914, MSK5915, MSK5916, MSK5917, MSK5918, MSK5919, VRG8601, VRG8602
<b>RH3083</b>	<b>18V, 2.8A Adjustable, Single Resistor LDO Regulator</b>	<b>2.8</b>	<b>DICE</b>	<b>MSK5983, MSK5984, MSK5985, MSK5986, VRG8669, VRG8697, VRG8698</b>
RH1085	30V, 3A Positive Adjustable Voltage LDO Regulator	3.0	DICE, TO3	MSK5971, Positive + Negative Regulators: MSK5930, MSK5931, MSK5932, MSK5933, MSK5934, MSK5935, MSK5936, MSK5937, MSK5938, MSK5939
RH1084	25V, 5A Positive Adjustable Voltage LDO Regulator	5.0	DICE	VRG8684, Dual Regulators: VRG8687, VRG8688, Positive + Negative Regulators: VRG8653, VRG8654
NEGATIVE LINEAR REGULATORS				
Part Type	Description	$I_{OUT}$ (A)	Package	Partner Products
RH137H	30V, 0.5A Negative Adjustable Voltage Regulator	0.5	DICE, TO-39	
RH137K	30V, 1.5A Negative Adjustable Voltage Regulator	1.5	DICE, TO3	MSK5973, VRG8661, Dual Regulators: VRG8609, VRG8610, Positive + Negative Regulators: MSK5911, MSK5912, MSK5913, MSK5914, MSK5915, MSK5916, MSK5917, MSK5918, MSK5919, VRG8601, VRG8602
RH1185A	35V, 3A Negative LDO with Adjustable Current Limit	3.0	DICE, TO3	MSK5940, VRG8663, Positive + Negative Regulators: MSK5930, MSK5931, MSK5932, MSK5933, MSK5934, MSK5935, MSK5936, MSK5937, MSK5938, MSK5939, VRG8651, VRG8652, VRG8653, VRG8654
SWITCHING REGULATORS AND CONTROLLERS				
Part Type	Description	$I_{OUT}$ (A)	Package	Partner Products
RH1959	16V, 4.5A, 500kHz Step-Down Switching Regulator	4.5	DICE	MSK5044, MSK5048, MSK5052, MSK5059
RH3845	60V Synchronous Step-Down Controller, 100kHz to 500kHz	10	DICE	MSK5055 Switching Controller (Monolithic)
<b>RHK3845</b>	<b>RH3845 Controller + Two RH411 Power NMOS FETs</b>	<b>10</b>	<b>3 x DICE</b>	<b>MSK5063 Switching Regulator Module</b>

**Partner Products:**

MSK Prefix - ANAREN INC. (MS KENNEDY CORP.), [www.mskennedy.com](http://www.mskennedy.com)  
 VRG Prefix - COBHAM plc (AEROFLEX MICROELECTRONIC SOLUTIONS), [www.aeroflex.com/ams](http://www.aeroflex.com/ams)

