

POWER MANAGEMENT PRODUCTS



COMPANY OVERVIEW

Diodes Incorporated is a leading global provider of Discrete and Analog semiconductors.

Its global footprint includes sales offices in 5 countries and manufacturing locations in China, Europe and the USA.

A focus on product innovation, cost reduction, acquisitions and customer service has made Diodes Incorporated an industry leader.

Combining leading silicon and packaging technologies, Diodes provides a broad portfolio of discrete semiconductors comprising Bipolar Transistors, MOSFETs, Schottky diodes, SBR, switching diodes and functional specific arrays to enable our customers' next generation designs.

The Diodes' Analog IC portfolio consists of 6 main areas: Power Management ICs, Standard Linear, Lighting, Sensors, Direct Broadcast by Satellite and Applications Specific Standard Products.



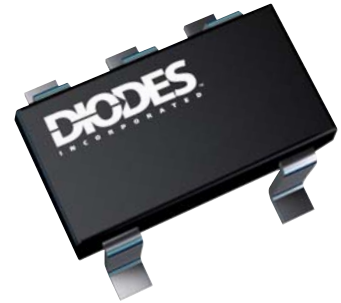
SOLUTIONS FOR POWER MANAGEMENT CHALLENGES

Diodes offers a well-rounded portfolio of analog and discrete components for power management solutions. The product offering includes solutions for high end consumer, communications, computing, industrial, medical, and the rapidly expanding portable applications sector.

With in-house IP, wafer fab technology, and packaging capabilities, Diodes offers an aggressive way to reduce solution size and increase feature set with cost optimization in mind. Strategic partnerships enhance product availability, providing access to optimized process technology and additional production capacity.

Our worldwide sales and technical support team enables close customer relationships and fast response time. Application notes, samples, and evaluation tools enable ready access to Diodes' products and easy design-in.

This power management selection guide includes DC-DC switching converters and controllers, LDOs, linear regulators, load switches, and USB power switches.



Diodes' offering in DC-DC non-isolated switching voltage regulators includes input voltages ranging from as low as 0.9V up to 60V. Load currents of up to 5A can be supported, with switching frequencies from 50kHz to 1.8MHz. The device topologies offered include step-down, step-up, and inverting converters and controllers.

Linear regulators are offered for the industrial market with high-input voltages ranging up to 25V and 5A, as well as low-voltage CMOS LDOs for point-of-load in portable, industrial, and consumer electronics. Ultra low dropout regulators allow core-to-core voltage regulation, for example 1.8V to 1.5V.

Single channel load switches with currents up to 2A and typical $R_{DS(ON)}$ of 80m Ω and output discharge function are available in SOT25 and 6-pin 2x1.8mm DFN packages for optimized solution size.

USB power switches are offered in industry standard pin out and packaging. Available in single and dual channel for 0.5A, 1A, 1.5A, and 2A continuous load current, Diodes' USB power switches support USB 2.0 and 3.0 standards.

Products are available in Green molding compound and are RoHS compliant.



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Switching Voltage Regulators

Converters vs. Controllers

Converters feature integrated power switches to make designing with them easier and to minimize component count, while controllers using external power switches offer increased flexibility to system board designers.

Internal vs. External Compensation

Internal compensation allows for smaller board space and fewer components, while use of external compensation allows the system designer to select specific inductor and capacitor values to optimize system stability.

Switching Frequency

Higher switching frequencies will reduce the output ripple current and will allow for comparatively smaller inductors, but special attention has to be given to EMI.

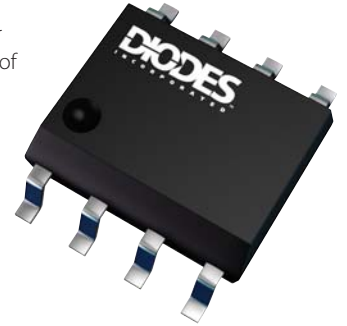
With higher switching frequency, the losses in the MOSFETs will increase as they are in transition regions longer.

Protection Features

Over-current, voltage, and temperature protection will increase board reliability and prevent premature failures. A Power Good signal in combination with an Enable pin can be used for power sequencing and can warn the processor of possible supply problems and shut down in a controlled manner.

Enable Pin

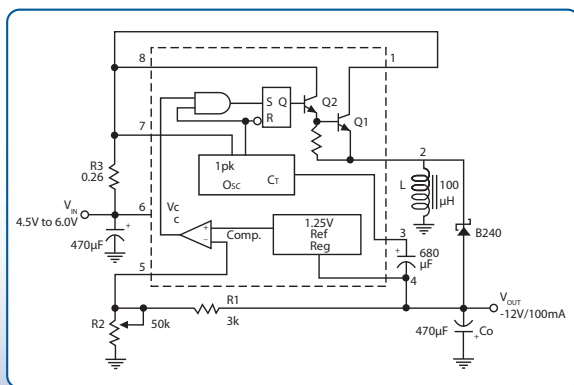
An Enable pin can serve as a power saving opportunity as system blocks can be turned off and energy efficiency in stand-by can be dramatically increased.



DC-DC Controllers

Part Number	Buck	Boost	Inverter	Min. Input Voltage V	Max. Input Voltage V	Adjustable Output Voltage V	Output Current A	Frequency (typ) kHz	Efficiency %	Standby Quiescent Current (typ) µA	Operating Ambient Temp Range °C	Features						Available Packages	
												Soft Start	Enable Pin	Current Limit Protection	Thermal Shutdown	Under Voltage Lockout	Compensation Pin		Over-current Protection
AP2014	X	-	-	4.5	20	1.25 to 20	-	200	92	-	0 to +125	X	-	X	X	X	X	-	TO263 / TO220
AP2014A	X	-	-	4.5	20	0.8 to 20	-	400	92	-	0 to +125	X	-	X	X	X	X	-	TO263 / TO220
AP2004	X	-	-	3.6	27	1.25 to 25.5	-	300 adj	90	-	-20 to +85	X	-	X	-	X	X	-	TO263 / TO220
ZXSC100	-	X	-	0.93	3.5	0.93 to 3.5	-	200	82	150	0 to +70	-	-	-	-	-	-	-	TO252
ZXSC4XX	-	X	-	1.8	8	1.8 to 8	-	200	85	150	0 to +70	-	X	-	-	-	-	-	MSOP-8 / SOT26
AP2001	X	X	X	3.6	40	2.5 to 40	1	500 adj	-	-	-20 to +85	-	-	X	-	X	X	X	SO-8

THE DIODES ADVANTAGE



Typical Application

AP34063 Universal DC-DC Converter

- Use as Step up, Step down, or Inverter
- Operates from 3V to 40V
- Output switch current up to 1.6A
- Precise 2% reference



The AP5100 is a current mode step-down converter with a built-in power MOSFET to enable smallest size power conversion solutions.

With the low series on-resistance power switch, it enables a constant output current of up to 1.2A over a wide input supply range. The load and line regulation has excellent response time over the operating input voltage and temperature range.

The AP5100 is self-protected through a cycle-by-cycle current limiting algorithm and on-chip thermal protection.

The AP5100 will provide voltage conversion with low component count using widely available standard external components. The AP5100 is available in a SOT26 package.

DC-DC Converters

Part Number	Buck	Boost	Inverter	Min. Input Voltage	Max. Input Voltage	Fixed Output Voltage	Adjustable Output Voltage	Output Current	Frequency (typ)	Efficiency	Standby Quiescent Current (typ)	Operating Ambient Temp Range	Features						Available Packages	
				V	V	V	V	A	kHz	%	μ A	$^{\circ}$ C	Soft Start	Enable Pin	Current Limit Protection	Thermal Shutdown	Under-Voltage Lockout	Compensation Pin		Over-current Protection
AP1501	X	-	-	4.5	40	3.3/5/12	1.23 to 37	3	150	90	150	-20 to +85	-	X	X	X	-	-	-	TO263 / TO220
AP1501A	X	-	-	4.5	40	3.3/5/12	1.23 to 37	5	150	88	150	-20 to +85	-	X	X	X	-	-	-	TO263 / TO220
AP1506	X	-	-	4.5	22	3.3/5/12	1.23 to 18	3	150	89	0	-20 to +85	-	X	X	X	-	-	-	TO263 / TO220
AP1507	X	-	-	4.5	22	3.3/5/12	1.23 to 18	3	150	90	70	-20 to +85	-	X	X	X	-	-	-	TO252
AP1509	X	-	-	4.5	22	3.3/5/12	1.23 to 18	2	150	90	70	-20 to +85	-	X	X	X	-	-	-	SO-8
AP1510	X	-	-	3.6	23	-	0.8 to V_{CC}	3	300	92	10	-20 to +85	X	X	X	X	-	-	X	SO-8
AP1512	X	-	-	4.5	60	3.3/5/12	1.23 to 37	2	50	90	350	-20 to +85	-	X	X	X	-	-	-	TO263
AP1512A	X	-	-	4.5	60	3.3/5/12	1.23 to 37	3	50	90	350	-20 to +85	-	X	X	X	-	-	-	TO263
AP1513	X	-	-	3.6	18	-	0.8 to V_{CC}	2	300	92	10	-20 to +85	X	X	X	X	-	-	X	SO-8
AP1520	X	-	-	3.6	23	-	0.8 to V_{CC}	2	300	92	10	-20 to +85	X	X	X	X	-	-	X	SO-8
AP1530	X	-	-	3.6	18	-	0.8 to V_{CC}	3	300	92	10	-25 to +85	X	X	X	X	-	-	X	SO-8
AP1533	X	-	-	4	23	-	0.8 to V_{CC}	1.8	300	91	10	-25 to +85	X	X	X	X	-	-	X	SO-8
AP1534	X	-	-	4.4	18	-	0.8 to V_{CC}	2	300	91	10	-25 to +85	X	X	X	X	-	-	X	SO-8
AP1538	X	-	-	3.6	18	-	0.8 to V_{CC}	3	300	92	10	-25 to +85	X	X	X	X	-	-	X	SO-8
AP1539	X	-	-	4.4	18	-	0.8 to V_{CC}	4	300	-	10	-25 to +85	X	X	X	X	-	-	X	SO-8-EP
AP1604A	X	-	-	2.2	5.5	-	2 to 5.5	0.8	600	93	2	-25 to +80	X	X	X	X	X	-	-	SOT25
AP1605	X	-	-	2.5	7	-	2.2 to V_{CC}	3	300	93	2	-25 to +85	X	X	-	-	X	-	-	SO-8
AP1635	X	-	-	2.2	5	-	2.0 to V_{CC}	1.2	700	93	6	-25 to +80	X	X	X	X	X	-	-	SO-8
AP5002	X	-	-	3.6	20	-	0.8 to V_{CC}	2	500	90	50	-20 to +85	X	X	X	X	-	X	-	SO-8
AP5004	X	-	-	10	32	-	0.8 to 6V	2.5	300	90	2	-25 to +85	-	X	X	X	-	-	X	SO-8
AP5100	X	-	-	4.75	24	-	0.81 to 15	1.2	1400	90	0.1	-25 to +85	-	X	X	X	X	-	X	SOT26
AP6015	X	-	-	2.5	5.5	1.8/2.5/3.3	0.8 to V_{CC}	0.8	1000	94	0.1	-40 to +85	X	X	X	X	X	X	-	MSOP-10
AP1603	-	X	-	0.9	5.5	3.3/5	2 to 5.5	0.2	150	90	0.1	-40 to +85	-	X	X	-	-	-	-	SOT26
AP1601	-	X	-	1.1	5.5	-	2 to 5.5	0.42	100	90	0.1	-40 to +85	-	X	X	-	-	-	-	MSOP-8 / MSOP-10
AP1609	-	X	-	2.5	6	-	3 to 17	2.4	300	91	1	-40 to +85	-	X	-	-	-	-	-	SO-8
AP6714	-	X	-	0.9	5.5	-	1.8 to 5.5	1.6	1800	94	1	-40 to +85	X	X	-	-	-	-	X	MSOP-10
ZXLD1601	-	X	-	2.5	5.5	-	2.5 to 28	0.25	1000	85	60	-40 to +85	-	X	-	-	-	-	-	SC70-6
ZXLD1615	-	X	-	2.5	5.5	-	2.5 to 28	0.25	1000	85	60	-40 to +85	-	X	-	-	-	-	-	TSOT23-5
AP34063	X	X	X	3	40	-	1.25 to V_{CC}	1.6	100 adjustable	82	-	-20 to +105	-	X	X	-	X	-	-	PDIP / SO-8

USB Current-Limiting Switches

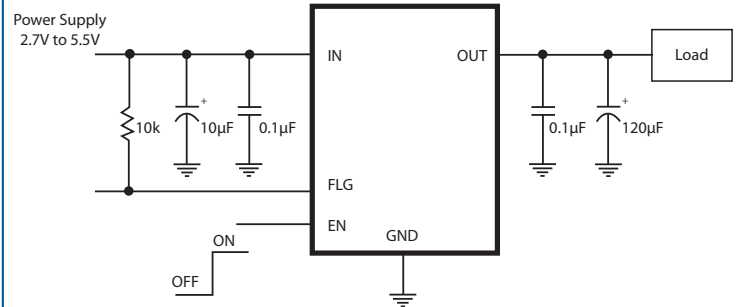
These integrated high-side power switches are optimized for Universal Serial Bus (USB) and other 3V-5V hot-swap applications. They provide fault protection, power sequencing, and segmentation for different modules.

The family of devices complies with USB 2.0 or 3.0 standards, and is available with both polarities of Enable input.

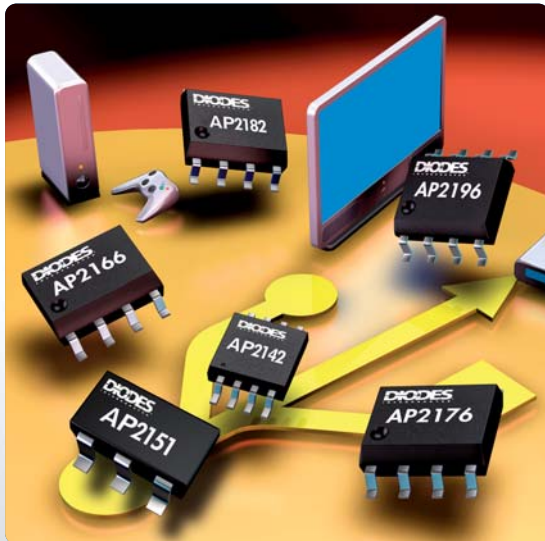
Key features

- Accurate current limiting
- Reverse current blocking
- Built-in Soft-Start
- Fast over-current response
- Under-voltage lockout (UVLO)
- Open-drain error flag output with deglitch
- Short-Circuit protection
- Thermal protection
- UL Recognized and IEC 60950-1 CB Scheme Certified

AP2101/AP2111 2A USB Power Switch



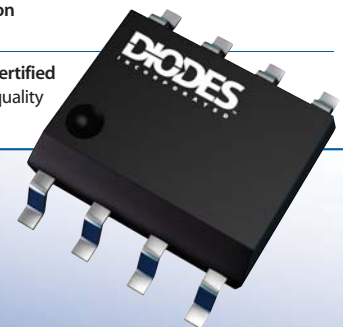
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The Diodes Advantage

The AP2101/AP2111 provides a simple cost-effective solution for multiple USB port protection

- **2A single channel in SO-8 and MSOP-8-EP**
Expands AP21x1 single channel series (0.5A/1A/1.5A) for high current applications
- **5µs fast transient response time**
Prevents system shutdown/restart and improves system robustness
- **Output discharge function**
Provides controlled discharge of the output voltage stored on the output capacitor
- **2.5A accurate current limiting**
Reduces power requirements on system rail and reduces system cost
- **Reverse current blocking, over-current, short-circuit, and over-temperature protection**
Improves robustness of USB port(s)
- **UL recognized and IEC 60950-1 CB Scheme certified**
Ensures system safety and improves product quality



USB Current-Limiting Switches

Part Number	Number of Channels	Maximum Continuous Output Current	Maximum Current Limit	Enable Logic	Operating Voltage Range	Quiescent Current (typ)	R _{DS(ON)} (typ)	Operating Ambient Temp Range	Features					UL Listed	IEC 60950-1 CB Scheme Certified	Available Packages				
									V	μA	mΩ	°C	Flag Output				Undervoltage Lockout	Reverse Current Blocking	Output Discharge	Thermal Shutdown
AP2141	1	0.5	1	Active Low	2.7 to 5.5	45	90	-40 to +85	X	X	X	-	X	Yes	Yes	DFN2018-6				
							90									SOT25 SO-8 MSOP-8-EP				
AP2145	1	0.5	1	Active Low	2.7 to 5.5	45	90	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							95									SO-8				
AP2142	2	0.5	1	Active Low	2.7 to 5.5	100	115	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							120									SO-8				
AP2146	2	0.5	1	Active Low	2.7 to 5.5	95	90	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							100									SO-8				
AP2151	1	0.5	1	Active High	2.7 to 5.5	45	90	-40 to +85	X	X	X	-	X	Yes	Yes	DFN2018-6				
							95									SOT25 SO-8 MSOP-8-EP				
AP2155	1	0.5	1	Active High	2.7 to 5.5	45	90	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							95									SO-8				
AP2152	2	0.5	1	Active High	2.7 to 5.5	100	115	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							120									SO-8				
AP2156	2	0.5	1	Active High	2.7 to 5.5	95	90	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							100									SO-8				
AP1212L	2	0.6	1.25	Active Low	2.7 to 5.5	110	110	-40 to +85	X	X	X	-	X	-	-	SO-8				
AP1212H	2	0.6	1.25	Active High	2.7 to 5.5	110	110	-40 to +85	X	X	X	-	X	-	-	SO-8				
AP2161	1	1	1.9	Active Low	2.7 to 5.5	45	90	-40 to +85	X	X	X	-	X	Yes	Yes	DFN2018-6				
							95									SOT25 SO-8 MSOP-8-EP				
AP2162	2	1	1.9	Active Low	2.7 to 5.5	100	115	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							120									SO-8				
AP2166	2	1	1.9	Active Low	2.7 to 5.5	95	90	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							100									SO-8				
AP2171	1	1	1.9	Active High	2.7 to 5.5	45	90	-40 to +85	X	X	X	-	X	Yes	Yes	DFN2018-6				
							95									SOT25 SO-8 MSOP-8-EP				
AP2172	2	1	1.9	Active High	2.7 to 5.5	100	115	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							120									SO-8				
AP2176	2	1	1.9	Active High	2.7 to 5.5	95	90	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							100									SO-8				
AP2181	1	1.5	2.6	Active Low	2.7 to 5.5	45	90	-40 to +85	X	X	X	-	X	Yes	Yes	DFN2018-6				
							95									SOT25 SO-8 MSOP-8-EP				
AP2182	2	1.5	2.6	Active Low	2.7 to 5.5	100	115	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							120									SO-8				
AP2186	2	1.5	2.6	Active Low	2.7 to 5.5	95	90	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							100									SO-8				
AP2191	1	1.5	2.6	Active High	2.7 to 5.5	45	90	-40 to +85	X	X	X	-	X	Yes	Yes	DFN2018-6				
							95									SOT25 SO-8 MSOP-8-EP				
AP2192	2	1.5	2.6	Active High	2.7 to 5.5	100	115	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							120									SO-8				
AP2196	2	1.5	2.6	Active High	2.7 to 5.5	95	90	-40 to +85	X	X	X	-	X	Yes	Yes	MSOP-8-EP				
							100									SO-8				
AP2101	1	2	2.8	Active Low	2.7 to 5.5	45	90	-35 to +85	X	X	X	X	X	Yes	Yes	MSOP-8-EP				
							95									SO-8				
AP2111	1	2	2.8	Active High	2.7 to 5.5	45	90	-35 to +85	X	X	X	X	X	Yes	Yes	MSOP-8-EP				
							95									SO-8				

Load Switches

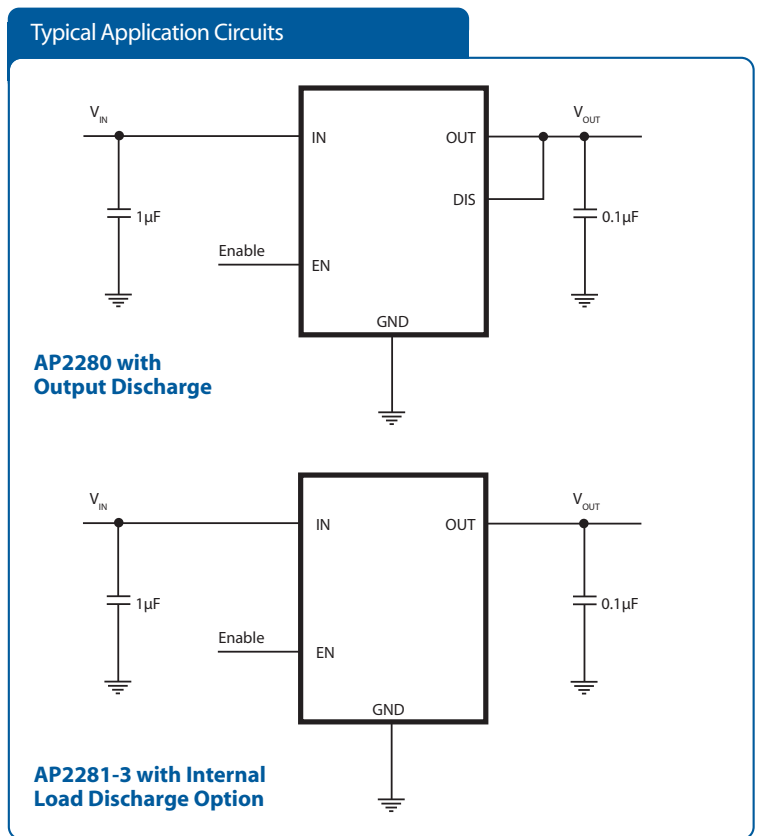
Slew rate controlled load switches consist of a single P-channel MOSFET power switch designed for high-side load switching or power distribution applications. The MOSFET has a typical $R_{DS(ON)}$ of 80m Ω at 5V, allowing increased load current handling capability with a low forward voltage drop.

The turn-on slew rate of the device is controlled internally to reduce turn-on inrush current and improves system performance and reliability with minimized power-on transients.

Diodes' load switches are ideal for 1.8V, 2.5V, 3.3V, and 5V applications, and for battery powered distribution systems where power consumption is a concern.

Key features

- Wide input range: 1.5V to 6V
- Low $R_{DS(ON)}$: 80m Ω typical @5V
- Very low quiescent current
- 100 μ s or 1ms controlled turn-on rise time
- Discharge function
- Low profile DFN2018-6 package
- Temperature range: -45 $^{\circ}$ C to 85 $^{\circ}$ C



Part Number	Number of Channels	Operating Voltage Range V	Max Output Current A	Output Turn-On Rise Time (typ) μ s	Output Turn-On Delay Time (typ) μ s	Quiescent Current (typ) μ A	$R_{DS(ON)}$ m Ω	Operating Ambient Temp Range $^{\circ}$ C	Enable Logic	Features			Available Packages
										Soft Start	Enable	Discharge Pin	
AP2280-1	1	1.5 to 6.0	2	100	1	0.004	80	-40 to +85	Active-High	X	X	External	SOT25 DFN2018-6
AP2280-2	1	1.5 to 6.0	2	1000	1	0.004	80	-40 to +85	Active-High	X	X	External	SOT25 DFN2018-6
AP2281-1	1	1.5 to 6.0	2	1000	1	0.01	80	-40 to +85	Active-High	X	X	-	SOT26 DFN2018-6
AP2281-3	1	1.5 to 6.0	2	100	1	0.01	80	-40 to +85	Active-High	X	X	Internal	SOT26 DFN2018-6

Linear and Low Dropout (LDO) Regulators

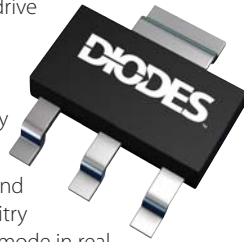
A broad LDO portfolio is offered to cover a wide range of specifications and performance for consumer, computing, communications, portable, and industrial applications.

The characteristics of low dropout voltage and low quiescent current provide great power savings in portable and low power applications.

Most LDOs are designed to drive low ESR MLCC capacitors to reduce system-level manufacturing cost and improve control loop stability and transient response.

The fast transient response and start-up time help load circuitry move in and out of standby mode in real time and extend battery life. It also provides stable voltage regulation for fast DSPs and FPGAs with fast changing loads.

Built-in current-limit, short-circuit, and thermal protections prevent damage to ICs in fault or extreme operating conditions.



Key Features

- Wide input voltage range
- Output voltage: adjustable or fixed options
- Compatible with low ESR ceramic capacitors
- Temperature range: -45°C to 85°C
- Current-limit protection
- Short-circuit protection
- Thermal protection
- Green and RoHS compliant packages

Linear Regulators

Part Number	Output Current	Max Dropout Voltage	Max Operating Input Voltage	Quiescent Current (typ)	Output Voltage	Output Accuracy	Max Load Regulation (typ)	Max Line Regulation (typ)	Current Limit	PSRR (typ)	Temperature Coefficient	Operating Ambient Temp Range	Thermal Protection	Pin Count	Available Packages
	A	V	V	mA	V	%	mV	mV	A	dB	mV/°C	°C			
AP78L05	0.1	2	20	3	5.0	4	20	18	0.14	62 at 120Hz	-0.65	-20 to +85	X	3 8	TO92-3 SOT89-3 SO-8
AP78L08	0.1	2	23	3	8.0	4	20	18	0.14	46 at 120Hz	-0.8	-20 to +85	X	3 8	TO92-3 SOT89-3 SO-8
AP78L12	0.1	2	27	3	12	4	20	18	0.14	54 at 120Hz	-1.0	-20 to +85	X	3 8	TO92-3 SOT89-3 SO-8
ZMR250	0.1	1.7	22.5	40µA	2.5	-	30	15	-	75 at 180Hz	0.7	-55 to +125	X	3	SOT23
ZMR330	0.1	1.7	24	170µA	3.3	-	35	10	-	72 at 120Hz	0.7	-55 to +125	X	3	SOT23
ZMR500	0.1	1.7	25	70µA	5	-	40	15	-	72 at 120Hz	0.7	-55 to +125	X	3	SOT23
ZSRXXX	0.2	1.7	20	350µA	3/3.3/5/10/12	2.5	20	18	0.14	62 at 120Hz	0.1	-55 to +125	X	3	SOT223

Quasi Low Dropout Regulators

Part Number	Number of Channels	Output Current	Max Dropout Voltage	Max Operating Input Voltage	Output Voltage	Output Accuracy	Load Current (typ)	Max Load Regulation	Max Line Regulation	Min Current Limit	PSRR (typ)	Temperature Coefficient	Operating Junction Temp Range	Features		Pin Count	Available Packages
														Thermal Protection	Additional Features		
AP1115A/B	1	0.6	1.3	18	1.5 / 1.8 / 2.5 / 2.8 / 3.0 / 3.3 / 3.5 / 5.0 / ADJ	2	5	1.0	0.2	0.7	60 at 120Hz	0.6	0 to +125	X	-	3	SOT89-3
AP1122	1	1	1.3	12	1.2	2	5	1.0	0.2	1.1	60 at 120Hz	0.5	0 to +125	X	-	3	SOT223-3 TO252-3 SOT89-3 TO263-3 TO220-3
AP1117	1	1	1.4	18	1.5 / 1.8 / 2.5 / 3.3 / 5.0 / ADJ	2	5	1.0	0.2	1.1	60 at 180Hz	0.5	0 to +125	X	-	3	SOT223-3 TO252-3 TO220-3 SOT89-3 TO263-3
ZLDO1117	1	1	1.3	18	1.2 / 1.5 / 1.8 / 2.5 / 3.3 / 5.0 / ADJ	1	2	0.2	0.1	1.1	80 at 120Hz	0.5	-40 to +125	X	-	3	SOT223-3 TO252-3
AP1120 / AP1121A	2	1	1.4	18	ch1:3.3 ch2:2.5	2	5	1.0	0.2	1.1	60 at 120Hz	0.5	0 to +125	X	-	8	SO-8
AP1120B / AP1121B	2	1	1.4	18	ch1:3.3 ch2:1.8	2	5	1.0	0.2	1.1	60 at 120Hz	0.5	0 to +125	X	-	8	SO-8
AP1086	1	1.5	1.4	12	1.5 / 1.8 / 2.5 / 3.3 / 5.0 / ADJ	2	5	1.0	0.2	1.6	60 at 120Hz	0.5	0 to +125	X	-	3	TO263-3 TO252-3 TO220-3
AP1186	1	1.5	0.38	16	1.5 / 1.8 / 2.5 / 3.3 / 5.0 / ADJ	2	5	1.0	0.2	1.6	70 at 120Hz	-	0 to +150	X	Bias Supply	5	TO263-5 TO220-5
AP1184	1	4	0.85	16	1.5 / 1.8 / 2.5 / 3.3 / 5.0 / ADJ	2	5	1.0	0.2	4.2	70 at 120Hz	-	0 to +125	X	Bias Supply	5	TO263-5 TO220-5
AP1084	1	5	1.4	12	1.5 / 1.8 / 2.5 / 3.3 / 5.0 / ADJ	2	5	1.0	0.2	5.1	-	0.5	0 to +125	X	-	3	TO263-3 TO252-3 TO220-3

THE DIODES ADVANTAGE

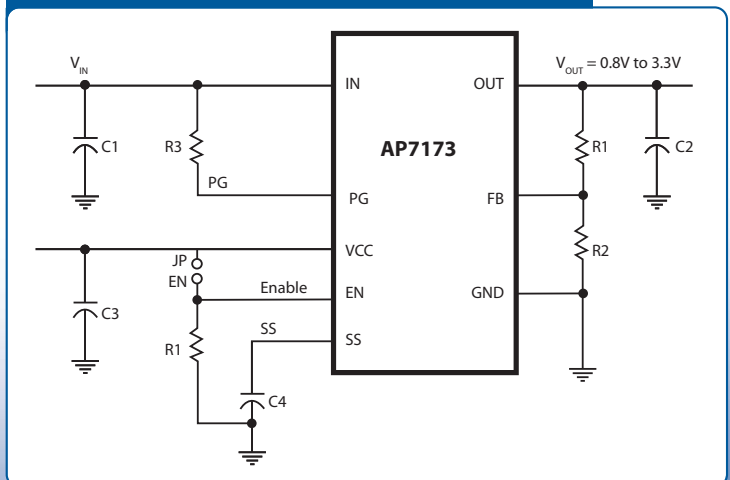
High Current LDO with Programmable Soft Start

The AP7173 is a 1.5A LDO that features a user-programmable soft-start, an enable input, and a power-good output.

The soft-start reduces inrush current of the load capacitors and minimizes stress on the input power source during start-up. The enable input and power-good output allow users to configure power management solutions that can meet the sequencing requirements of FPGAs, DSPs, and other applications with different start-up and power-down requirements.

The AP7173 is stable with any type of output capacitor of 2.2µF or more. A precision reference and feedback control deliver 2% accuracy over load, line, and operating temperature ranges. The AP7173 is available in both DFN3030-10 and SOP-8L-EP packages.

AP7173 typical application circuit (adjustable output)



Low Dropout (LDO) Regulators

Part Number	Output Current		Max Dropout Voltage	Operating Input Voltage	Quiescent Current (typ)	Output Options		Output Accuracy	Load Regulation	Line Regulation	Current Limit (typ)	PSRR (typ)	Temperature Coefficient	Operating Ambient Temp Range	Features			Pin Count	Available Packages
	A	V				V	Fixed Voltage								Adjustable	Thermal Protection	External Enable/Control		
	A	V	V	μA	V	V	%	%	%/V	A	dB	PPM/°C	°C						
AP7311	0.15	0.3	2 to 6	55	1.0/ 1.2/ 1.5/ 1.8/ 2.0/ 2.5/ 2.8/ 3.0/ 3.3	0.8 to 5	2	0.6	0.01	0.3	65 at 100Hz	-	-40 to +85	X	X	-	5	SOT25	
AP7313	0.15	0.3	2 to 6	55	1.0/ 1.2/ 1.5/ 1.8/ 2.0/ 2.5/ 2.8/ 3.0/ 3.3	-	2	0.6	0.01	0.3	65 at 100Hz	-	-40 to +85	X	-	-	3	SOT23	
AP7115	0.15	0.3	2.5 to 5.5	50	1.0/ 1.2/ 1.5/ 1.8/ 2.5/ 2.8/ 2.85/ 3.0/ 3.3/ 3.5	-	2	0.003 %/mA	0.02	0.25	70 at 1kHz	50	-40 to +85	X	X	Bypass	5	SOT25 SOT353	
ZXCLXXX	0.15	0.28	2.0 to 5.5	25	2.5 / 2.8 / 3.0/ 3.3	-	2	0.04	0.1%	-	-	15	-40 to +85	X	X	-	5	SOT25 SC70-5	
ZXCL5213VXX	0.15	0.28	2.0 to 5.5	25	2.5 / 2.8 / 3.0/ 3.3	-	2	0.04	0.1%	-	-	15	-40 to +85	X	X	-	5	SC70-5	
AP130	0.3	0.5	2.7 to 5.5	50	1.5/ 1.8/ 2.0/ 2.5/ 2.8/ 3.0/ 3.3/ 3.5	-	2	30mV	0.10	0.45	58 at 100Hz	50	-40 to +85	X	-	-	3	SOT-23 SC59 SOT-89	
AP131	0.3	0.5	2.7 to 5.5	50	1.5/ 1.8/ 2.0/ 2.5/ 2.8/ 3.0/ 3.3/ 3.5	-	2	30mV	0.10	0.45	60 at 100Hz	50	-40 to +85	X	X	Bypass	5	SOT25	
AP139	0.3	0.45	2.7 to 5.5	45	1.5/ 1.8/ 2.0/ 2.5/ 2.8/ 3.0/ 3.3/ 3.5	-	2	0.3	0.1%	0.45	75 at 1kHz	50	-40 to +85	X	X	Bypass	5	SOT25	
AP133	0.3	0.45	2 to 6	40	-	1 to 5	2	1.0	0.05	0.6	65 at 1kHz	-	-40 to +85	X	X	-	5 6	SOT25 DFN2020-6	
AP7331	0.3	0.55	2 to 6	55	1.0/ 1.2/ 1.5/ 1.8/ 2.0/ 2.5/ 2.8/ 3.0/ 3.3	0.8 to 5	2	0.6	0.01	0.6	65 at 100Hz	-	-40 to +85	X	X	-	5 6	SOT25 DFN2020-6	
AP7333	0.3	0.55	2 to 6	55	1.0/ 1.2/ 1.5/ 1.8/ 2.0/ 2.5/ 2.8/ 3.0/ 3.3	-	2	0.6	0.01	0.6	65 at 100Hz	-	-40 to +85	X	-	-	3	SOT23	
AP7217	0.5	0.25	3.3 to 5.5	50	3.3	-	2	15mV	0.01	0.6	55 at 1kHz	100	-40 to +85	-	X	Reset Output	8	SO-8	
AP7217A	0.6	0.9	3.3 to 5.5	50	3.3	-	2	15mV	0.01	0.75	55 at 1kHz	100	-40 to +85	-	X	Reset Output	8	SO-8 SO-8-EP	
AP7217C	0.6	2	2.5 to 5.5	40	1.25	-	2	10mV	0.01	0.75	55 at 1kHz	100	-40 to +85	-	X	-	8	SO-8-EP	
AP7217D	0.6	1.3	2.5 to 5.5	40	1.2	-	2	15mV	0.20	0.85	55 at 1kHz	100	-40 to +85	X	-	-	3	SOT89-3	
AP7215	0.6	0.25	3.3 to 5.5	50	3.3	-	2	15mV	0.01	0.75	55 at 1kHz	100	-40 to +85	-	X	Reset Output	3 8	SOT89-3 SO-8	
AP7165	0.6	0.4	2.2 to 5.5	125	-	0.8 to 5	2.5	1.0	0.015	0.95	60 at 1kHz	-	-40 to +85	X	X	Power Good	8 10	SO-8-EP DFN3030-10	
AP7167	1.2	0.8	2.2 to 5.5	125	-	0.8 to 5	3	1.5	0.02	1.6	60 at 1kHz	-	-40 to +85	X	X	Power Good	8 10	SO-8-EP DFN3030-10	
AP7168	1.2	0.8	2.2 to 5.5	125	-	0.8 to 5	3	1.5	0.02	1.6	60 at 1kHz	-	-40 to +85	X	X	Power Good	8	SO-8-EP	
AP7173	1.5	0.27	1.0 to 5.5	1000	-	0.8 to 3.3	2	0.09 %/A	0.03	3	60 at 1kHz	-	-40 to +85	X	X	Power Good, Soft-start, Bias Supply	8 10	SO-8-EP DFN3030-10	

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