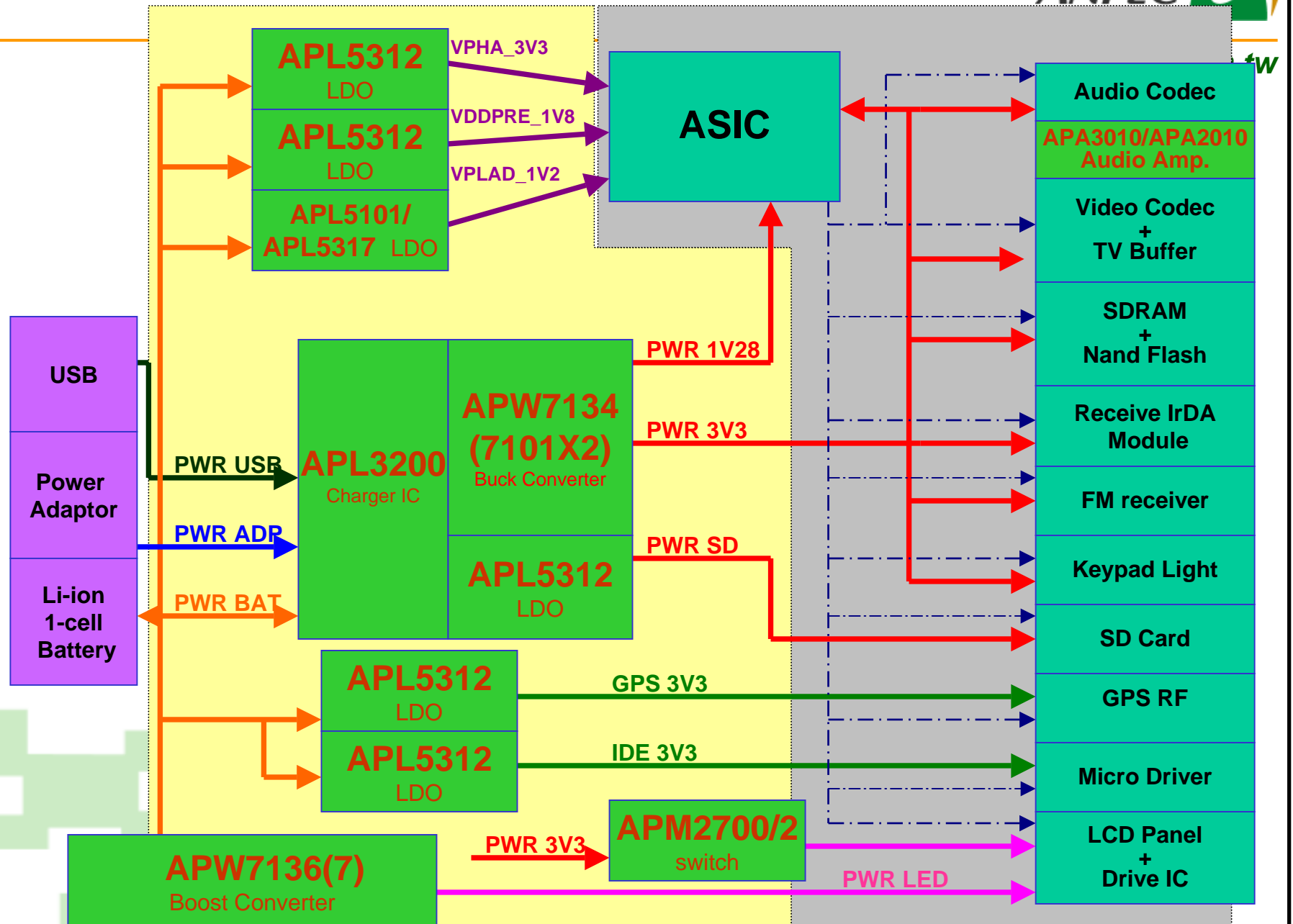


# ***GPS+ Navigation/PDA Power Management Design***

# GPS+Navigation/PDA System for ANPEC Solution



# APL3200 LI-ION Linear Charger

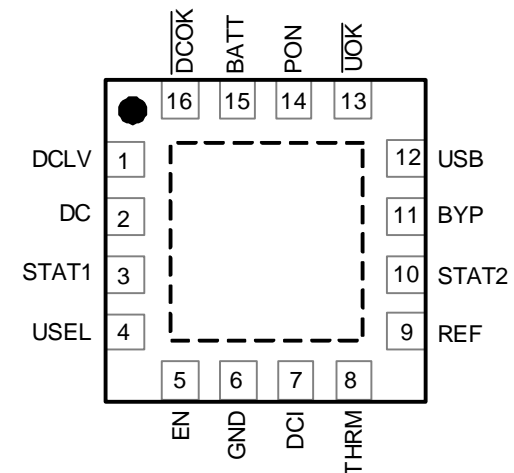


[www.anpec.com.tw](http://www.anpec.com.tw)

## Features

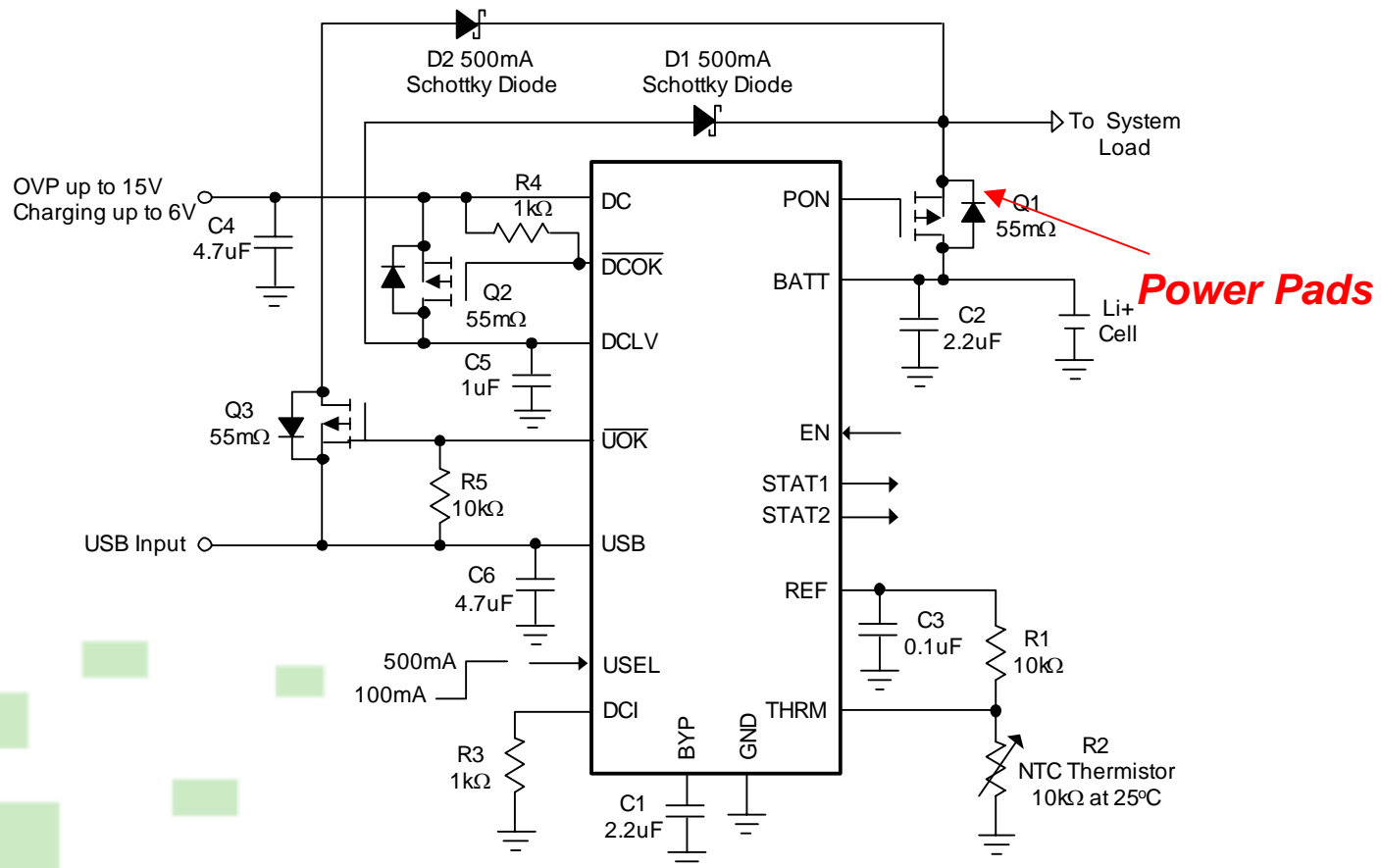
- P2p MAX1874
- Charge from USB or AC Adapter
- Accurate BATT regulation voltage
- Programmable DC charging current (MAX.1A)
- Selectable USB charging current (either 100mA or 500mA)
- Thermal regulation for simplified board design
- Input protection up to 15V
- Soft-start
- External Thermistor monitoring
- Charge shutdown control
- Charge status outputs(Stat1 and Stat2)
- DC and USB Power-OK Indicators
- Small, high power 5x5 QFN-16 package
- Pb-Free Available as an Option

## Pin-outs



# APL3200 Application Circuit (Parallel)

## Dual Input with OVP and Power Pads

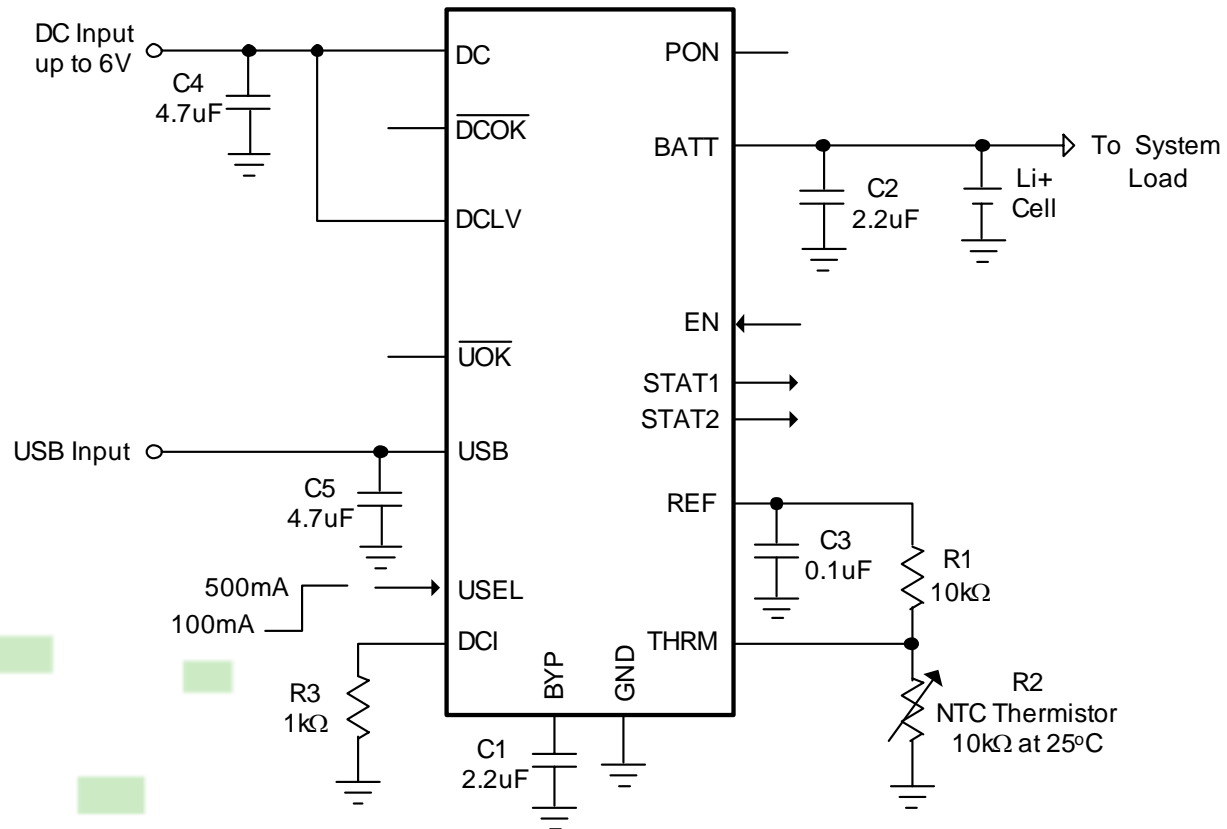


# APL3200 Application Circuit (Series)



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## Dual Input with None OVP and Power Pads



# APL3201 LI-ION Linear Charger

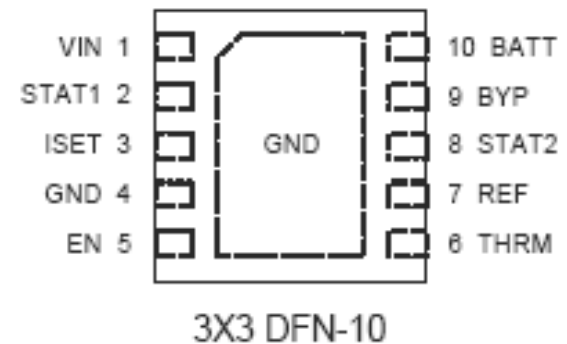


[www.anpec.com.tw](http://www.anpec.com.tw)

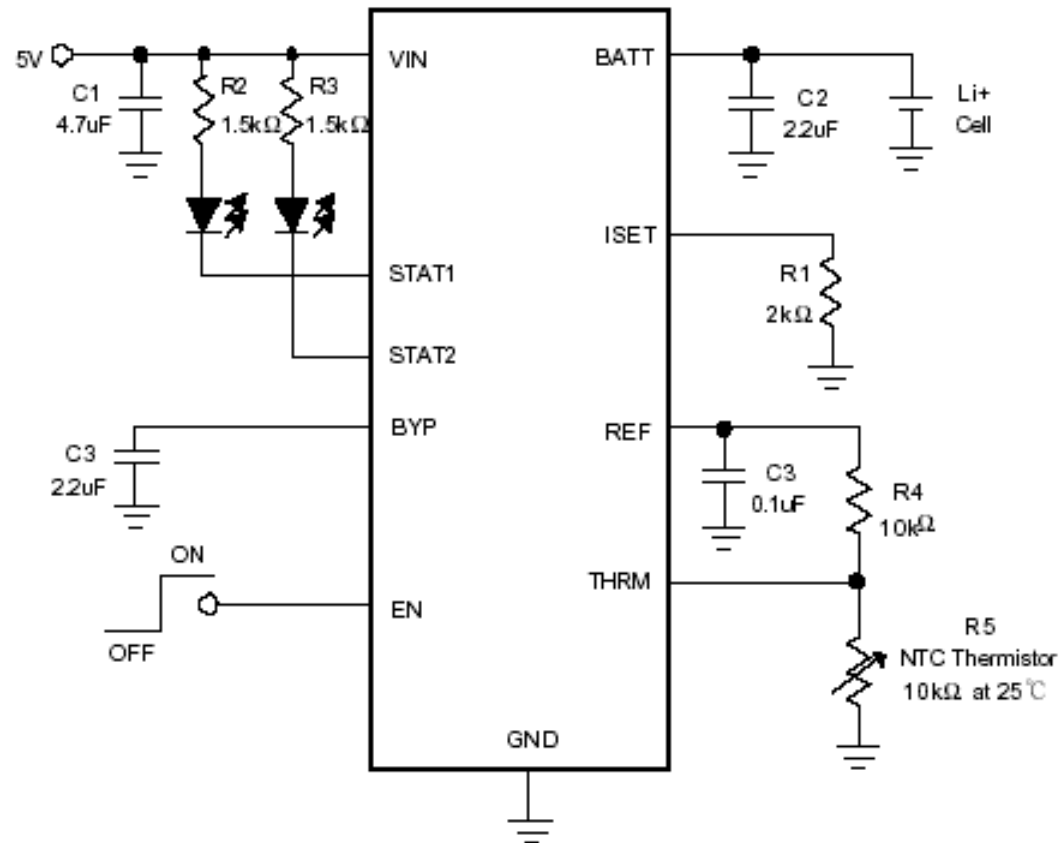
## Features

- Programmable charge current up to 1A
- Charge status output pins(Stat1, Stat2)
- Soft-start limits inrush current
- 4.2 charge voltage with +-1% accuracy
- Fixed 55mA prequal charge current
- Thermal limiting simplifies board design
- External Thermistor monitoring
- Enable/disable control
- 3mmX3mm DFN packages
- Pb-Free Available

## Pin-outs



# APL3201 Application Circuit



# APW7101 Step-down Converter

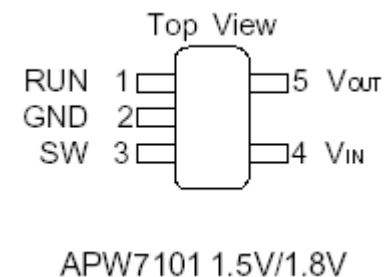
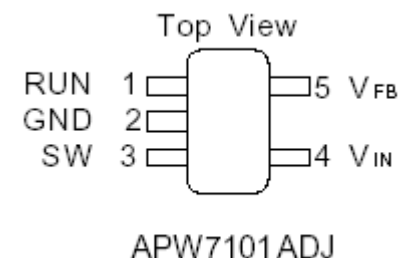


[www.anpec.com.tw](http://www.anpec.com.tw)

## APW7101 Key Feature:

- **600mA** Output Current
- **1.5MHz** Constant Frequency Operation
- Operate **2.5V to 5V** Input voltage
- Low Dropout Operation at **100% Duty cycle**
- **0.6V** Low Reference Voltage
- Synchronous Topology: No Schottky Diode Required
- **Current Mode** Operation for Excellent Line and Load Transient Response
- **Over Temperature and Over Current** Protection
- SOT-23-5 Pin Package
- Lead Free Available (RoHS Compliant)

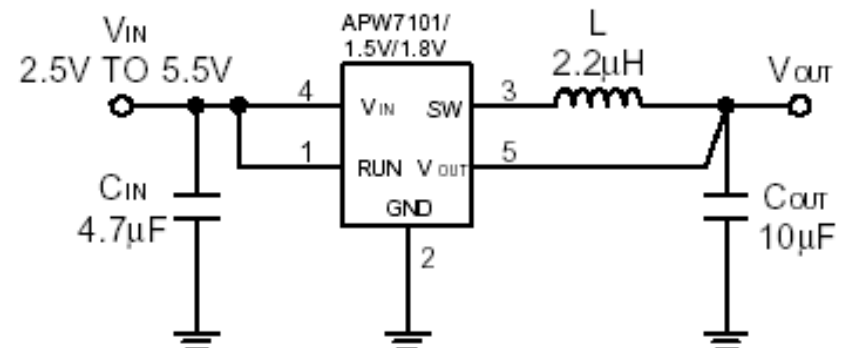
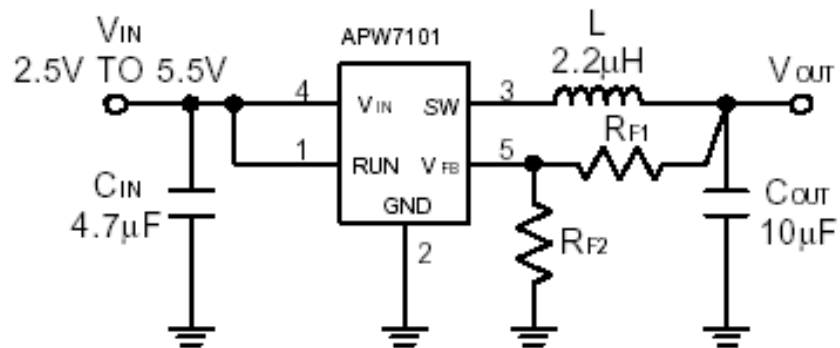
## Pin-out





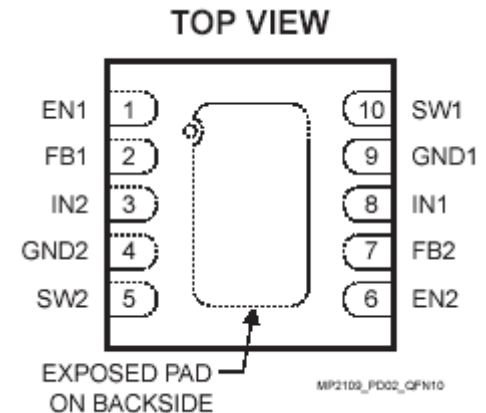
# APW7101 Application Circuit

## Application Circuit

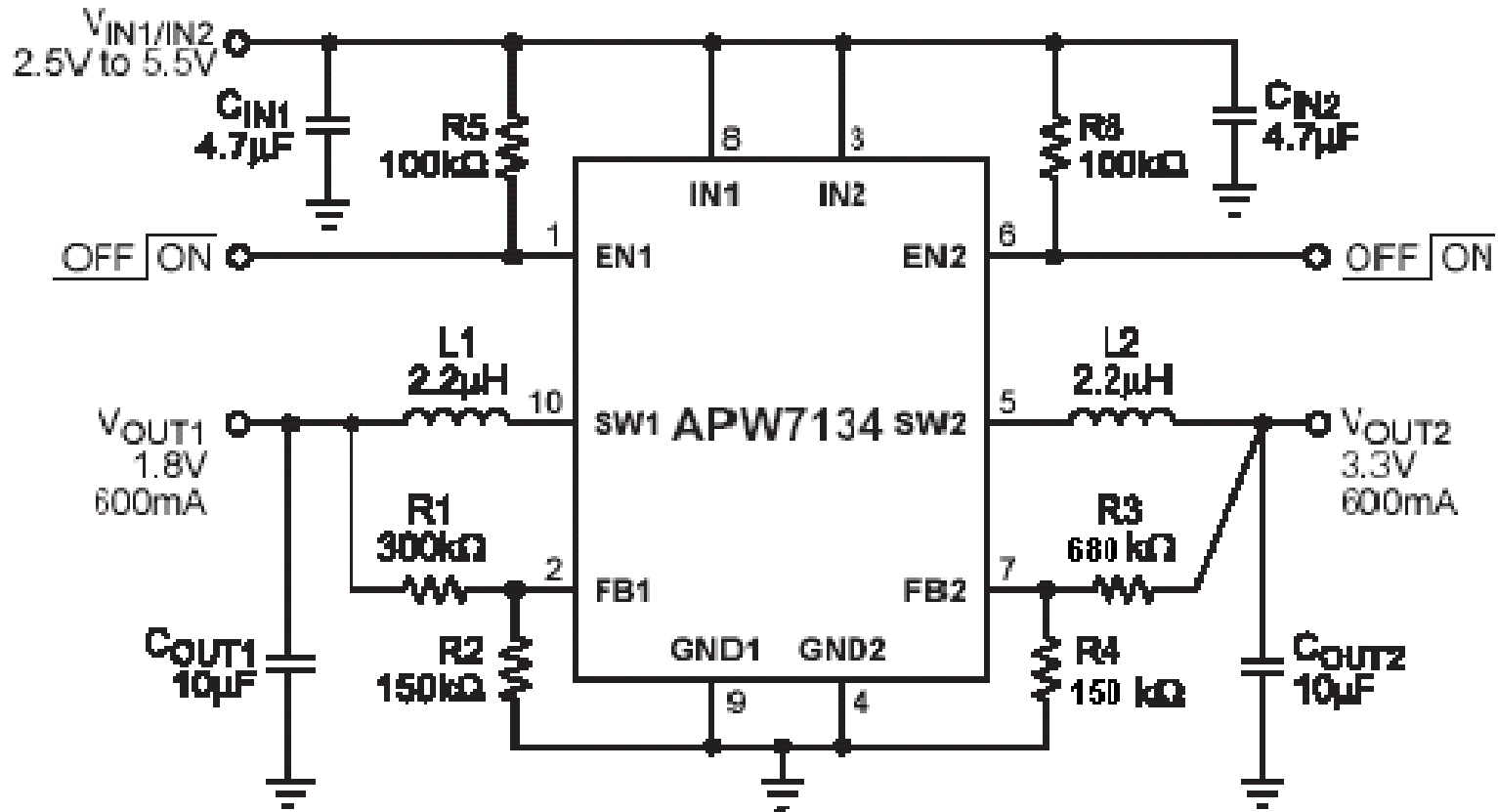


## Key Features: *New Product*

- **p2p MP2109**
- **Operate 2.5V to 5V Input voltage**
- **600mA /Each Output Current**
- **1.5MHz Constant Frequency Operation**
- **Efficiency up to 94%**
- **LOW  $I_q$  = 300uA/Each(PSM MODE)**
- **Low Dropout Operation at 100% Duty cycle**
- **0.6V Low Reference Voltage**
- **Over Temperature and Over Current Protection**
- **DFN-10 Pin Package**
- **Lead Free Available (RoHS Compliant)**



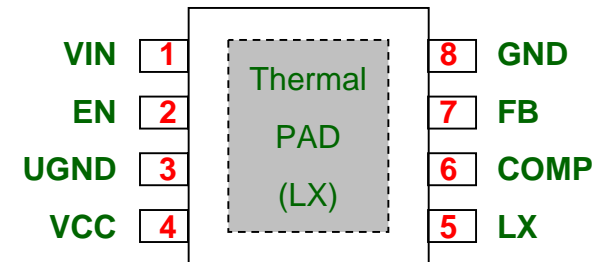
# APW7134 Application Circuit



# High Voltage Buck Converter APW7080

## Key Features

- 3A Internal Switch
- **PWM current mode operation**
- Operating Voltage from **4.75V to 26V**
- Adjustable Output Voltage : **0.8V to 90%VIN**
- **100%** Duty Cycle
- Internally **380kHz** Fixed Switching Frequency :
- Built-in digital soft-start
- Output current-limit protection with frequency foldback
- Protection : **Current Limit, OTP, OVP, Fold-back Switching Frequency**

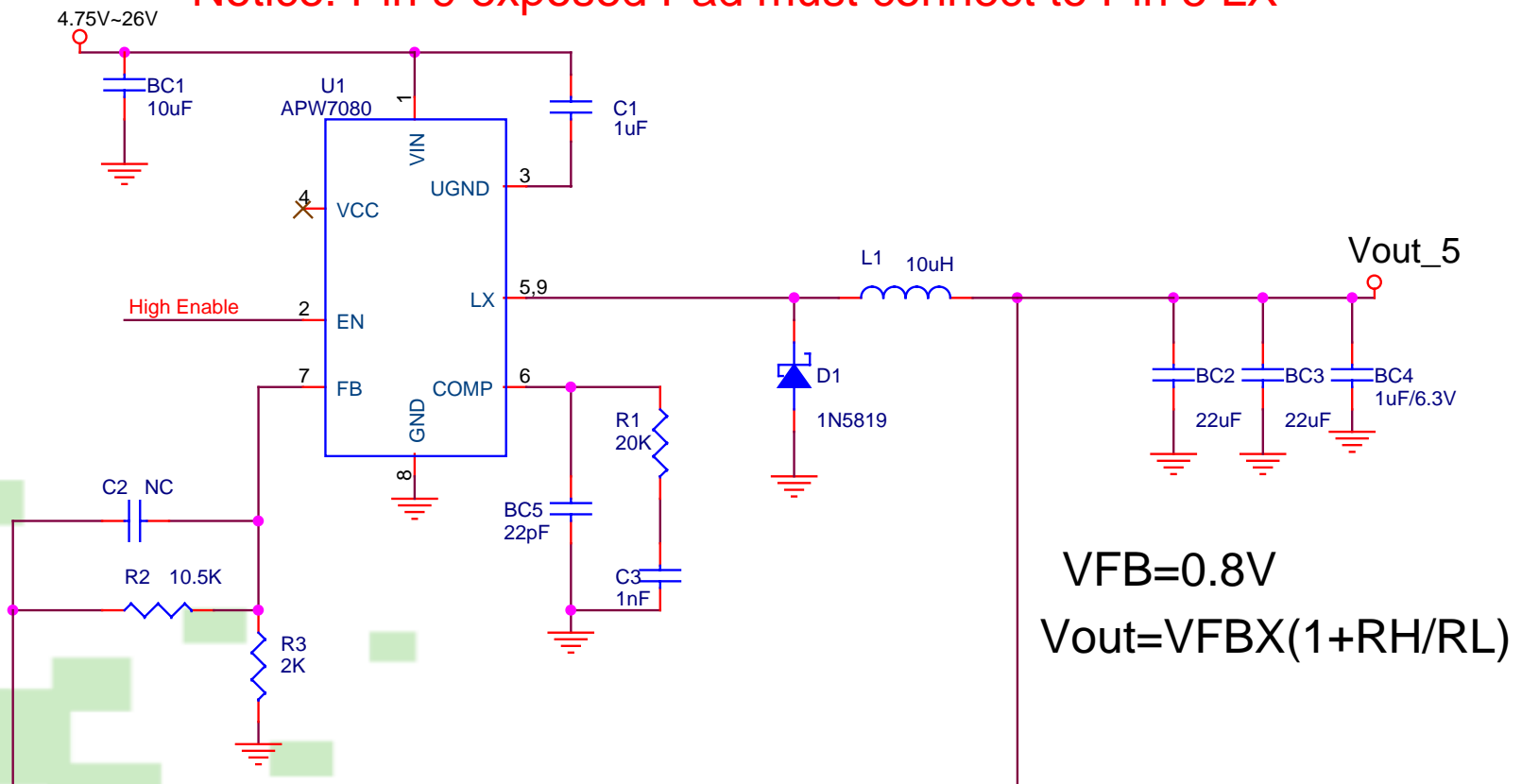


### SOP8-P

Thermal PAD  
must connect  
to LX pin, not  
GND

# APW7080 Application Circuit

Notice: Pin 9 exposed Pad must connect to Pin 5 LX



# APW7136/7 White LED/OLED Driver

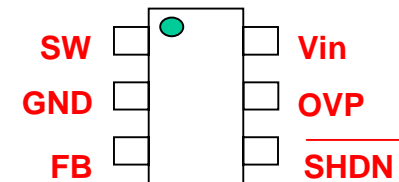


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## Key Features

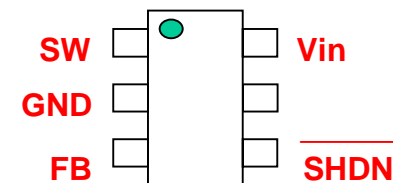
- ▶▶ APW7136 p2p MP1518,LT1937
- ▶▶ APW7137 p2p TPS61040,LT1615,LT1613
- ▶▶ 2.5~6V input voltage range
- ▶▶ 900mA internal switch current
- ▶▶ Up to 1MHZ Switch Frequency
- ▶▶ 150uA Typical No Load Quiescent current
- ▶▶ Internal Soft-start
- ▶▶ Up to 88% Efficiency(6LEDs),Max driver 8LEDs.
- ▶▶ 6/5-pin SOT-23 Package
- ▶▶ Built-in PWM dimming control on shutdown pin
- ▶▶ Over Voltage Protection Included (APW7136)

SOT-26



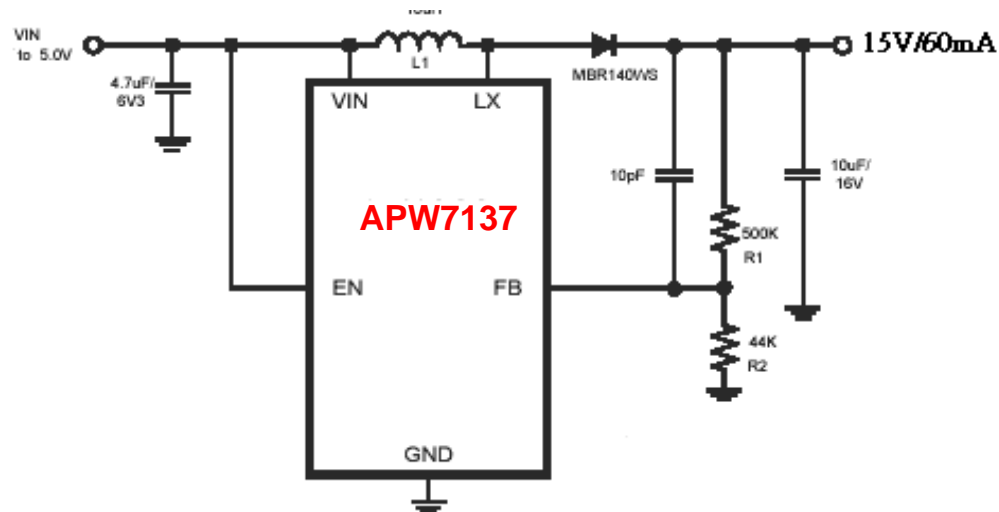
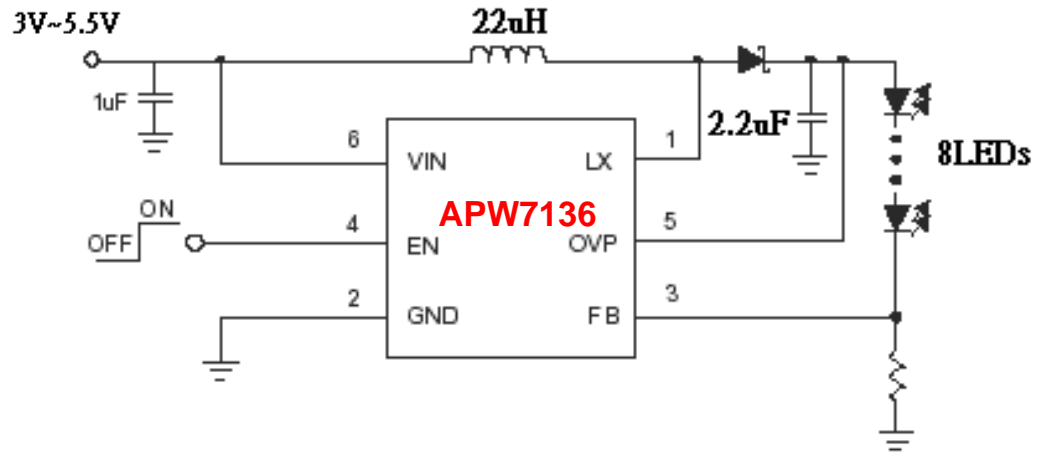
APW7136

SOT-25



APW7137

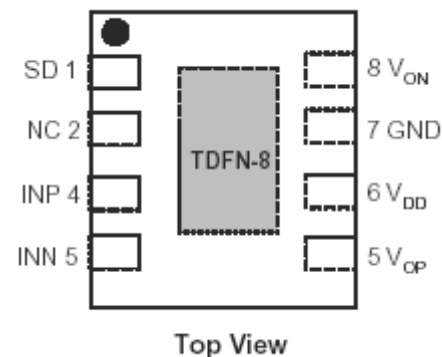
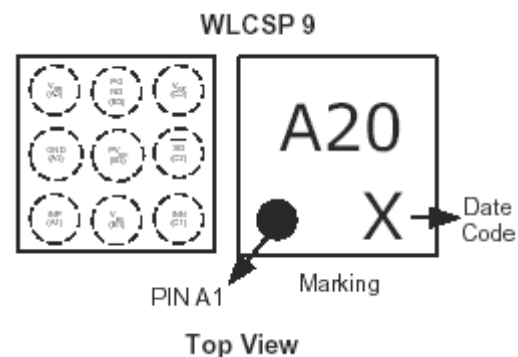
# APW7136/7 Application Circuit for W-LED, OLED



# APA2010 Class D Audio Amp

## Features

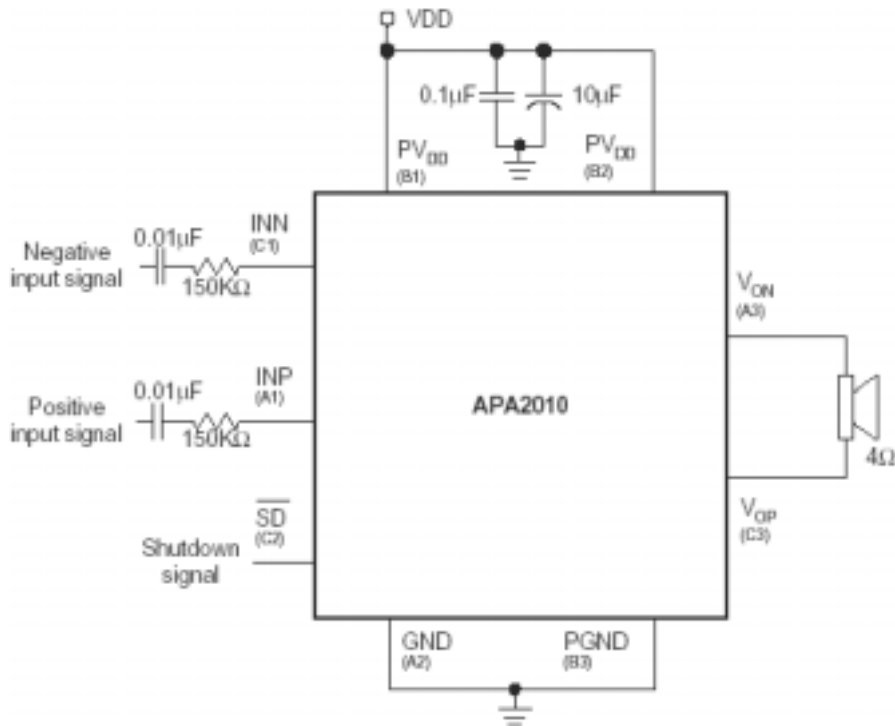
- Operating Voltage: 2.4V-5.5V
- Supply Current
  - $I_{DD}=2\text{mA}$  at  $V_{DD}=5\text{V}$
  - $I_{DD}=1.6\text{mA}$  at  $V_{DD}=3.6\text{V}$
  - $I_{DD}=1.4\text{mA}$  at  $V_{DD}=2.4\text{V}$
- Low Shutdown Current
  - $I_{DD}=1\mu\text{A}$  at  $V_{DD}=5\text{V}$
- Output Power at 1% THD+N
  - 1.3W, at  $V_{DD}=5\text{V}$ ,  $R_L=8\Omega$
  - 0.3W, at  $V_{DD}=3.6\text{V}$ ,  $R_L=8\Omega$
  - 2.1W, at  $V_{DD}=5\text{V}$ ,  $R_L=4\Omega$
  - 0.4W, at  $V_{DD}=3.6\text{V}$ ,  $R_L=4\Omega$
- Output Power at 10% THD+N
  - 1.5W, at  $V_{DD}=5\text{V}$ ,  $R_L=8\Omega$
  - 0.35W, at  $V_{DD}=3.6\text{V}$ ,  $R_L=8\Omega$
  - 2.4W, at  $V_{DD}=5\text{V}$ ,  $R_L=4\Omega$
  - 0.5W, at  $V_{DD}=3.6\text{V}$ ,  $R_L=4\Omega$
- Less External Components Required
- Fast Startup Time (1.5 ms)
- High PSRR: 77 dB at 217 Hz
- Short-Circuit and Thermal Protection
- Space Saving Packages
- WLCSP-9 Bump, 3mmx3mm TDFN-8



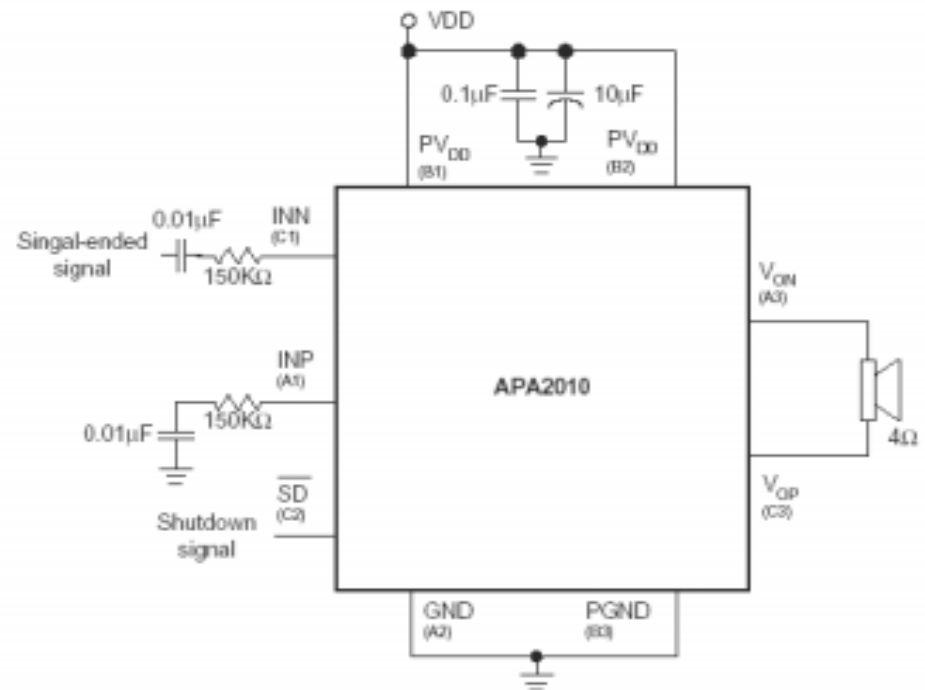


# APA2010 Application circuits

Differential input mode (WLCSP-9)



Single-ended input mode (WLCSP-9)

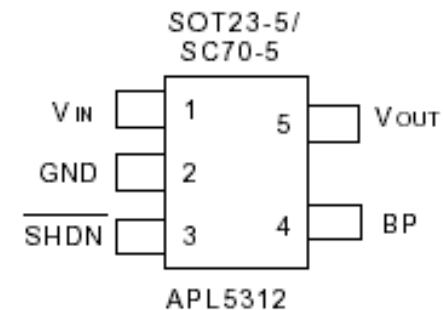


# APL5312 High PSRR LDO

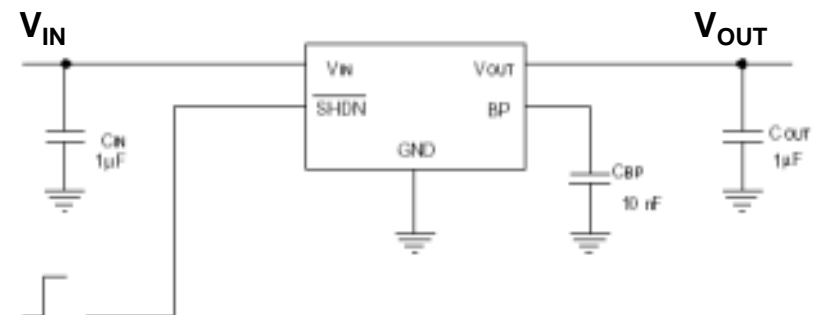
## APL5312 Key Feature:

- Wide Operating **2.3V to 6V** Input voltage
- Low Dropout Voltages: **290mV @ 3V/300mA**
- High PSRR: **74dB** before 10KHz
- Low Output Noise: **36uV<sub>RMS</sub> @ 100~100KHz**
- Current Limit Protection
- Controlled Short Circuit Current: 50mA
- Over Temperature Protection
- Stable With 1uF Capacitor For Any Load
- Excellent Load / Line Transient
- **SOT-23-5 & SC70-5** Packages
- Lead Free Available (RoHS Compliant)

## Pin Configuration



## Typical Application Circuit



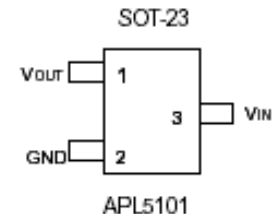
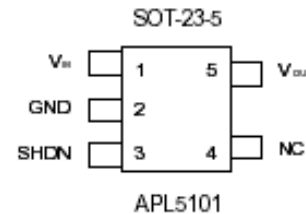
# APL5101 Ultra Low $I_Q$ LDO

[www.anpec.com.tw](http://www.anpec.com.tw)

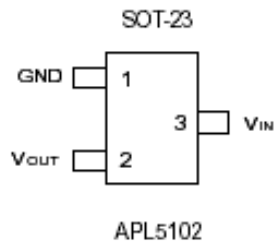
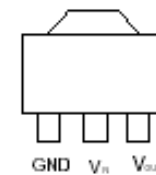
## APL5101 Key Feature:

- Ultra Low Quiescent Current: **4 $\mu$ A**
- Low Dropout Voltages: **200mV @ 3.3V/150mA**
- Current Limit Protection
- Controlled Short Circuit Current: 50mA
- Build in Thermal Protection
- Stable With 1 $\mu$ F Output Capacitor
- Guaranteed 150mA Output current
- **SOT-23, SOT-23-5 and SOT-89 Packages**
- Lead Free Available (RoHS Compliant)

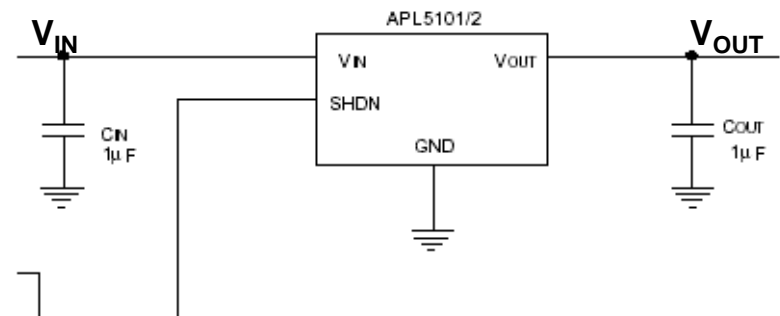
## Pin Configuration



SOT-89



## Application Circuit



# APL5501 Low $I_Q$ 、 Low dropout LDO

## APL5501 Key Feature:

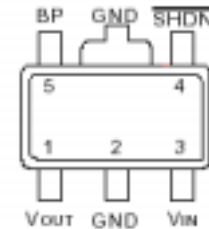
- Low Noise:  $50\mu V_{RMS}$  (100Hz~100KHz)
- Low Quiescent Current: **50uA**
- Low Dropout Voltages: **170mV @ 500mA**
- Reverse Current Protection
- Current Limit Protection
- Build in Thermal Protection
- Stable With 4.7uF Output Capacitor
- Controlled Short Circuit: 150mA
- **SOT-23-5, SOT-89, SOT-89-5, SOT-223, SO-8,**  
**To-252 & TO252-5 Packages**
- Lead Free Available (RoHS Compliant)

## Pin Configuration

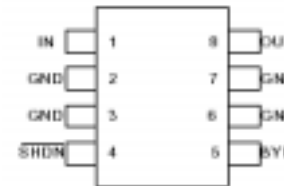
APL5501



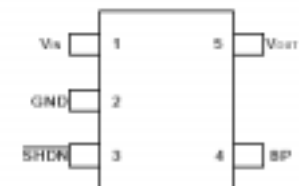
SOT-89 (Top View)



SOT-89-5 (Top View)



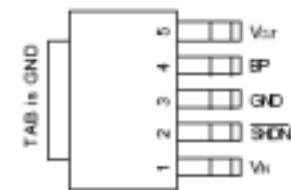
SO-8 (Top View)



SOT-23-5 (Top View)



TO-252 (Top View)



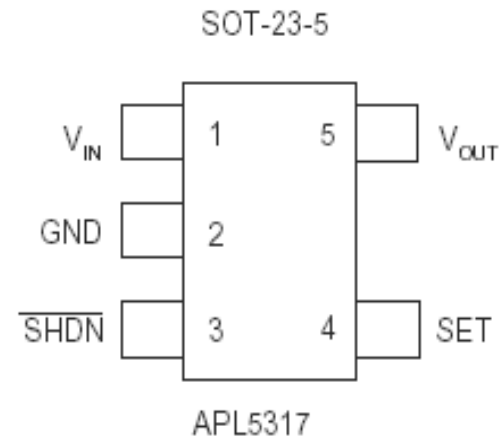
TO-252-5 (Top View)

# APL5317 Low $I_Q$ 、 Low dropout LDO

## Features

- Wide Operating Voltage: 2.3V~6V
- Low Dropout Voltage: 290mV @ 300mA
- Guaranteed 300mA Output Current
- Two Output Voltage Mode :
  - Factory Programmed Mode
  - Adjustable Mode : 0.8V ~ 5.5V
- Current Limit Protection
- Controlled Short Circuit Current: 50mA
- Over Temperature Protection
- Stable with 1 $\mu$ F Capacitor for Any Load
- Stable with Low ESR Ceramic Capacitor
- SOT-23-5 Packages
- Lead Free Available (RoHS Compliant)

## Pin Configuration

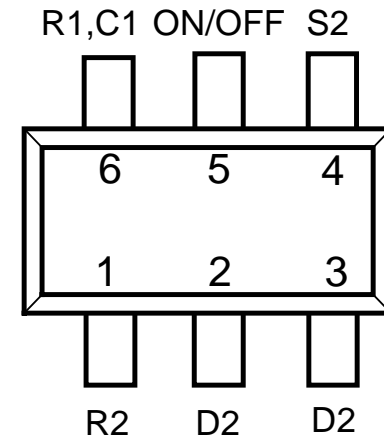


# Load Switch APM2702CG

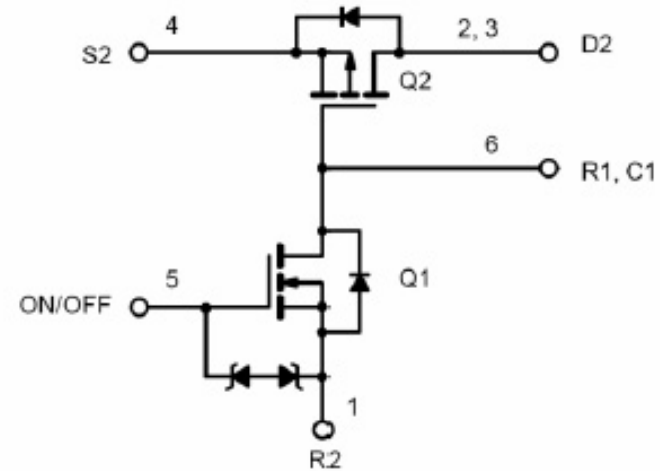
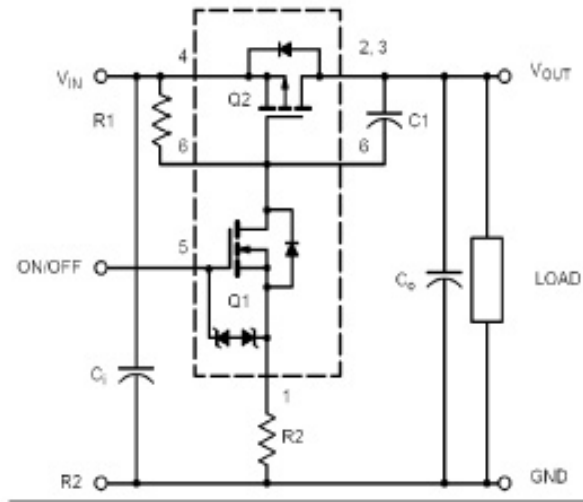
## Key Features

- **-12V/±3A**
- $R_{DS(on)}=45m\Omega(TYP.)@ V_{GS}=-4.5V$
- $R_{DS(on)}=60m\Omega(TYP.)@ V_{GS}=-2.5V$
- $R_{DS(on)}=82m\Omega(TYP.)@ V_{GS}=-1.8V$
- JSOT6 Compact Package
- Lead free Available(ROHS Compliant)

## Pin-outs



# Load Switch APM2702CG



## How to select external Components

- For Applications  $C_o < 1\mu F$
- For slew rate control, select R2 in the range of 1K~4.7K $\Omega$
- For additional inrush current control, C1 < 1000pF can be added
- Select R1 so that the R1/R2 ratio ranges from 10~100. R1 is request to turn Q2 off

# MOSFET APM2901CG

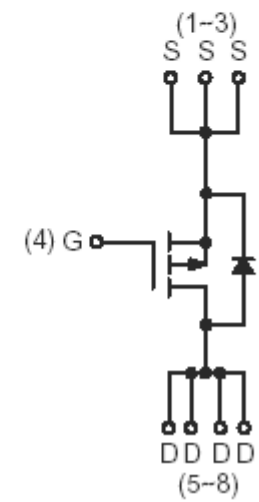
## Features

- -20V/-10A ,  
 $R_{DS(ON)} = 9m\Omega(\text{typ.}) @ V_{GS} = -4.5V$   
 $R_{DS(ON)} = 12.5m\Omega(\text{typ.}) @ V_{GS} = -2.5V$   
 $R_{DS(ON)} = 18m\Omega(\text{typ.}) @ V_{GS} = -1.8V$
- Super High Dense Cell Design
- Reliable and Rugged
- Lead Free Available (RoHS Compliant)

## Pin Description



Top View of JSOT-8



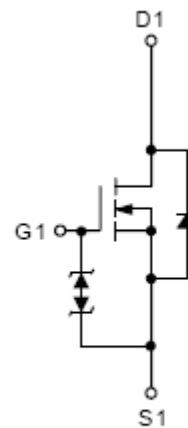


# Dual N,P MOSFET APM2700

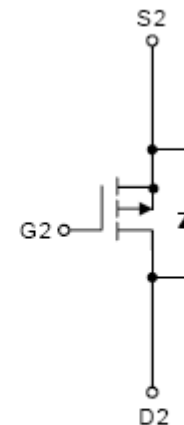
## Key Features

- N-Channel  
20V/1.8A,  
 $R_{DS(ON)}=170m\Omega(\text{typ.}) @ V_{GS}=4.5V$   
 $R_{DS(ON)}=270m\Omega(\text{typ.}) @ V_{GS}=2.5V$
- P-Channel  
-20V/-1.2A,  
 $R_{DS(ON)}=360m\Omega(\text{typ.}) @ V_{GS}=-4.5V$   
 $R_{DS(ON)}=530m\Omega(\text{typ.}) @ V_{GS}=-2.5V$
- Super High Dense Cell Design
- Reliable and Rugged

## Pin-outs



N-Channel MOSFET



P-Channel MOSFET

# Dual PMOSFET APM2903CG



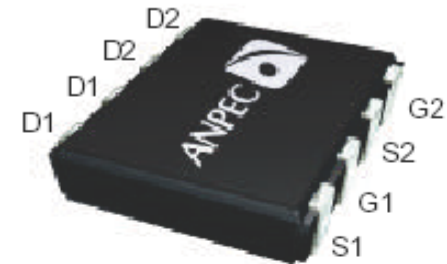
[www.anpec.com.tw](http://www.anpec.com.tw)

## New Product

### Features

- -20V/-5A ,  
 $R_{DS(ON)} = 28m\Omega(\text{typ.}) @ V_{GS} = -4.5V$   
 $R_{DS(ON)} = 40m\Omega(\text{typ.}) @ V_{GS} = -2.5V$   
 $R_{DS(ON)} = 55m\Omega(\text{typ.}) @ V_{GS} = -1.8V$
- Super High Dense Cell Design
- Reliable and Rugged
- Lead Free Available (RoHS Compliant)

### Pin Description



Top View of JSOT-8

