

# ESMT

Elite Semiconductor Memory Technology Inc.

晶豪科技股份有限公司

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**ESMT**

Mixed-Signal Product BU

類比產品事業處

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

## 選型指南 – 2014.Q3 Selection Guide



## About ESMT

Elite Semiconductor Memory Technology Inc. ('ESMT'), a Taiwan-based memory IC design company. Business activities consist of R&D, manufacturing, marketing, and the provision of design services for a variety of memories and mixed signal products. We have initially defined ourselves as a provider of various memory ICs. In contrast to main memory, i.e., DRAM used for PCs, servers, and workstations, our DRAM products focus on specialty DRAM memories, which are used in sectors such as PC peripherals, IA products, consumer products, optical devices, and communication devices. We have been positioning ourselves to market a full range density (from 1Mb to 256Mb) and a wide variety of specialty DRAM products (including FPM, EDO, SDRAM, DDR, Mobile SD/DDR and etc.). Furthermore, in 2002 we entered the flash memory business. A number of NOR flash products, ranging from 2Mb to 32Mb with parallel and/or serial interface, are now available for mass production. To serve the rising market demand of System-in-Package(SiP) and Multi-Chip-Package (MCP), ESMT has successfully established the Know-Good-Die(KGD) product line of above products.

## 關於晶豪科技

晶豪科技股份有限公司 ( Elite Semiconductor Memory Technology Inc., ESMT) 為一專業 IC 設計公司，主要業務包含 IC 產品之研究、開發、製造、銷售及相關技術服務。公司自創立時便以成為客戶各類型記憶體產品及技術之供應者為職志。有別於搭配於電腦系統應用之主記憶體，本公司研發之 DRAM 產品以特定型記憶體為主，可廣泛應用於 PC 週邊、資訊家電、光儲存設備及消費性、通訊等系統，目前已成功建立各種容量 (1Mb 至 256Mb) 的特定型 DRAM 產品線 ( 包括 FPM 、 EDO 、 SDRAM 、 DDR 等 ) ，和低耗電之 Mobile DRAM ；在快閃記憶體方面，目前以 NOR Flash 為主，已先後推出一系列不同容量和介面的 Flash 產品 ( 含 2Mb 至 32Mb, Parallel 及 Serial Flash) 。另外，由於系統級封裝 (System in Package ; SiP) 及多晶片模組封裝 (Multi-Chip Package ; MCP) 之需求快速增加，晶豪科技也已經成功開發上述各項產品之「良品晶粒」產品 (Known-Good-Die; KGD) ，以因應市場之發展。

## About Mixed-Signal Product BU

Mixed Signal Product BU of Elite Semiconductor Memory Technology Inc. was formed by Class D product line and Elite Micropower Inc. on August, 2008 and locates at the Hsinchu Science-Based Industrial Park in Taiwan. Business activities consist of R&D, manufacturing, marketing and sales. ESMT's product lines include Power Management IC, Audio Power Amplifier, Battery Management IC, Lighting Management IC, and intelligent Power Management Unit. ESMT provide power management and audio amplifier total solution of consumer electronics, computer and peripherals and communication system.

## 關於類比產品事業處

晶豪科技類比產品事業處由D類功放產品線與晶鎂電子的電源管理IC於2008年8月所組成，是以台灣為基地深耕於電源相關產品積體電路設計。類比產品事業處位於新竹科學園區，業務活動涵括研發與設計、製造、行銷。產品線包含電源及音頻功率放大器積體電路、電池管理元件、照明管理元件及智慧型電源模組。晶豪科技類比產品事業處可提供各類型消費型電子產品、電腦及其週邊、通訊產品系統之電源管理及音頻放大的解決方案。

# 品質認證 Quality Certification

提供卓越產品,滿足顧客對品質的要求。

To provide excellent products that meet the quality requirements of our customers

透過全員參與,實現公司對品質的承諾。

To fulfill the quality commitment through the involvement of all corporate members in all activities

## ISO-9001 / ISO-14000 Certified



# 目標市場 Target Market



LCD-TV



Notebook



Desktop PC



Tablet PC



USB Speaker

LCD Monitor



PC Cam



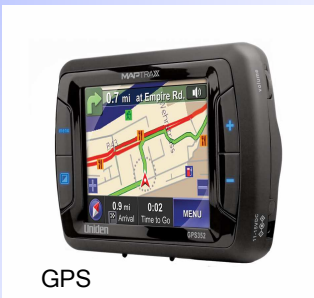
WLAN AP Router



Bluetooth Earphone



Game Devices



GPS



Smart Phone



MID



MP3/4



PC Peripherals K/M



DSC



Mobile Phone



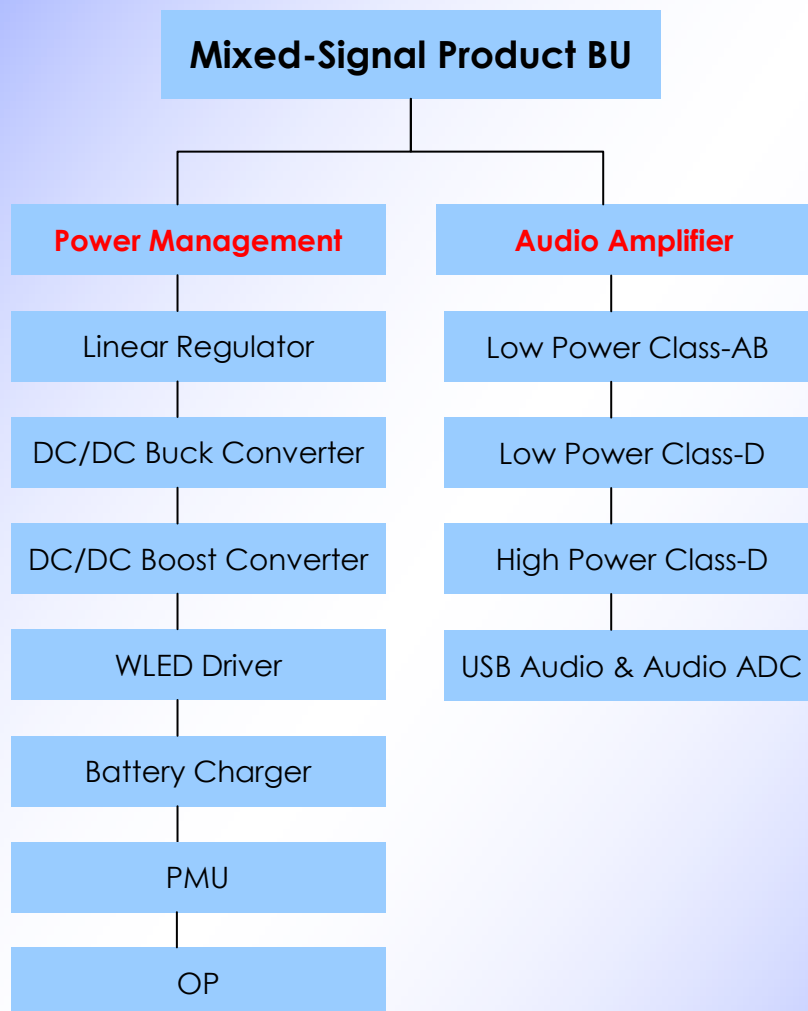
DPF



Mobile TV



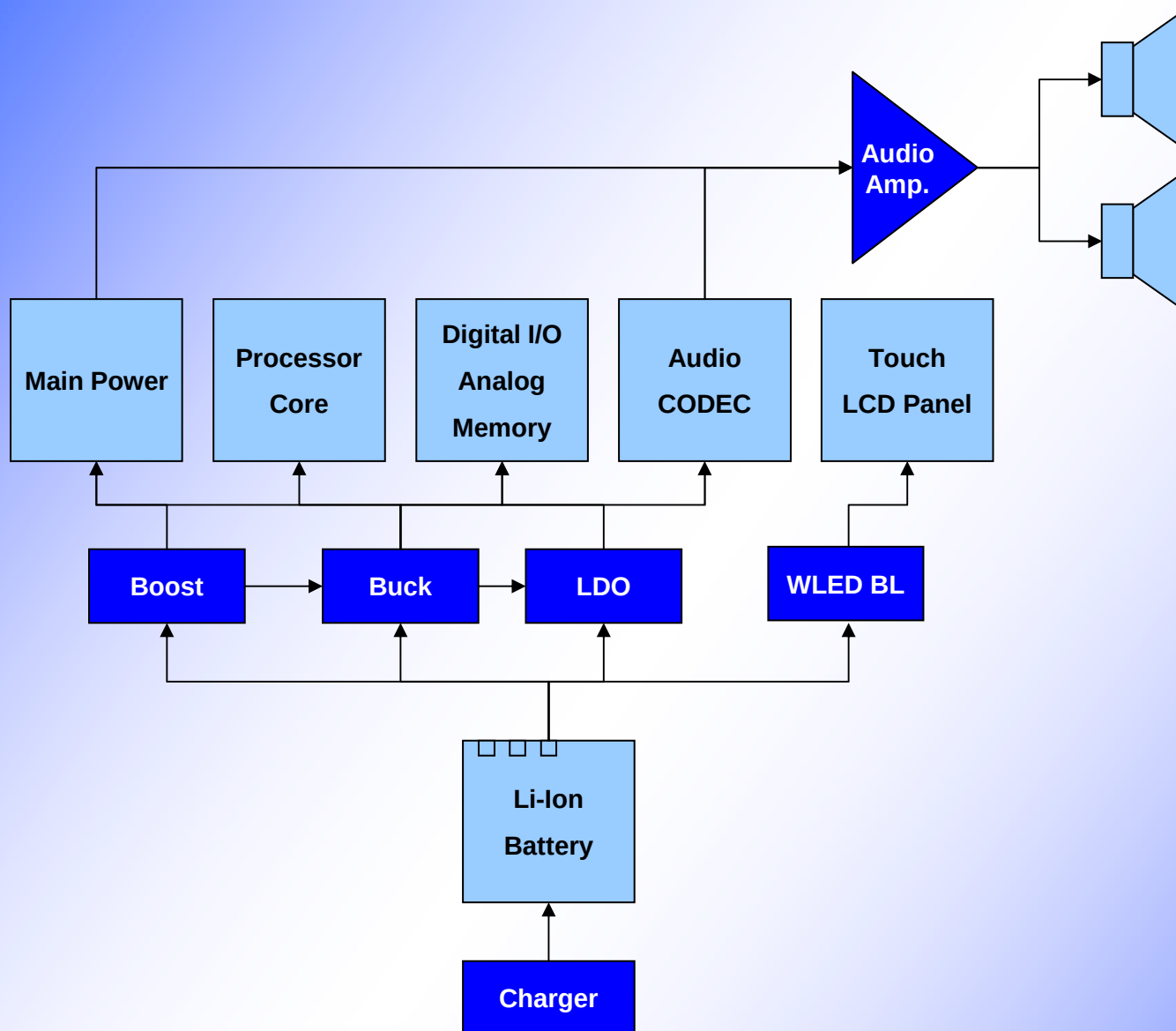
STB



**All Products are Lead-Free, RoHS / Green Compliant**



# Handheld Devices Solution 手持式產品解決方案



## Charger

EMC5754/EMC5040/  
EMC5050/EMC5060

## Boost

EMH7601/EMH7020

## Buck

EML3406/EML3408/EML302X/  
EML3418/EMQ9920

## LDO

EMP873X/EMP802X/EMP893X/  
EMP896X/EMP2133/EMP6403

## WLED BL

EMD2055/EMD2095/  
EMD3001

## Audio Amp.

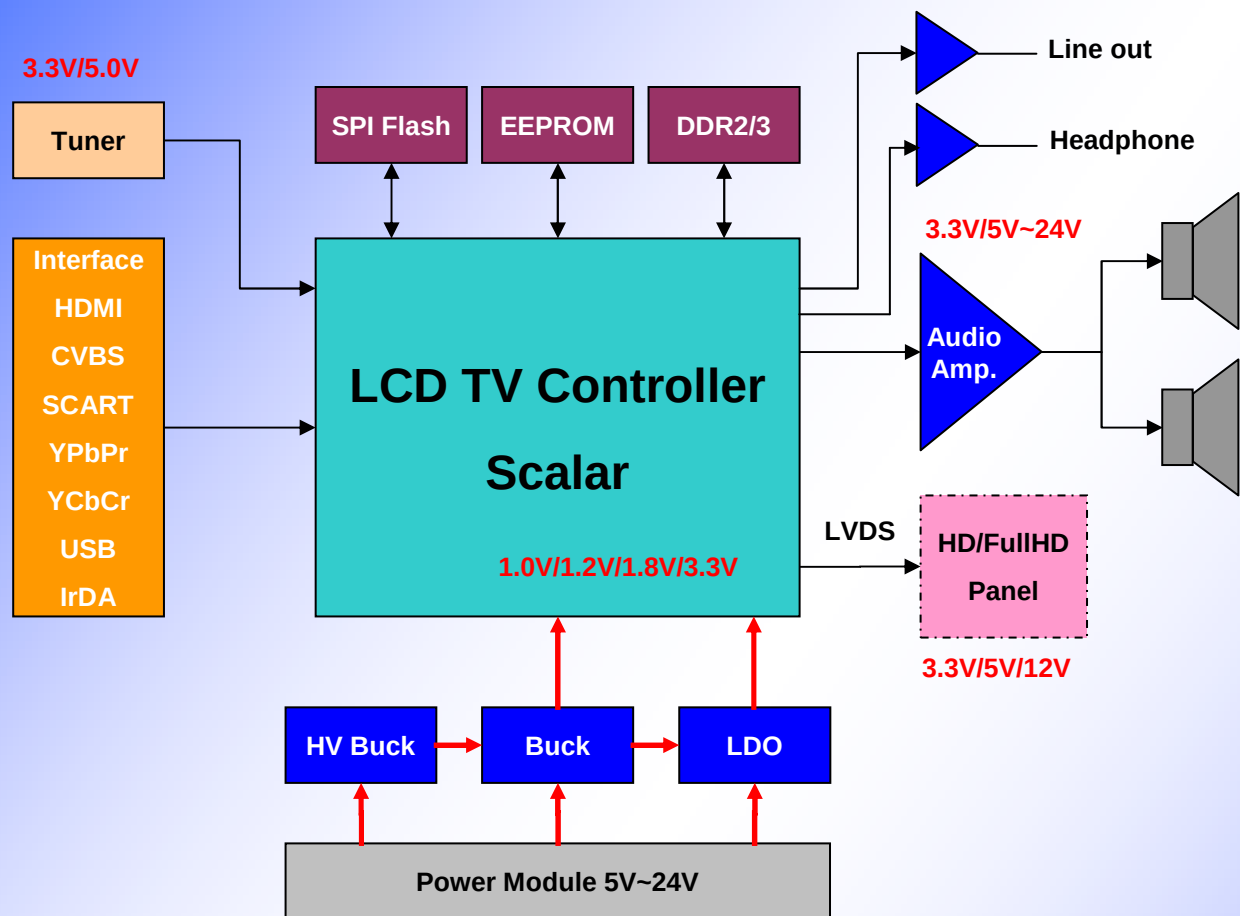
### Mono:

EMA1001/EMA1901/EMA2001/EMA2011

### Stereo:

EMA1201/EMA2202/EMA2016/AD52651C

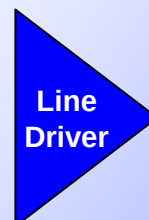
# LCD-TV Solution 液晶電視解決方案



|                |                              |
|----------------|------------------------------|
| <b>LDO</b>     | EMP896X/EMP804X/<br>EMP893X/ |
| <b>Buck</b>    | EML3412/EML3418/<br>EML317X  |
| <b>HV-Buck</b> | EML3220/EML3230              |



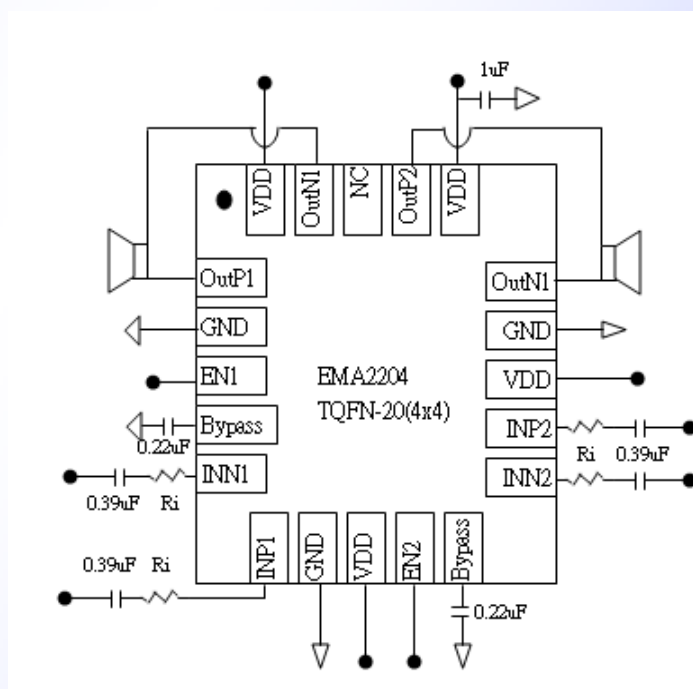
Analog Input Amp:  
AD52580/AD52583/  
AD52660  
Digital Input Amp:  
AD82581/AD82584  
AD82585/AD82586C/  
AD82587D/AD83586  
PWM input/Power Stage:  
AD9256/AD9258X



Line driver:  
AD22650/AD22653/  
AD22654

# AB類低功率音頻放大器 Low Power Class AB

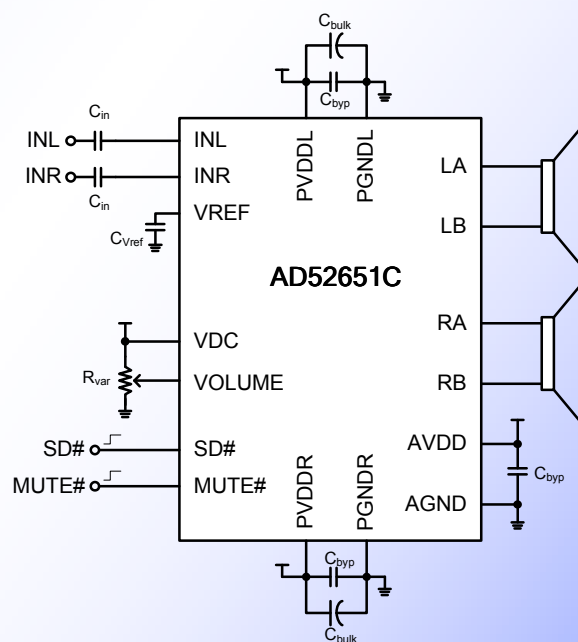
| Product ID        | Ch | VDD (V) | Power (W) | Load (ohm) | Package     | Features  | Status |
|-------------------|----|---------|-----------|------------|-------------|-----------|--------|
| EMA1001-50MA08GRR | 1  | 5       | 1         | 8          | MSOP-8      |           | MP     |
| EMA1001-50SA08GRR | 1  | 5       | 1         | 8          | SOP-8       |           | MP     |
| EMA1901-50WL09GRR | 1  | 5       | 1.25      | 8          | WCSP-9      |           | MP     |
| EMA2001-50FF08NRR | 1  | 5       | 3         | 3          | TDFN-3x3-8  |           | MP     |
| EMA2001-50MA08GRR | 1  | 5       | 3         | 3          | MSOP-8      |           | MP     |
| EMA2901-50WL09GRR | 1  | 5       | 2.5       | 4          | WCSP-9      |           | MP     |
| EMA1201-50HB16NRR | 2  | 5       | 2         | 4          | TQFN-3x3-16 |           | MP     |
| EMA2202-50QE28GRR | 2  | 5       | 2.4       | 3          | TSSOP-28-E  | Headphone | MP     |
| EMA2203-50QE20GRR | 2  | 5       | 2.4       | 3          | TSSOP-20-E  | Headphone | MP     |





# D類低功率音頻放大器 Low Power Class D

| Product ID                         | Ch | VDD (V) | Power (W) | Load (ohm) | Package                  | Features                                       | Status |
|------------------------------------|----|---------|-----------|------------|--------------------------|------------------------------------------------|--------|
| EMA2011-50FF08NRR                  | 1  | 5       | 2.5       | 4          | TDFN-3x3-8               | Fully Diff.                                    | MP     |
| EMA2011-50MA08GRR                  | 1  | 5       | 2.5       | 4          | MSOP-8                   | Fully Diff.                                    | MP     |
| EMA2011-50WL09GRR                  | 1  | 5       | 2.5       | 4          | WCSP-9                   | Fully Diff.                                    | MP     |
| EMA2012-50FF08NRR                  | 1  | 5       | 2.5       | 4          | TDFN-3x3-8               | Fully Diff.<br>Fix-Gain                        | MP     |
| AD51652-MH08NRR                    | 1  | 5       | 3         | 4          | MSOP-8                   | Fully Diff.                                    | MP     |
| AD51652-FH08NRR                    | 1  | 5       | 3         | 4          | TDFN-3x3-8               | Fully Diff.                                    | MP     |
| AD51652-WL09NRR                    | 1  | 5       | 3         | 4          | WCSP-9                   | Fully Diff.<br>(0.4mm pitch)                   | MP     |
| AD51653-QG14NRR<br>AD51653-HI28NRR | 1  | 5.5     | 4.3       | 4          | TSSOP-14-E<br>QFN-4x4-28 | Class K<br>Charge pump                         | MP     |
| AD52650-QE24NAT                    | 2  | 5       | 2.5       | 4          | TSSOP-24-E               | DC-4Step<br>Vol. Ctrl.                         | MP     |
| AD52651C-ST24NAT                   | 2  | 5       | 3         | 4          | SSOP-24L<br>(150mil)     | Vol. Ctrl.<br>New VDC ratio                    | MP     |
| AD52652-ST24NAT                    | 2  | 5       | 3         | 4          | SSOP-24L<br>(150mil)     | Vol. Ctrl.<br>Earphone                         | MP     |
| AD52653-SA16NAT                    | 2  | 5       | 2.5       | 4          | SOP-16L                  | Vol. Ctrl.                                     | MP     |
| AD52655-ST24NAT                    | 2  | 5       | 2.5       | 4          | SSOP-24L<br>(150mil)     | Vol. Ctrl.<br>Power Limit                      | MP     |
| AD82550A-CG                        | 2  | 5       | 2.9       | 4          | SSOP-24<br>(209mil)      | I <sup>2</sup> S In<br>Vol. Ctrl.<br>Headphone | MP     |
| EMA2016-50SA16NRR                  | 2  | 5       | 2.5       | 4          | SOP-16                   | Fully Diff                                     | MP     |



# D類高功率音頻放大器 High Power Class D

| Product ID                         | Ch | VDD<br>(V) | Power<br>(W) | Load<br>(ohm) | Package                    | Features                                                      | Status |
|------------------------------------|----|------------|--------------|---------------|----------------------------|---------------------------------------------------------------|--------|
| AD52660A-LEG                       | 2  | 8~16.5     | 15           | 8/6           | E-LQFP-48L                 | Analog In<br>Vol. Ctrl.                                       | MP     |
| AD52661-EH32NAY                    | 2  | 8~16.5     | 15           | 8/6/4         | E-LQFP-32L                 | Analog In<br>Vol. Ctrl.<br>Power Limit<br>DRC                 | MP     |
| AD52580-QG28NAT<br>AD52580-QG24NAT | 2  | 8~26       | 20           | 8/4           | E-TSSOP-28L<br>E-TSSOP-24L | Analog In<br>Vol. Ctrl.<br>Power Limit<br>DTC<br>P2P solution | MP     |
| AD52582-QE24NAT                    | 2  | 10~24      | 18           | 4             | E-TSSOP-24L                | Analog In                                                     | MP     |
| AD92580C-QG24NAT                   | 2  | 5~26       | 20           | 8             | E-TSSOP-24L                | PWM input                                                     | MP     |

# D類高功率音頻放大器 High Power Class D

| Product ID                           | Ch       | VDD<br>(V) | Power<br>(W)         | Load<br>(ohm) | Package                   | Features                                                                                                          | Status |
|--------------------------------------|----------|------------|----------------------|---------------|---------------------------|-------------------------------------------------------------------------------------------------------------------|--------|
| AD8256A-LEG                          | 2        | 3~12       | 16                   | 4             | E-LQFP-48L                | I <sup>2</sup> S In/I <sup>2</sup> C, 3* I <sup>2</sup> S input<br>5 Bands EQ<br>Headphone                        | MP     |
| AD82584-LG48NAY                      | 2        | 10~26      | 20x2                 | 8             | E-LQFP-48L                | I <sup>2</sup> S In/I <sup>2</sup> C<br>Vol./Mute<br>20 Bands EQ<br>DRC/Clipping<br>P2P solution                  | MP     |
| AD82584D-LG48NAY                     | 2<br>2.1 | 10~26      | 20x2 /<br>10x2+30    | 8             | E-LQFP-48L                | I <sup>2</sup> S In/I <sup>2</sup> C; Vol./Mute<br>20 Bands EQ<br>DRC/Clipping<br>P2P solution                    | MP     |
| AD82585-LG48NAY                      | 2        | 10~26      | 20                   | 8             | E-LQFP-48L                | I <sup>2</sup> S In/I <sup>2</sup> C<br>Vol./Mute<br>DRC/Clipping/DTC<br>P2P solution<br>0.15dB/Step              | MP     |
| AD82586-LE48NAY                      | 2        | 10~26      | 15                   | 8             | E-LQFP-48L                | I <sup>2</sup> S In/I <sup>2</sup> C<br>Vol./Mute<br>8 Bands EQ<br>DRC/Clipping                                   | MP     |
| AD82586C-QG24NAT                     | 2        | 10~26      | 20                   | 8             | E-TSSOP-24L               | I <sup>2</sup> S In/I <sup>2</sup> C<br>Vol./Mute<br>20 Bands EQ<br>DRC/Clipping<br>Channel mixing                | MP     |
| AD82587D-LG48NAY<br>AD82587D-QG24NAT | 2        | 10~26      | 20                   | 8             | E-LQFP-48L<br>E-TSSOP-24L | I <sup>2</sup> S In/I <sup>2</sup> C<br>Vol./Mute<br>DRC/Clipping/DTC<br>0.125dB/Step                             | MP     |
| AD82588B-LG48NAY                     | 2        | 10~26      | 20                   | 8             | E-LQFP-48L                | I <sup>2</sup> S In/I <sup>2</sup> C<br>Vol./Mute<br>10 Bands EQ<br>DRC/Clipping<br>Noise Gate<br>Channel Mixing  | MP     |
| AD8356A-LEG                          | 2.1      | 3~12       | 8.7x2<br>+16.7       | 8/4           | E-LQFP-48L                | I <sup>2</sup> S In/I <sup>2</sup> C, 3* I <sup>2</sup> S input<br>5 Bands EQ<br>Headphone                        | MP     |
| AD83586-LG48NAY                      | 2<br>2.1 | 10~26      | 25x2<br>/15x2<br>+30 | 8/4           | E-LQFP-48L                | I <sup>2</sup> S In/I <sup>2</sup> C<br>Vol./Mute<br>20 Bands EQ<br>Power Limit<br>DRC/Clipping                   | MP     |
| AD83586B-LG48NAY                     | 2<br>2.1 | 10~26      | 25x2<br>/15x2<br>+30 | 8/4           | E-LQFP-48L                | I <sup>2</sup> S In/I <sup>2</sup> C<br>Vol./Mute<br>20 Bands EQ<br>Dual Band DRC<br>Noise Gate<br>Channel Mixing | MP:Q3  |
| AD87587-LG48NAY                      | 2        | 10~26      | 20                   | 8             | E-LQFP-48L                | I <sup>2</sup> S In/I <sup>2</sup> C<br>Vol./Mute<br>DRC/Clipping/DTC<br>Line Driver                              | MP     |
| AD87588-LG48NAY                      | 2        | 10~26      | 20                   | 8             | E-LQFP-48L                | I <sup>2</sup> S In/I <sup>2</sup> C ; Vol./Mute<br>20 Bands EQ<br>DRC/Clipping<br>Line Driver                    | MP     |

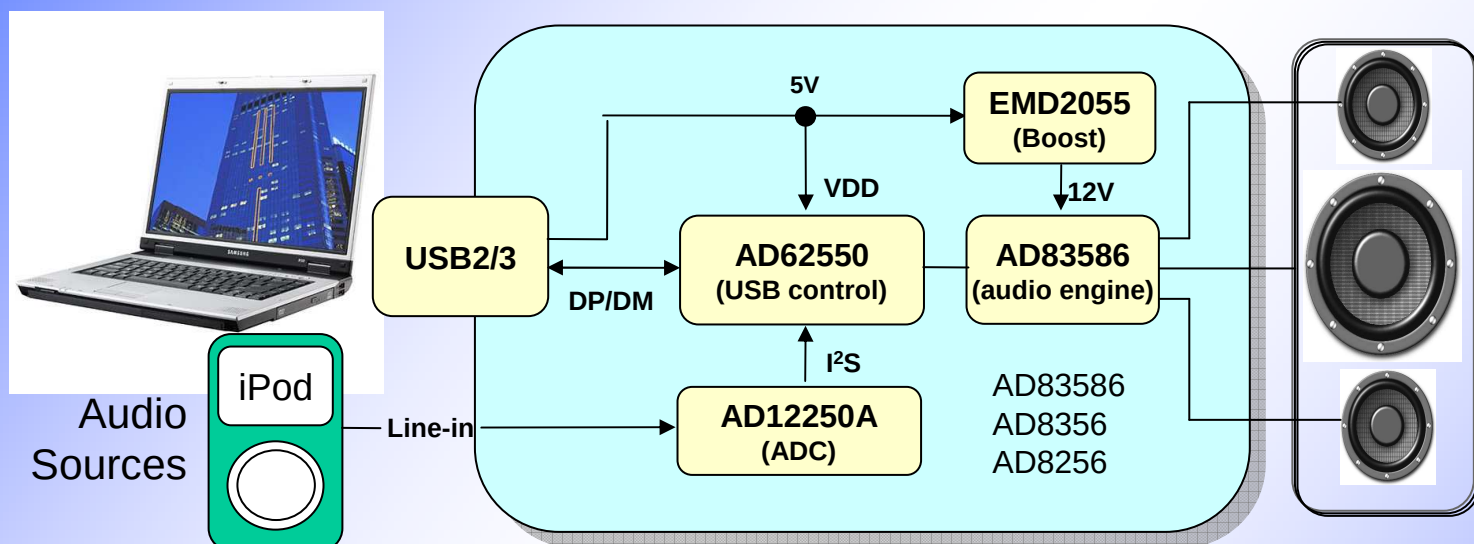
# 音頻類比數位轉換器 USB Audio & Audio ADC

| Product ID                           | Ch | VDD (V) | Power (W) | Load (ohm) | Package  | Features                                                                                                 | Status |
|--------------------------------------|----|---------|-----------|------------|----------|----------------------------------------------------------------------------------------------------------|--------|
| AD12250A-SG                          | NA | 3.3     | NA        | NA         | TSSOP-16 | 24 bits I <sup>2</sup> S out                                                                             | MP     |
| AD3150-WL06NAR                       | NA | 3.3     | NA        | NA         | CSP-6    | Digital Microphone PDM Output                                                                            | MP     |
| AD22650-QH14NAT<br>AD22650-QH14NAR   | 2  | 5/3.3   | NA        | NA         | TSSOP-14 | 3 Vrms Line Driver Popless                                                                               | MP     |
| AD22653-QH14NAT<br>AD22653-QH14NAR   | 2  | 3.3     | NA        | NA         | TSSOP-14 | 2 Vrms Line Driver Popless                                                                               | MP     |
| AD22653B-QH14NAT<br>AD22653B-QH14NAR | 2  | 3.3     | NA        | NA         | TSSOP-14 | 2 Vrms Line Driver Popless                                                                               | MP     |
| AD22654-MH10NAT<br>AD22654-MH10NAR   | 2  | 5/3.3   | NA        | NA         | MSOP-10  | 3 Vrms Line Driver Popless                                                                               | MP     |
| AD22657B-MH10NAT<br>AD22657B-MH10NAR | 2  | 3.3     | NA        | NA         | MSOP-10  | 2 Vrms Line Driver Popless                                                                               | MP     |
| AD62550-LA32NAY                      | 2  | 5       | 2.0       | 4          | LQFP-32  | USB interface<br>Class D Amp.<br>I <sup>2</sup> S in/out<br>Win7 Logo                                    | MP     |
| AD62551A-LG                          | NA | 5       | NA        | NA         | LQFP-32  | USB interface<br>Vol. Ctrl.<br>Recording<br>I <sup>2</sup> S in/out                                      | MP     |
| AD62555-QE24NAT                      | 2  | 5       | 2.0       | 4          | TSSOP-24 | USB interface<br>Class D Amp.<br>Win7 Logo                                                               | MP     |
| AD62556-LG48NAY                      | 2  | 5.5     | NA        | NA         | LQFP-48  | USB interface<br>Microphone/Line in<br>I <sup>2</sup> S in/out<br>Earphone<br>Win7 Logo<br>Recording     | MP     |
| AD62557-LG48NAY                      | 2  | 5.5     | 2.6       | 4          | LQFP-48  | USB interface<br>Microphone/Line In<br>I <sup>2</sup> S in/out<br>Class D Amp.<br>Win7 Logo<br>Recording | MP     |





## USBoom™ Technology



- **High Output Power:** ESMT's USBoom™ technology allows an impressive  $6W \times 2 (8 \Omega) + 12W (4 \Omega)$  output (Max. Instantaneous Power) using limited power supply from USB2/3 port

- ESMT's Dynamic Range Control (DRC) technology prevents excessive current drawn from a USB port, thus minimizing distortion

# 單通道低壓差線性穩壓器 1-Ch LDO

| Product ID                             | I <sub>out</sub><br>(A) | V <sub>in</sub><br>(V) | V <sub>out</sub><br>(V)                 | V <sub>do</sub><br>(mV) | Feature                  | Package               | Status |
|----------------------------------------|-------------------------|------------------------|-----------------------------------------|-------------------------|--------------------------|-----------------------|--------|
| EMP8040-00VF05NRR                      | 0.15                    | 3.0~36                 | Adj(1.2V)                               | 450                     | HV, Low I <sub>q</sub>   | SOT-23-5              | MP     |
| EMP8041-xxVF05NRR<br>EMP8041-xxVG03NRR | 0.15                    | 3.0~36                 | 3.3/5.0                                 | 450                     | HV, Low I <sub>q</sub>   | SOT-23-5<br>SOT-89-3  | MP     |
| EMP8042-xxVF05NRR<br>EMP8042-xxVG03NRR | 0.15                    | 3.0~20                 | Adj(1.2V)/3.3/5.0                       | 450                     | HV, Low I <sub>q</sub>   | SOT-23-5<br>SOT-89-3  | MP     |
| EMP8046-xxVB03NRR<br>EMP8046-xxVG03NRR | 0.05                    | 2.5~18                 | 3.3/5.0                                 | 800                     | Ultra low I <sub>q</sub> | SOT-23-3<br>SOT-89-3  | MP     |
| EMP8020-xxVF05NRR                      | 0.3                     | 2.2~5.5                | 1.2/1.3/1.5/1.8/2.5/2.8/3.0/3.1/3.3     | 270                     | High PSRR                | SOT-23-5              | MP     |
| EMP8020-xxVI05NRR                      | 0.3                     | 2.2~5.5                | 1.2/1.3/1.5/1.8/2.5/2.8/3.0/3.1/3.3     | 270                     | High PSRR                | SC-70-5               | MP     |
| EMP8021-xxVF05NRR                      | 0.6                     | 2.2~5.5                | 1.8/2.5/2.8/3.0/3.3                     | 610                     | High PSRR                | SOT-23-5              | MP     |
| EMP8021-xxVI05NRR                      | 0.6                     | 2.2~5.5                | 3.3                                     | 610                     | High PSRR                | SC-70-5               | MP     |
| EMP8021-xxVG03NRR                      | 0.6                     | 2.2~5.5                | 1.8/2.5/2.8/3.3                         | 610                     | High PSRR                | SOT-89-3              | MP     |
| EMP8110-xxVE#3NRR<br>EMP8110-xxTB#3NRR | 1.5                     | 2.5~6.5                | 1.2/1.5/1.8/2.5/3.3                     | 300                     | High Current             | SOT-223<br>TO-252     | MP     |
| EMP8130-xxVN05NRR<br>EMP8130-xxFJ04NRR | 0.3                     | 1.7~5.5                | 0.8/1.0/1.2/1.3/1.5/1.8/2.5/2.8/3.0/3.3 | 260                     | High PSRR                | SOT-23-5<br>PLP-1x1-4 | MP     |
| EMP8733-xxVB03GRR                      | 0.3                     | 2.2~5.5                | 1.2/1.3/1.5/1.8/2.5/2.8/3.0/3.3         | 290                     |                          | SOT-23-3              | MP     |
| EMP8734-xxFE06NRR                      | 0.3                     | 2.2~5.5                | 1.2/1.8/2.5/3.0/3.3                     | 290                     | Small Package            | TDFN-2x2-6            | MP     |
| EMP8734-xxVF05GRR                      | 0.3                     | 2.2~5.5                | 1.0/1.2/1.5/1.8/2.5/2.8/3.0/3.3         | 290                     |                          | SOT-23-5              | MP     |
| EMP8734-xxVI05NRR                      | 0.3                     | 2.2~5.5                | 1.2/1.3/1.8/2.5/2.8/3.3                 | 290                     | Small Package            | SC-70-5               | MP     |
| EMP8734-xxVJ04NRR                      | 0.3                     | 2.2~5.5                | 1.2/1.5/1.8/2.5/2.8/3.0/3.3             | 290                     | Small Package            | SC-82-4               | MP     |
| EMP8736-00VF05NRR                      | 0.3                     | 2.2~5.5                | Adj(0.894V)                             | 290                     |                          | SOT-23-5              | MP     |
| EMP8737-xxVF05GRR                      | 0.1                     | 1.8~5.5                | 1.2                                     | 290                     | Low V <sub>in</sub>      | SOT-23-5              | MP     |
| EMP8935-xxVF05GRR                      | 0.3                     | 2.5~5.5                | 1.2/1.5/1.8/2.5/2.7/2.8/3.0/3.3         | 130                     | Low V <sub>do</sub>      | SOT-23-5              | MP     |
| EMP8965-xxVF05GRR                      | 0.6                     | 2.5~5.5                | 1.2/1.5/1.8/2.5/3.0/3.3                 | 270                     | Low V <sub>do</sub>      | SOT-23-5              | MP     |
| EMP8966-00VF05GRR<br>EMP8966-00VC06GRR | 0.6                     | 2.5~5.5                | Adj(1.19V)                              | 270                     | Low V <sub>do</sub>      | SOT-23-5<br>SOT-23-6  | MP     |



# 雙通道低壓差線性穩壓器 2-Ch LDO

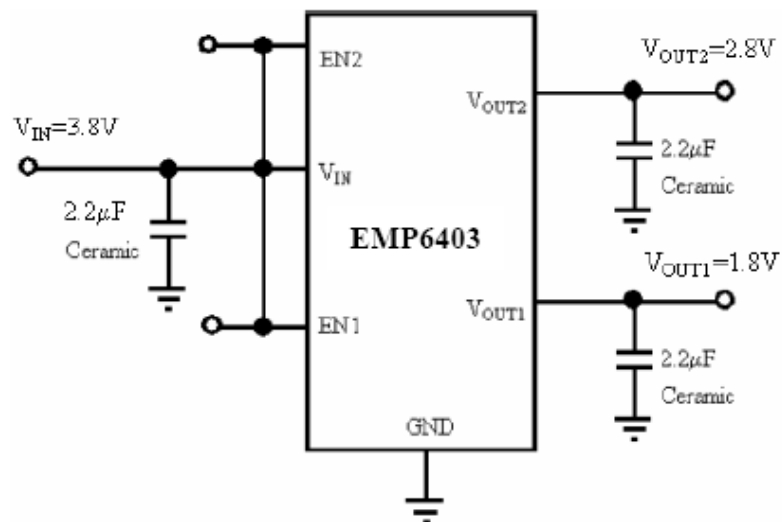
| Product ID        | Iout<br>(A) | Vin<br>(V) | Vout<br>(V)                             | Vdo<br>(mV) | Package    | Status |
|-------------------|-------------|------------|-----------------------------------------|-------------|------------|--------|
| EMP2033-xxFE06NRR | 0.3/0.3     | 2.5~5.5    | 01/02/07/11                             | 150         | TDFN-2x2-6 | MP     |
| EMP2033-xxVC06GRR | 0.3/0.3     | 2.5~5.5    | 00/01/02/03/04/05/06/07/11              | 150         | SOT-23-6   | MP     |
| EMP2133-xxVC06GRR | 0.3/0.3     | 2.5~5.5    | 00/01/02/03/04/05/06/07/08/<br>10/11/12 | 130         | SOT-23-6   | MP     |
| EMP5523-xxSA08GRR | 0.3/0.3     | 2.5~5.5    | 05                                      | 150         | SOP-8      | MP     |
| EMP6403-xxVC06GRR | 0.3/0.3     | 2.5~5.5    | 00/01/02/03/04/05/06/07/11/15           | 150         | SOT-23-6   | MP     |

Dual LDO Look-up Table  
except EMP2133

| Option | Vout1(V) | Vout2(V) |
|--------|----------|----------|
| 00     | 3.0      | 3.0      |
| 01     | 1.8      | 3.0      |
| 02     | 1.8      | 2.8      |
| 03     | 2.5      | 3.3      |
| 04     | 2.8      | 3.3      |
| 05     | 1.8      | 3.3      |
| 06     | 2.85     | 2.85     |
| 07     | 1.5      | 2.8      |
| 08     | 3.3      | 2.8      |
| 10     | 2.5      | 1.8      |
| 11     | 1.2      | 2.8      |
| 12     | 1.5      | 2.8      |
| 15     | 1.2      | 1.8      |

EMP2133 Look-up Table

| Option | Vout1(V) | Vout2(V) |
|--------|----------|----------|
| 00     | 3.0      | 3.0      |
| 01     | 1.8      | 3.0      |
| 02     | 1.8      | 2.8      |
| 03     | 2.5      | 3.3      |
| 04     | 2.8      | 3.3      |
| 05     | 1.8      | 3.3      |
| 06     | 2.85     | 2.85     |
| 07     | 2.8      | 1.8      |
| 08     | 3.3      | 2.8      |
| 10     | 2.5      | 1.8      |
| 11     | 1.2      | 2.8      |
| 12     | 1.5      | 2.8      |
| 15     | 1.2      | 1.8      |



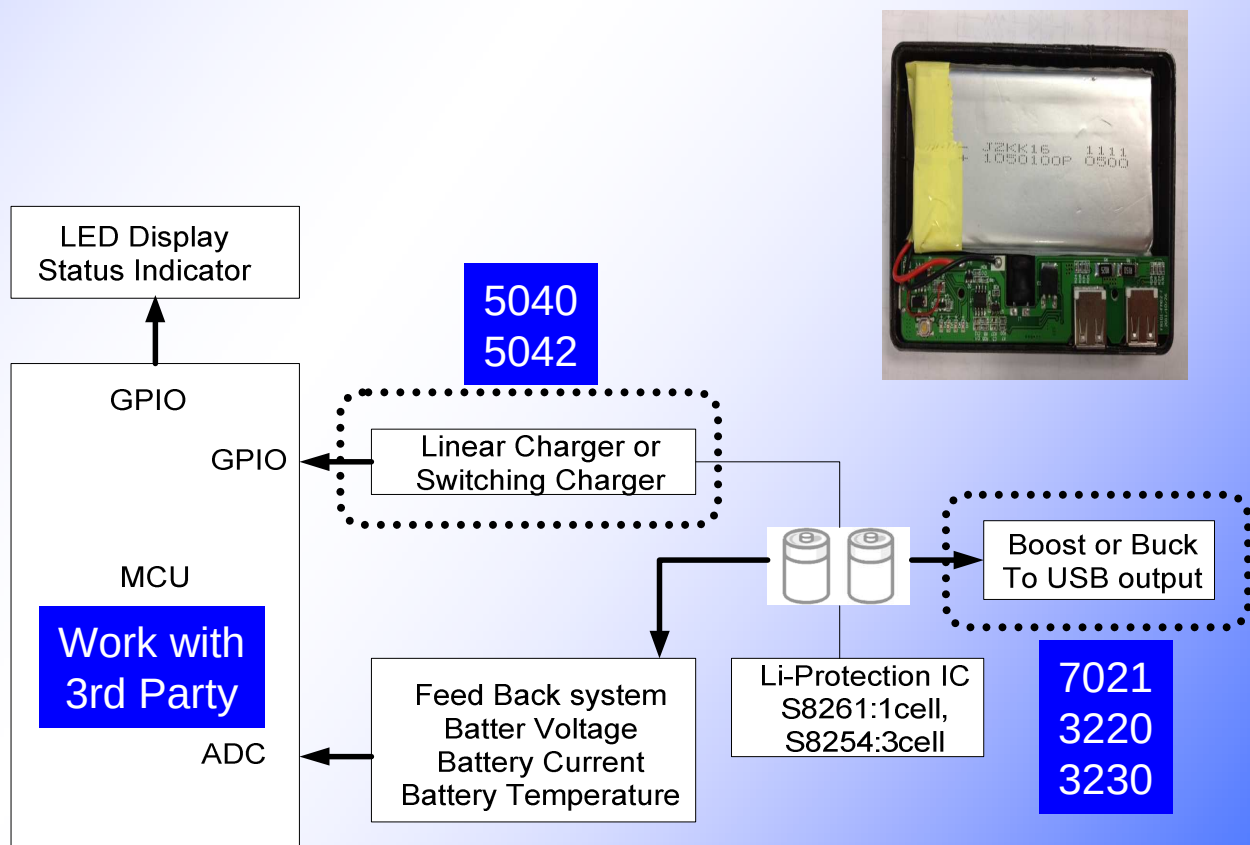
# 降壓式開關穩壓器 DC/DC Buck Converter

| Product ID                             | Iout<br>(A) | Vin<br>(V) | Vout<br>(V)                 | Vfb<br>(V) | Freq.<br>(MHz) | Control                               | Package                | Status |
|----------------------------------------|-------------|------------|-----------------------------|------------|----------------|---------------------------------------|------------------------|--------|
| EML3406-00VF05GRR                      | 0.6         | 2.5~5.5    | Adj                         | 0.6        | 1.5            | Sync./PWM                             | SOT-23-5               | MP     |
| EML3406-xxVF05GRR                      | 0.6         | 2.5~5.5    | 1.2/1.5/1.8/3.3             | ---        | 1.5            | Sync./PWM                             | SOT-23-5               | MP     |
| EML9206-xxFE06NRR                      | 0.6         | 2.5~5.5    | 1.8                         | ---        | 1.5            | Sync./PFM/PWM                         | TDFN-2x2-6             | MP     |
| EML9206-xxVF05GRR                      | 0.6         | 2.5~5.5    | 1.2/1.8/3.3                 | ---        | 1.5            | Sync./PFM/PWM                         | SOT-23-5               | MP     |
| EML3408-00VF05NRR                      | 0.8         | 2.5~5.5    | Adj                         | 0.6        | 1.5            | Sync./PWM                             | SOT-23-5               | MP     |
| EML3020-00FE06NRR<br>EML3020-00VF05NRR | 1.0         | 2.5~5.5    | Adj                         | 0.6        | 1.5            | Sync./PFM/PWM                         | TDFN-2x2-6<br>SOT-23-5 | MP     |
| EML3020-xxFE06NRR                      | 1.0         | 2.5~5.5    | 1.0/1.2/1.5/1.8<br>/2.5/3.3 | ---        | 1.5            | Sync./PFM/PWM                         | TDFN-2x2-6             | MP     |
| EML3023-00VF05NRR                      | 1.0         | 2.5~5.5    | Adj                         | 0.6        | 1.5            | Sync./PFM/PWM                         | SOT-23-5               | MP     |
| EML3025-00VF05NRR                      | 1.0         | 2.5~5.5    | Adj                         | 0.6        | 2.25           | Sync./PFM/PWM                         | SOT-23-5               | MP     |
| EML3026-00VF05NRR                      | 1.3         | 2.5~5.5    | Adj                         | 0.6        | 1.5            | Sync./PFM/PWM                         | SOT-23-5               | MP     |
| EML3412-00FF06NRR                      | 1.2         | 2.5~5.5    | Adj                         | 0.6        | 1.3            | Sync./PWM                             | TDFN-3x3-6             | MP     |
| EML3416-00FF08NRR                      | 1.5         | 2.5~5.5    | Adj                         | 0.6        | 1.3            | Sync./PWM                             | TDFN-3x3-8             | MP     |
| EML3417-00FF06NRR                      | 1.5         | 2.5~5.5    | Adj                         | 0.6        | 1.3            | Sync./PWM                             | TDFN-3x3-6             | MP     |
| EML3418-00FF08NRR<br>EML3418-00SE08GRR | 2.0         | 2.5~5.5    | Adj                         | 0.6        | 1.3            | Sync./PWM                             | TDFN-3x3-8<br>SOP-8-E  | MP     |
| EML3170-00SE08NRR                      | 3.0         | 2.7~5.5    | Adj                         | 0.8        | 1.5            | Sync./PWM                             | SOP-8-E                | MP     |
| EML3171-00FH08NRR                      | 2.0         | 2.6~5.5    | Adj                         | 0.8        | 1.4            | Sync./PSM/PWM                         | TDFN-3x3-8             | MP     |
| EML3172-00VT06NRR                      | 3.0         | 2.6~5.5    | Adj                         | 0.8        | 1.4            | Sync./PSM/PWM                         | SOT23-6                | MP     |
| EML3173-00SG08NRR                      | 3.0         | 2.6~5.5    | Adj                         | 0.8        | 1.4            | Sync./PSM/PWM/<br>Power Good/<br>Mode | SOP-8-E                | MP     |
| EML3175-00FH08NRR                      | 3.0         | 2.6~5.5    | Adj                         | 0.8        | 1.4            | Sync./PSM/PWM                         | TDFN-3x3-8             | MP     |
| EML3273-00SG08NRR                      | 5.0         | 2.6~5.5    | Adj                         | 0.8        | 1.4            | Sync./PSM/PWM/<br>Power Good/<br>Mode | SOP-8-E                | MP     |
| EML3220-00SG08NRR                      | 2.0         | 4.5~23     | Adj                         | 0.92       | 0.34           | Sync./PWM                             | SOP-8-E                | MP     |
| EML3230-00SG08NRR                      | 3.0         | 4.5~23     | Adj                         | 0.92       | 0.34           | Sync./PWM                             | SOP-8-E                | MP     |
| EML3300-00SG08NRR                      | 2.5         | 4.5~18     | Adj                         | 0.92       | 0.34           | Sync./PWM                             | SOP-8-E                | MP     |
| EMQ9920-00HB16NRR                      | 0.6/0.6     | 2.5~5.5    | Adj                         | 0.6        | 1.5            | Sync./PWM                             | TQFN-3x3-16            | MP     |
| EML3409-00FF10NRR                      | 0.8/0.8     | 2.5~5.5    | Adj                         | 0.6        | 1.5            | Sync./PWM                             | TDFN-3x3-10            | MP     |
| EML3022-00SE08NRR                      | 1.0/1.0     | 2.5~5.5    | Adj                         | 0.6        | 1.5            | Sync./PFM/PWM                         | SOP-8-E                | MP     |
| EML3210-00FH10NRR                      | 1.0/1.0     | 2.5~5.5    | Adj                         | 0.6        | 1.5            | Sync./PSM/PWM                         | TDFN-3x3-10            | MP     |
| EML3211-00FH10NRR                      | 1.0/1.0     | 2.5~5.5    | Adj                         | 0.6        | 1.5            | Sync./PSM/PWM/<br>Power Good          | TDFN-3x3-10            | MP     |

# 行動電源解決方案 Power Bank Solution

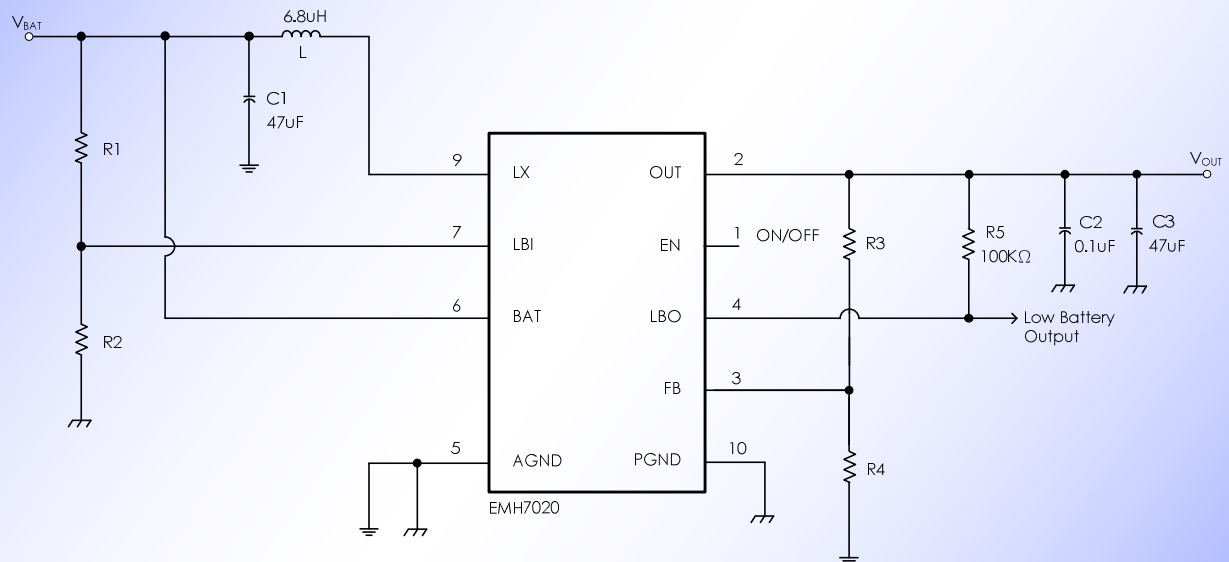
| USB D+ | USB D- | Output Current |
|--------|--------|----------------|
| 2.0V   | 2.0V   | iPhone 500mA   |
| 2.0V   | 2.8V   | iPhone 1A      |
| 2.8V   | 2.0V   | iPad2 1.5A     |

- For iPhone/iPad Accessories
- EMC5040+EMH7021
  - OCP 800mA, guarantee 500mA for iPhone
- EMC5042+EML3220/EML3230
  - EML3220, OCP 1.2A, 1A for iPhone
  - EML3230, OCP 2.4A, 2A for iPad/iPad2
- Under development
  - Switching charger
  - High current boost



# 升壓式開關穩壓器 DC/DC Boost Converter

| Product ID                             | I <sub>out</sub><br>(A) | V <sub>in</sub><br>(V) | V <sub>out</sub><br>(V) | Freq.<br>(kHz) | Control   | Package                 | Feature | Status |
|----------------------------------------|-------------------------|------------------------|-------------------------|----------------|-----------|-------------------------|---------|--------|
| EMH7600-00MA08GRR                      | 0.5                     | 0.9~5.5                | Adj(1.195V)             | 150            | Sync./PFM | MSOP-8                  |         | MP     |
| EMH7601-00FE06NRR<br>EMH7601-00VF05GRR | 0.5                     | 0.9~5.5                | Adj(1.195V)             | 150            | Sync./PFM | TDFN-2x2-6<br>SOT-23-5  |         | MP     |
| EMH7020-00FF10NRR<br>EMH7020-00ME08NRR | 0.5                     | 0.9~5.5                | Adj(0.5V)               | 500            | Sync./PWM | TDFN-3x3-10<br>MSOP-8-E | True SD | MP     |
| EMH7021-00FF10NRR                      | 1.0                     | 0.9~5.5                | Adj(0.5V)               | 500            | Sync./PWM | TDFN-3x3-10             | True SD | MP     |
| EMH7023-00MG08NRR                      | 0.5                     | 0.9~5.5                | Adj(0.5V)               | 500            | Sync./PWM | MSOP-8-E                | True SD | MP     |
| EMH7070-00VN06NRR                      | 1.0                     | 2.6~5.5                | Adj(0.6V)               | 1000           | Async PWM | SOT-23-6                |         | MP     |
| EMH7080-00SG08NRR                      | 2.0                     | 2.6~5.5                | Adj(0.6V)               | 500            | Async PWM | SOP-8-E                 |         | MP     |



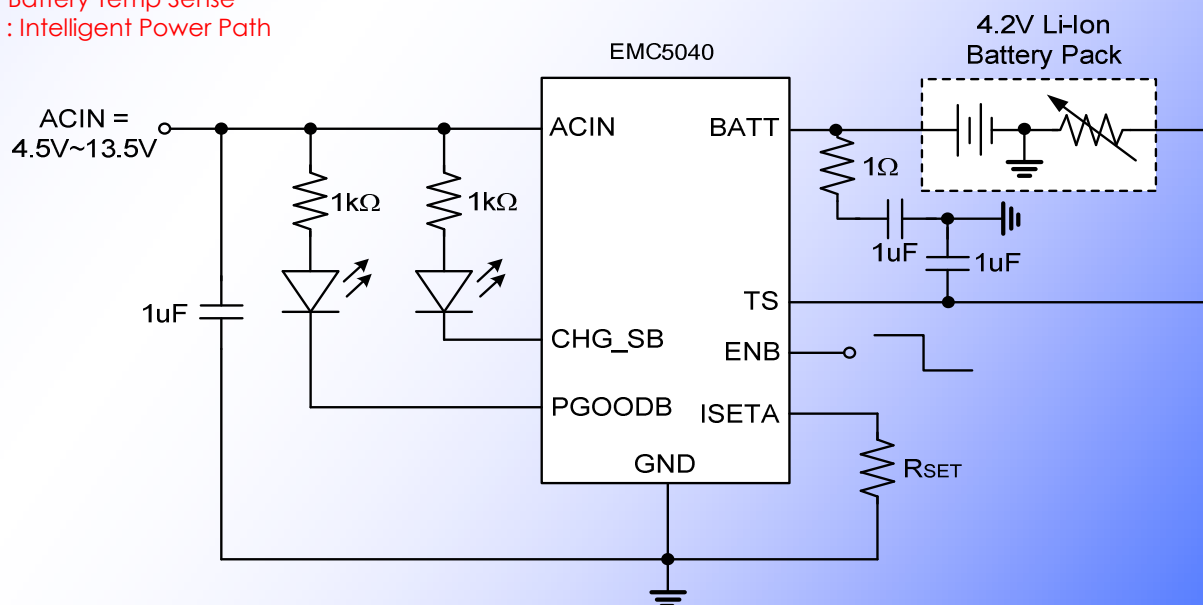
# 電池充電IC Battery Charger

| Product ID                             | Cell | Iout<br>(A)     | Operation Vin<br>(V)             | Vbat<br>(V)        | Vout<br>(V)       | Accuracy | Package                    | Features                     | Status |
|----------------------------------------|------|-----------------|----------------------------------|--------------------|-------------------|----------|----------------------------|------------------------------|--------|
| EMC5754-xxVF05GRR<br>EMC5754-xxSG08NRR | 1    | 1.0             | 4.25~5.5                         | 4.1<br>4.2<br>4.35 | ---               | ±1%      | SOT-23-5<br>SOP-8-E        | Linear                       | MP     |
| EMC5755-xxFF06NRR                      | 1    | 1.2             | 4.25~5.5                         | 4.1<br>4.2<br>4.35 | ---               | ±1%      | TDFN- 3x3-6                | Linear                       | MP     |
| EMC5040-42FF10NRR<br>EMC5040-42SG08NRR | 1    | 1.2             | 4.5~6.5<br>(MaxRating-<br>13.5V) | 4.2                | ---               | ±1%      | TDFN-3x3-10<br>SOP-8-E     | Linear<br>TS                 | MP     |
| EMC5042-84FF10NRR                      | 2    | 1.2             | 9.0~13.5<br>(MaxRating-<br>15V)  | 8.4                | ---               | ±1%      | TDFN-3x3-10                | Linear<br>TS                 | MP     |
| EMC5045-42SG08NRR                      | 1    | 1.2             | 4.5~6.5<br>(MaxRating-<br>13.5V) | 4.2                | ---               | ±1%      | SOP-8-E                    | Linear                       | MP     |
| EMC5046-84SG08NRR                      | 2    | 1.2             | 9.0~13.5<br>(MaxRating-<br>15V)  | 8.4                | ---               | ±1%      | SOP-8-E                    | Linear                       | MP     |
| EMC5050-42HH16NRR<br>EMC5050-42HC16NRR | 1    | 1.5             | 4.6~5.5                          | 4.2                | ---               | ±1%      | TQFN-3x3-16<br>TQFN-4x4-16 | Linear<br>Timer<br>TS        | MP     |
| EMC5051-42HC16NRR                      | 1    | 2               | 4.6~5.5                          | 4.2                | ---               | ±1%      | TQFN-4x4-16                | Linear<br>Timer<br>TS        | MP     |
| EMC5060-xxHG20NRR                      | 1    | 1.5<br>+<br>0.5 | 4.35~6<br>(MaxRating-<br>16V)    | 4.2                | 4.4<br>5.0<br>6.0 | ±1%      | TQFN-3.5x4.5-20            | Linear<br>TS<br>Timer<br>IPP | MP     |

Note :

1. TS : Battery Temp Sense

2. IPP : Intelligent Power Path



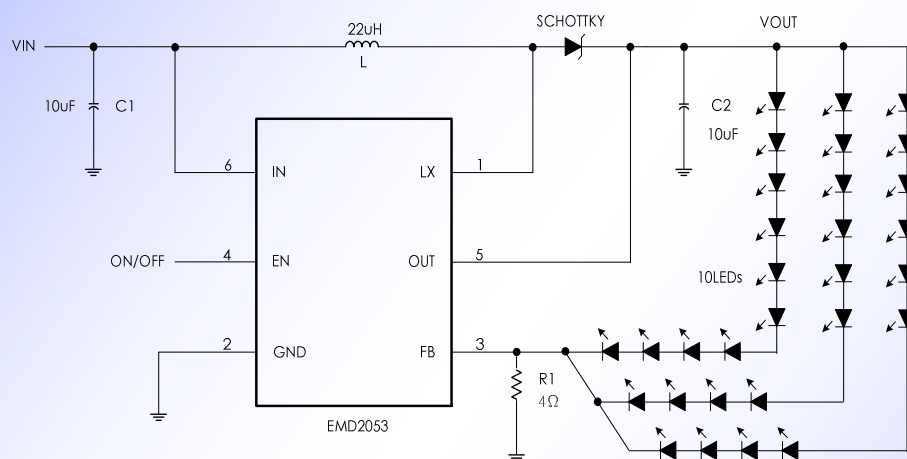
# 白光LED驅動器 White LED Driver

| Product ID                             | Topology | Vin<br>(V) | Ch. | Dimm | OVP<br>(V) | Max.<br>Iout/Ch<br>(mA) | Package               | Features | Status |
|----------------------------------------|----------|------------|-----|------|------------|-------------------------|-----------------------|----------|--------|
| EMD2055-00VC06NRR<br>EMD2055-00FK08NRR | Boost    | 2.5~5.5    | 1   | PWM  | 36         | *2                      | SOT-23-6<br>TDFN2x2-8 | 11S4P    | MP     |
| EMD2095-00VC06NRR                      | Boost    | 2.5~5.5    | 1   | PWM  | 31         | *2                      | SOT-23-6              | 9S3P     | MP     |
| EMD3001-50FE06GRR                      | CP       | 2.7~4.5    | 1   | PWM  | ---        | 100                     | TDFN-2x2-6            |          | MP     |
| EMD3001-50VC06GRR                      | CP       | 2.7~4.5    | 1   | PWM  | ---        | 100                     | SOT-23-6              |          | MP     |

Note :

1. CP : Charge Pump

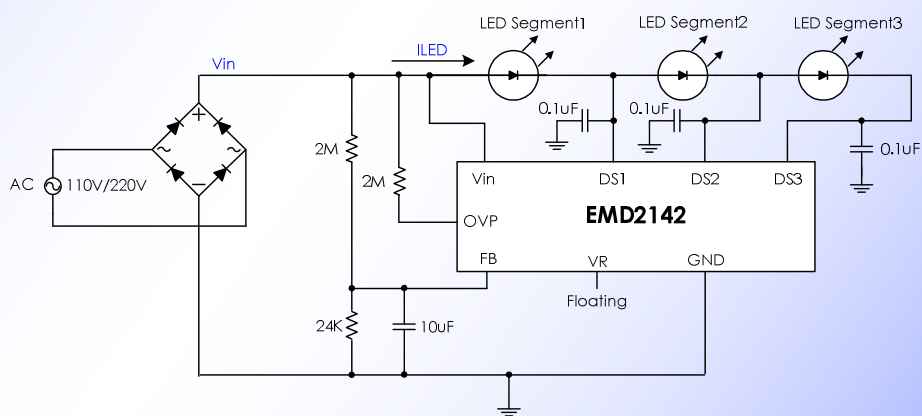
2. It depends on Vin and LEDs series/parallel configuration





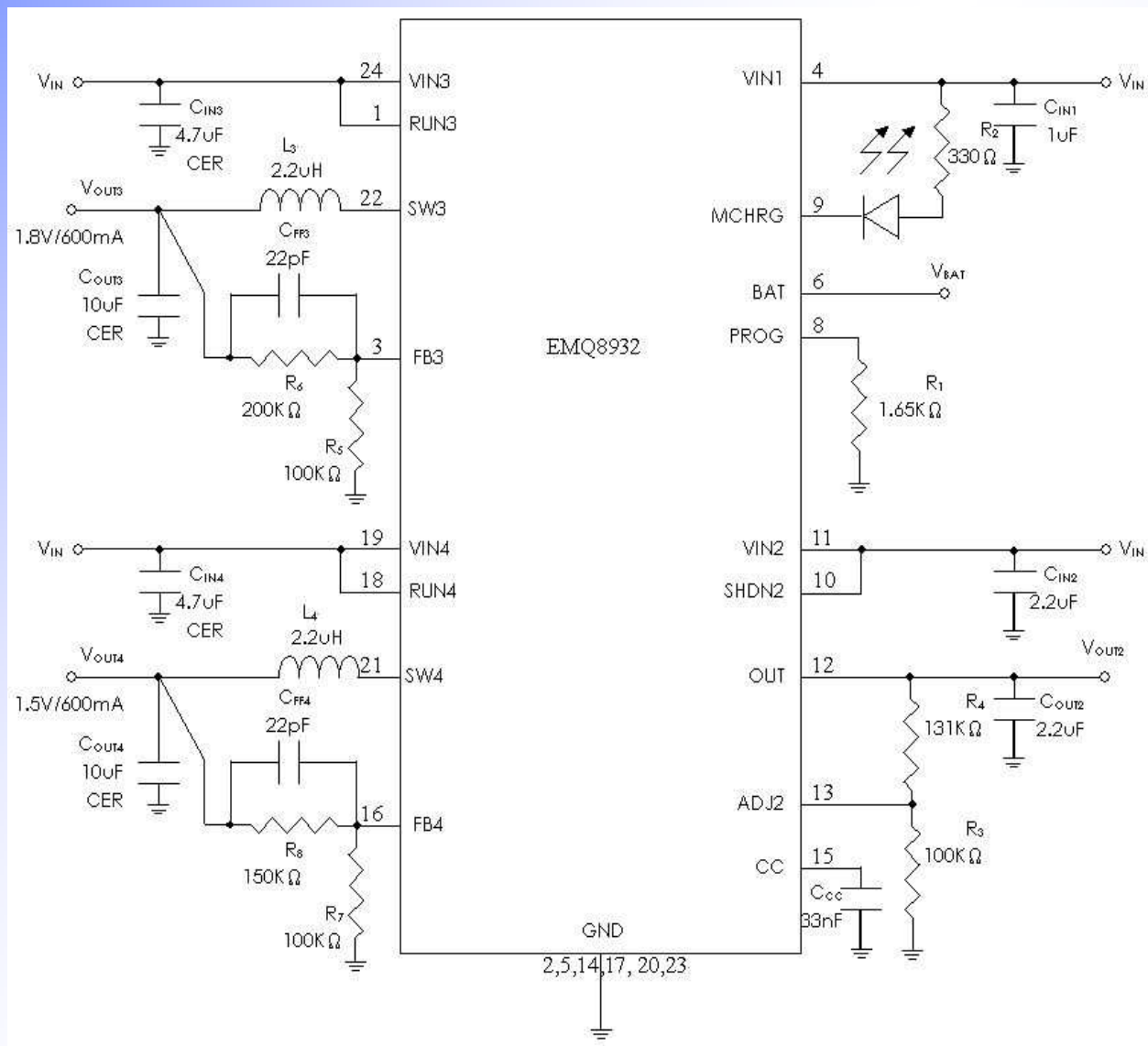
# AC轉DC 白光LED驅動器 AC-DC White LED Driver

| Product ID        | Topology                        | Vin<br>(V)         | Ch. | Dimm | OVP<br>(V) | Max. Iout/Ch<br>(mA) | Package | Features                                 | Status |
|-------------------|---------------------------------|--------------------|-----|------|------------|----------------------|---------|------------------------------------------|--------|
| EMD2142-00SG08NRR | Linear AC LED<br>(Non-isolated) | 90~130/<br>190~250 | 3   | No   | Adjustable | 100                  | ESOP-8  | High PF,<br>high efficiency,<br>EMI-less | MP     |



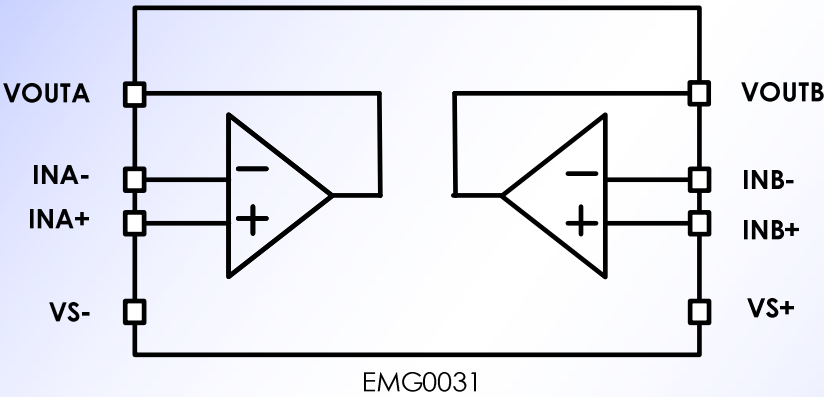
# 電源管理單元 PMU/Power Management Unit

| Product ID        | CH1          | CH2      | CH3       | CH4       | Package     | Features | Status |
|-------------------|--------------|----------|-----------|-----------|-------------|----------|--------|
| EMQ8931-00QE20GRR | Charger-1.0A | LDO-0.3A | Buck-0.6A | x         | TSSOP-20-E  | Portable | MP     |
| EMQ8932-00HC24NRR | Charger-1.0A | LDO-0.6A | Buck-0.6A | Buck-0.6A | TQFN-4x4-24 | Portable | MP     |



# OP放大器 Rail to Rail Operational Amplifiers

| Product ID        | Ch. | Vin<br>(V) | Iout<br>(mA) | Isc<br>(mA) | IQ<br>(mA) | SR<br>(V/us) | BW<br>(MHz) | GBWP<br>(MHz) | Package  | Status |
|-------------------|-----|------------|--------------|-------------|------------|--------------|-------------|---------------|----------|--------|
| EMG0030-00VF05NRR | 1   | 6-24       | +/-45        | +/-200      | 2.0        | 65           | 30          | 30            | SOT-23-5 | MP     |
| EMG0031-00MA08NRR | 2   | 6-20       | +/-45        | +/-200      | 4.0        | 65           | 30          | 30            | MSOP-8   | MP     |



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# ***Power Your Life!!***

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