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# EV26075EQ-00A

## Single-Cell 1A High Efficiency Cradle Charger Evaluation Board

### DESCRIPTION

The EV26075EQ-00A is an evaluation board for the MP26075, a linear, high performance, and high efficiency single cell Li-Ion or Li-polymer battery charger for AC adapter input in the plug-in, cradle charger applications.

For EV26075EQ-00A, the topology for AC-DC conversion is a flyback. HF0100 is the primacy side controller. MP26075 offers the feedback signal through a photo-coupler to control the flyback output voltage against the battery voltage to increase energy efficiency. For guaranteed safe operation, MP26075 controls power up sequencing. It ramps-up AC-Adapter firstly to limit inrush current when Adapter plug in.

The charging current of EV26075DQ-00A is set at 1A, which can be programmed by an external resistor (Rset).

### ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Units
Input Voltage	AC IN	85~265	V
Charge Current	I <sub>CHG</sub>	1	A

### FEATURES

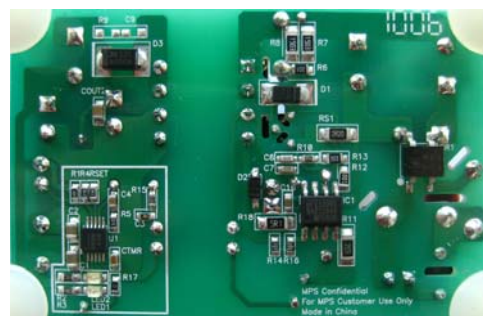
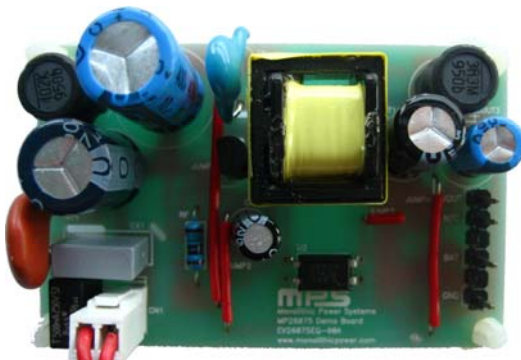
- Voltage control function for the fly-back controller
- High charge efficiency
- Low current pre-charge mode
- Controlled power-up sequencing
- Battery temperature monitoring
- Charge status indication
- Auto-Recharge
- Fault indications
- Internal timer
- Input/output OVP
- over temperature protection

### APPLICATIONS

- Cell Phones
- MP3 Players
- Smart Phones
- PDAs
- Digital Cameras

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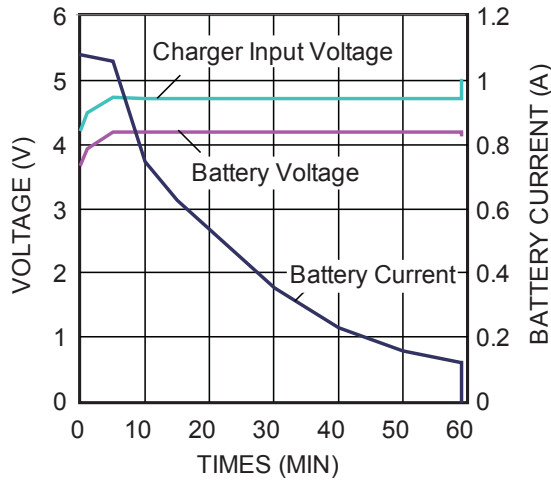
### EV26075EQ-00A EVALUATION BOARD



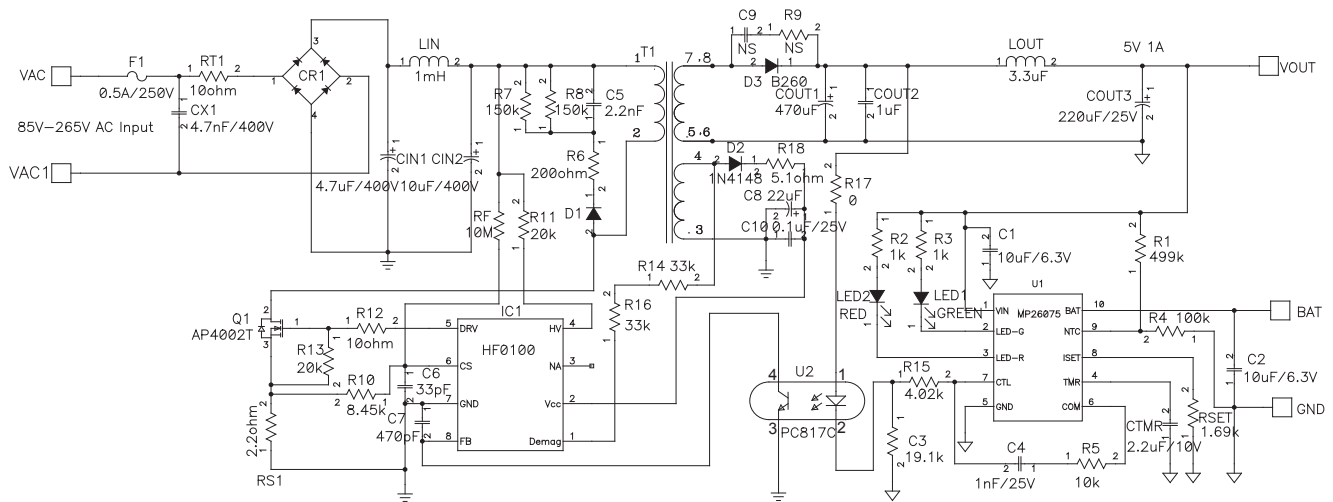
(L x W x H) 2.23" x 1.54" x 0.84"  
(5.66cm x 3.91cm x 2.13cm)

Board Number	MPS IC Number
EV26075EQ-00A	MP26075EQ

### Charge Curve



### EVALUATION BOARD SCHEMATIC



**EV26075DQ-00A BILL OF MATERIALS**

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
2	C1, C2	10 $\mu$ F	Ceramic Cap ,6.3V, X5R	0805	KYOCERA	CM21X5R106K06AT
1	C4	1nF	Ceramic Cap ,50V, X7R	0603	Murata	GRM188R71H102KA01D
1	C5	2.2nF	250V Film capacitor	DIP	Murata	DE1E3KX222MA4BL01
1	C6	33pF	Ceramic Cap, 50V, C0G	0603	Murata	GRM1885C1H330JA01
1	C7	470pF	Ceramic Cap ,50V, X7R	0603	Murata	GRM188R71H471KA01D
1	C8	22 $\mu$ F	Electrolytic Cap ,22 $\mu$ F,50V	DIP	Jianghai(江海)	CD281L-50V22
1	C9	NS				
1	C10	0.1 $\mu$ F	Ceramic Cap, 50V, X7R	0603	Murata	GRM188R71H104KA93D
1	CIN1	4.7 $\mu$ F	4.7 $\mu$ F 400V	DIP	Jianghai(江海)	CD263-400V4.7
1	CIN2	10 $\mu$ F	10 $\mu$ F 400V	DIP	Jianghai(江海)	CD110-400V10
1	COUT1	470 $\mu$ F	Electrolytic Cap ,470 $\mu$ F,6.3V	DIP	Jianghai(江海)	CD287-6.3V470
1	COUT2	1 $\mu$ F	Ceramic Cap, 6.3V, X5R	0805	Murata	GRM188R60J105KA0
1	COUT3	220 $\mu$ F	Electrolytic Cap ,220 $\mu$ F,10V	DIP	Jianghai(江海)	CD110-10V220
1	CR1	RH06	Rectifier 0.5A. 600V peak reverse voltage	Minidip	DIODES	RH06
1	CTMR	2.2 $\mu$ F	Ceramic Cap ,10V, X7R	0603	Murata	GRM188R71A225KE1
1	CX1	4.7nF	Film capacitor	DIP	Vishay	BFC33820472
1	C3	19.1k	Film Res., 1%	0603	Yageo	RC0603FR-0719K1L
1	R1	499k	Film Res., 1%	0603	Yageo	RC0603FR-07499KL
2	R2, R3	1k	Film Res., 5%	0805	Yageo	RC0805JR-071KL
1	R4	100k	Film Res., 1%	0603	Yageo	RC0603FR-07100KL
1	R5	10k	Film Res., 1%	0603	Yageo	RC0603FR-0710KL
1	R6	200 $\Omega$	Film Res., 5%	0805	Any	
2	R7,R8	150k	Film Res., 1%	1206	Panasonic	ERJ8ENF1503V
1	R9	NS				
1	R10	8.45k	Film Res., 1%	0603	Yageo	RC0603FR-078K45L
1	R11	20k	Film Res., 5%	1206	LIZ	CR1206J40203G
1	R12	10 $\Omega$	Film Res., 5%	0805	LIZ	CR05T05NJ10R
1	R13	20k	Film Res., 5%	0805	Yageo	RC0805JR-0720KL
2	R14,R16	33k	Film Res., 1%	0603	Yageo	RC0603FR-0733RL
1	R15	4.02k	Film Res., 1%	0603	Yageo	RC0603FR-074K02L
1	R17	0	Film Res., 5%	0603	Any	
1	R18	5.1 $\Omega$	Film Res., 5%	1206	Yageo	RC1206JR-075R1

**EV26075DQ-00A BILL OF MATERIALS (continued)**

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	RF	10M	Film Res., 1%	DIP	Any	
1	RS1	2.2Ω	Film Res., 1%	1206	Any	
1	RSET	1.69k	Film Res., 1%	0603	Yageo	RC0603FR-071K69L
1	RT1	10Ω	Res., 15%	DIP	Murata	NTPAA100LDNBO
1	D1	RS1J	600V,1A	SMA	DIODES	RS1J
1	D2	1N4148	0.15A,75V	SOD-123	DIODES	1N4148
1	D3	B260A	2A,60V	SMA	DIODES	B260A
1	F1	0.5A	SS-5-500mA, 0.5A fuse,250VAC	DIP	COOPER BUSSMANN	SS-5-500mA
1	LED1	LED GREEN	LED GREEN	0805	BRTLED	BL-HGB35A-TRB
1	LED2	LED RED	LED RED	0805	BRTLED	BL-HUF35A-TRB
1	LIN	1mH	Filter inductor. 1000μH,max current:0.16A, 2.96Ω DCR	DIP	TOKO	8RHB2#822LY-102K
1	LOUT	3.3μH	Filter inductor.3.3uH, max dc current:2.66A, 0.025Ω DCR	DIP	TOKO	8RHB2#822LY- 3R3M
1	Q1	AP4002T	600V,0.4A,Rds-on:5Ω	TO-92	Apec	AP4002T
1	T1	EE16	Lp:1.755mH, Np:117turns(1 strand, 0.18mm), Ns:9turns(3 strand,0.3mm), Naux:20(1 strand, 0.18mm)	EE16 (8 pins)		
1	IC1	HF0100HS	QR controller	SOIC8	MPS	HF0100HS
1	U1	MP26075	Cradle charger	QFN10	MPS	MP26075EQ
1	U2	PC817C	Photo coupler	DIP	Sharp	PC817C

**PRINTED CIRCUIT BOARD LAYOUT**

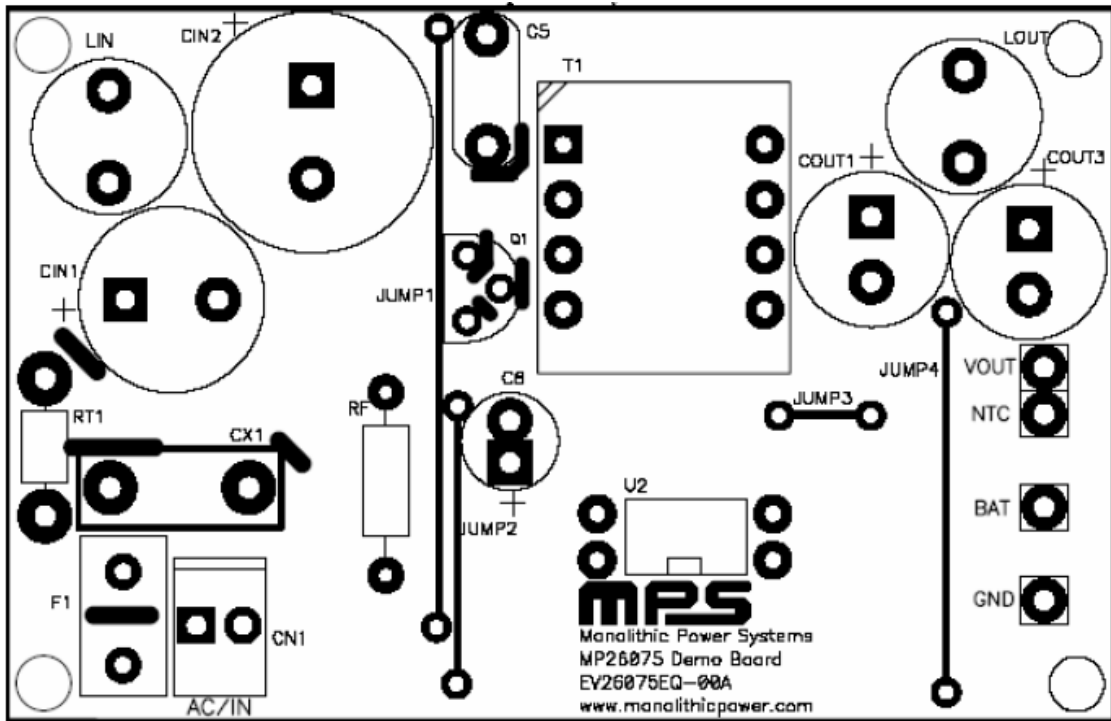


Figure 1—Top Silk

