

Saves power during standby, enhances efficiency

MIP2C2 High-Performance IPD for Battery Chargers

Overview

MIP2C2 is a high-performance IPD designed for 7W battery chargers. It features built-in protection circuits necessary for compact power source charger circuitry. This allows a significant reduction in externally connected parts. MIP2C2 provides PWM control when a normal load is applied and intermittent control with low load. This results in greater efficiency for very low to maximum loads, while also conserving power during standby.

Features

Built-in charge protection circuit

Built-in overcurrent, overheating, load shorting and overvoltage protection circuits

Significantly reduced power consumption with no load*

20mW at 100VAC, 25mW at 240VAC

High efficiency with rated load*

75% at 100VAC, 72% at 240VAC

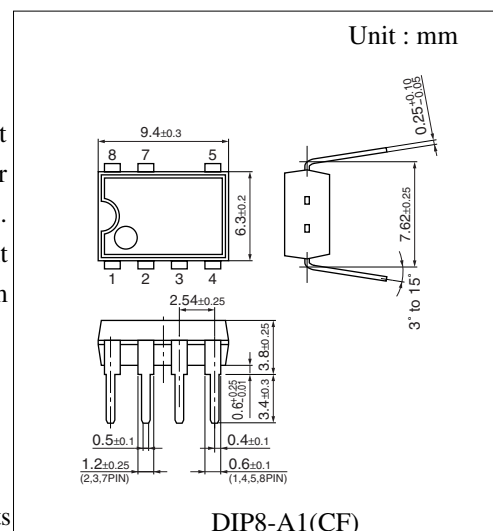
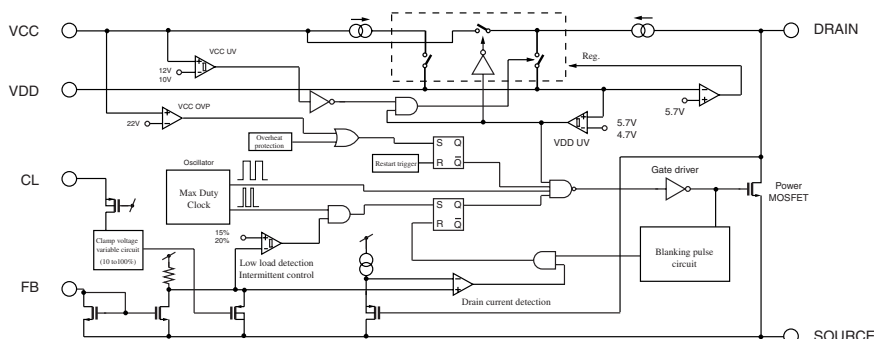
Reduced number of parts (12 less than conventional Panasonic models)

* With worldwide input and 5.8V/0.7A output

Applications

- Chargers (for cellular phones, etc.)

Block Diagram



Pin Descriptions

Pin No.	Function
1	V _{DD}
2	FB
3	CL
4	V _{CC}
5	Drain
6	—
7	Source
8	Source

¶ The products and specifications are subject to change without any notice. Please ask for the latest product standards to guarantee the satisfaction of your product requirements.

Semiconductor Company, Matsushita Electric Industrial Co., Ltd.

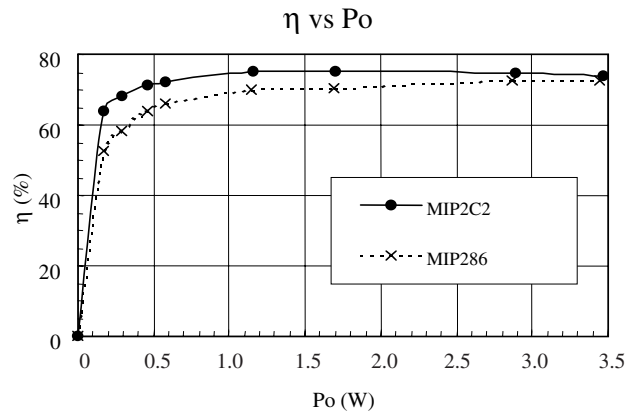
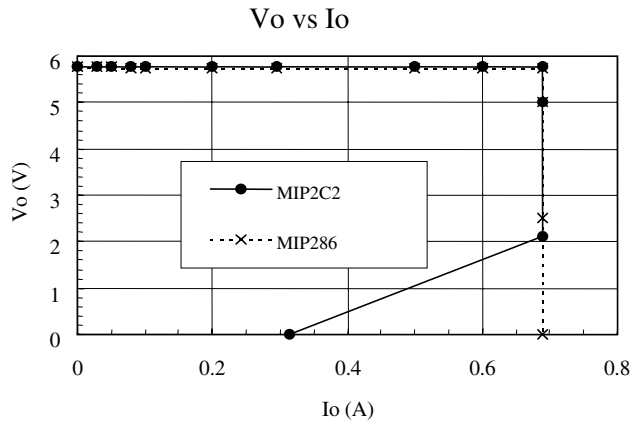
■ Absolute Maximum Ratings

Parameters	Symbol	Rating	Unit
Drain voltage	V_D	700	V
Supply voltage	V_{CC}	30	V
Feedback voltage	V_{FB}	7	V
CL terminal voltage	V_{CL}	7	V
Drain current	I_D	500	V
Operating Junction Temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

■ Electrical Characteristics ($T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$)

Parameters	Symbol	Conditions	min	typ	max	Unit
(Control Function)						
Oscillator output frequency	f_{OSC}	FB:Open	90	100	110	kHz
Max. Duty cycle	MAXDC	FB:Open	-	50	-	%
VDD reference voltage	V_{DD}		-	5.7	-	V
VDD stop voltage	V_{UV}		-	5.1	-	V
Circuit current	I_{CC}		-	0.5	-	mA
VCC charge start voltage	$V_{CC(ON)}$		-	12	-	V
VCC charge stop voltage	$V_{CC(OFF)}$		-	10	-	V
VCC charge voltage hysteresis	ΔV_{CC}		-	2	-	V
VDD charge current	I_{ch1}	$V_{DD} = 0V$	-	3.0	-	mA
	I_{ch2}	$V_{DD} = 4V$	-	1.5	-	mA
Feedback current	I_{FB}		-	120	-	μA
Feedback current hystereses	I_{FBHYS}		-	3	-	μA
LC terminal current	I_{CLMAX}		20	-	-	μA
LC terminal current	I_{CLMIN}		-	-	5	μA
(Protection Function)						
Overcurrent detection	$I_{LIMITMIN}$	$I_{CL} < I_{CLMIN}$	-	0.05	-	A
	$I_{LIMITMAX}$	$I_{CL} > I_{CLMAX}$	-	0.35	-	
Overvoltage detection	$V_{CC(0V)}$		-	20	-	V
Overheating detection	T_{OTP}		130	140	150	°C
Latch reset voltage	V_{creset}		-	3	-	V
(Output Function)						
ON resistance	$R_{DS(ON)}$	$I_D = 0.1 \text{ A}$	-	22	27	Ω
Drain leak current	I_{DSS}	$V_{DS} = 630 \text{ V}$	-	-	250	μA
Drain breakdown voltage	V_{DSS}	$I_D = 0.25 \text{ mA}$	700	-	-	V
Rise time	t_r		-	100	-	ns
Fall time	t_f		-	50	-	ns
(Supply Voltage)						
Minimum drain voltage	$V_{D(MIN)}$		50	-	-	V

■ Electrical Characteristics (With 100VAC input and 5.8V/0.7A output)



■ Application Circuit Example

