

General Description

EST.2263C is highly integrated current mode PWM control IC optimized for high performance, low standby power and cost effective offline flyback converter up to 60W output power system.

PWM switching frequency is internally fixed at 65KHz. At no load or light load condition, the IC operates in 'burst mode' to minimize switching dissipation. Therefore, lower standby power dissipation and higher conversion efficiency are achieved.

Due to very small startup current and low operating current, a big resistor can be used in the startup circuit to minimize standby power dissipation.

EST.2263C offers comprehensive protection functions, including Cycle-by-Cycle current limitation (OCP), over temperature protection (OTP), Over voltage clamp (OVP) and under voltage lockout (UVLO) on VDD. The Gate output is clamped up to 16V to protect the gate of the power MOSFET.

Application

- Cell Phone Charger
- Digital Cameras Charger
- Power adaptor
- Battery charger

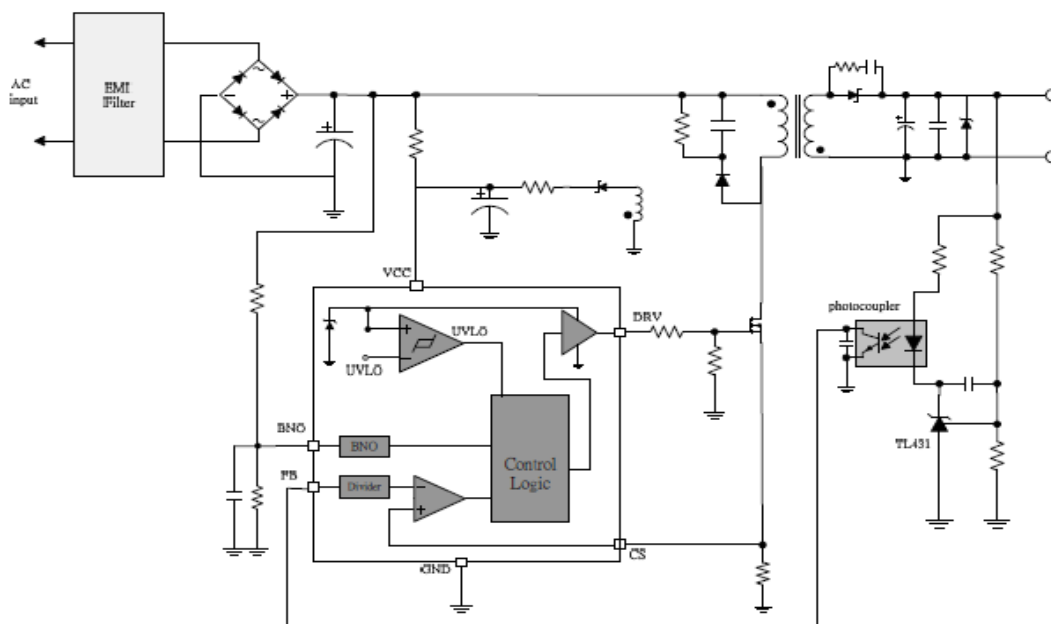
Features

- Digit frequency shuffling technology to improve EMI performance.
- Leading-edge blanking on current sense input.
- Slope compensation. Burst mode control to improve efficiency and optimize standby power dissipation.
- Low startup current and low operating current.
- Voltage clamping at gate output
- Soft-start to reduce MOSFET stress during power on.
- Comprehensive protection functions 1、 Under voltage locked with hysteresis(UVLO) on VDD 2、 Over voltage protection (OVP) on VDD.
- 3、 Cycle-by-Cycle current limitation 4、 Current limitation compensation
- to obtain the same output current in universal ac line input
- 5、 Over load protection (OLP)
- 6、 Over temperature protection (OTP)
- 300mA drive capability

Ordering Information

Order Number	Freq	Protection			Package	Top Marking	Packing
	Khz	VCCOVp	OLP	OTP			
EST2263C	65	Latch	Hiccup	Latch	DIP-8	2263C	Tube
EST2263CS	65	Latch	Hiccup	Latch	SOP-8	2263CS	Tube
EST2263CR	65	Latch	Hiccup	Latch	SOT-23-6	63CX	Reel

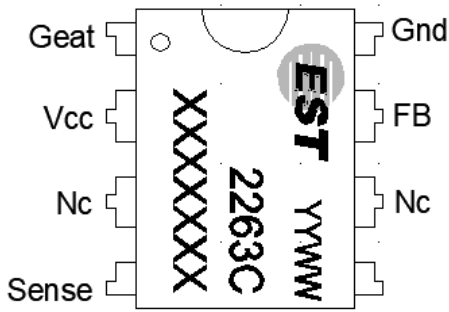
Application Circuit



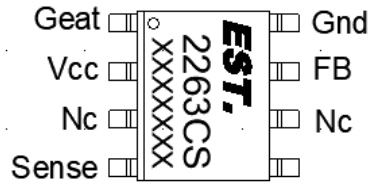
EST.2263C Green-Mode PWM Controller



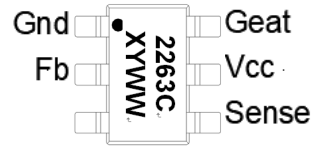
Pin Assignments and Package Type



DIP-8L



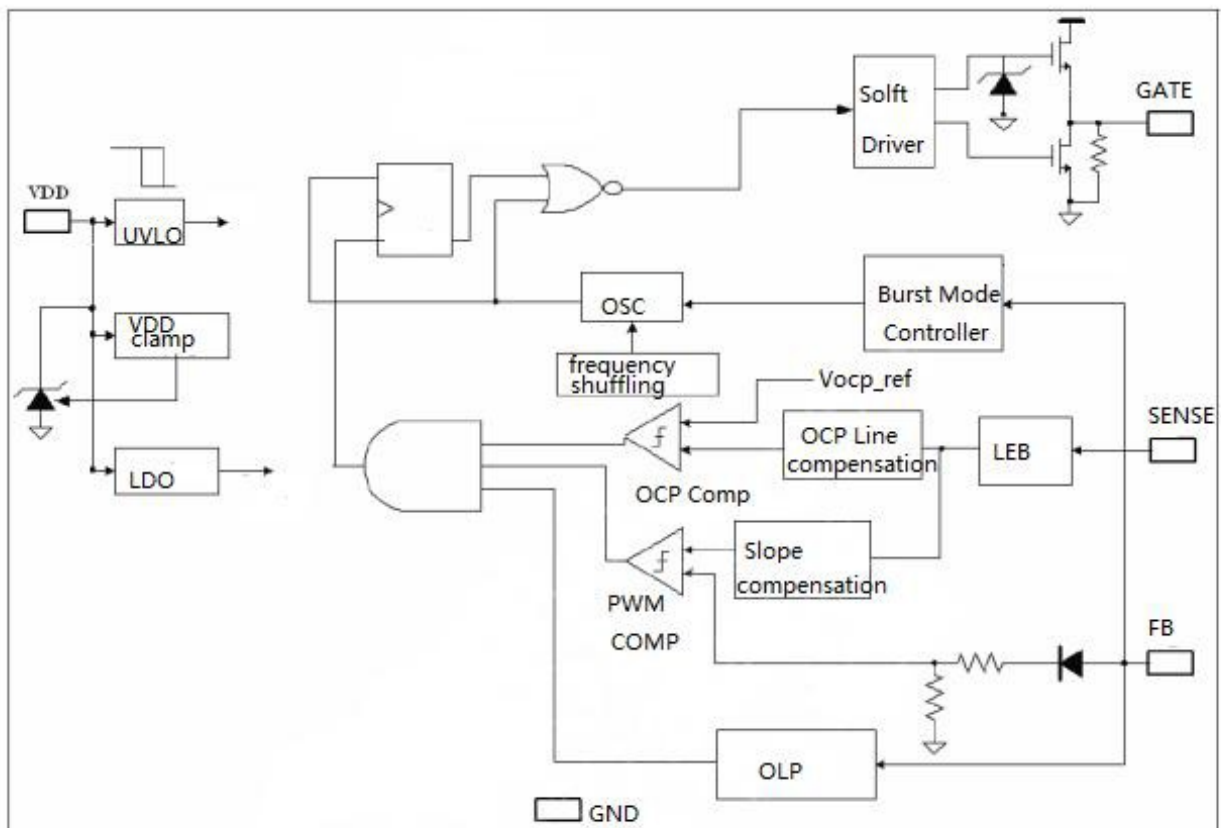
SOP-8L



SOT23-6L

SOT-23-6	DIP-8/SOP-8	NAME Description	Description
1	8	GND	Ground
2	7	FB	Voltage input pin by connecting a photo-coupler
3	5	--	---
4	4	SENSE	Current Sense input Pin
5	2	VCC	Power supply pin
6	1	DRV	Driver output to driver the external MOSFET
	3/6	NC	

Block Diagram



Absolute Maximum Ratings

Parameter	Value	Unit
VDD supply voltage	27	V
VDD clamp voltage	29	V
VDD clamp current	10	mA
VFB input voltage	-0.3 to 7	V
VSENSE input voltage to SENSE pin	-0.3 to 7	V
Min/Max operating junction temperature	-55 to 150	°C
Operating ambient temperature	-20 to 85	°C
Thermal resistance, Junction to ambient	250	°C/W

Stress beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability

Recommended Operating Conditions

Symbol	Parameter	Min. Max.	Unit
VDD	Supply Voltage Vcc	10 to 26	V
TOA	Operating Ambient Temperature	-20 to 85	°C
ESD-HM	Human Model	2	K
ESD-MM	Machine Model	150	V

DC Electrical Characteristics (VCC =15V, Ta=25°C)

Symbol	Parameter	Conditions	Value			Unit
			Min.	Typ	Max	
Supply Voltage(Vdd Pin)						
Idd_startup	VDD start up current	VDD=12.5V		3	15	uA
Idd	VDD operation current	VDD=16V FB=3V			2.3	mA
UVLO(ON)	VDD under voltage lockout enter			7.8		V
UVLO(OFF)	VDD under voltage lockout exit			13.4		V
VDD_clamp	VDD clamp voltage	Idd=10mA	32			V
Voltage Feedback (FB Pin)						
AVCS	PWM input gain	$\Delta VFB / \Delta VSENSE$		2		V/V
VFB_open	VFB open loop voltage			5.7		V
IFB_short	FB pin short current	Short FB pin to GND and measure current		0.9		mA
VFB_burst	Burst mode voltage			1.2		V
VTH_PL	Power limiting FB threshold voltage			3.7		V

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TD_PL	Power limiting delay time			120		mS
DC_MAX	Maximum duty cycle	VDD=18V, SENSE=0V FB=3V		75		%
Current Sensing (SENSE Pin)						
T_blanking	Leading-edge blanking time			250		nS
ZSENSE_IN	Input impedance			40		K Ω
VTH_sense	Over current threshold voltage			0.9		V
Oscillator						
Fosc	Normal oscillation frequency		60	65	70	Khz
Δf_{temp}	Frequency temperature stability	VDD=16V TA =-20 $^{\circ}$ C to 100 $^{\circ}$ C		5		%
Δf_{VDD}	Frequency voltage stability	VDD=12V to 25V		5		%
Fosc_BM	Burst mode base frequency			20		Khz
Δf_{OSC}	Frequency modulation range /Base frequency		-5		+5	%
Gate Drive Output						
VOL	Output low level	VDD=16V, IO=-20mA			0.8	V
VOH	Output high level	VDD=16V, IO=20mA	10			V
V_Clamp	output clamp voltage level			16		V
T_r	Output rising time	VDD=16V, CL=1nF		220		nS
T_f	Output falling time	VDD=16V, CL=1nF		70		nS

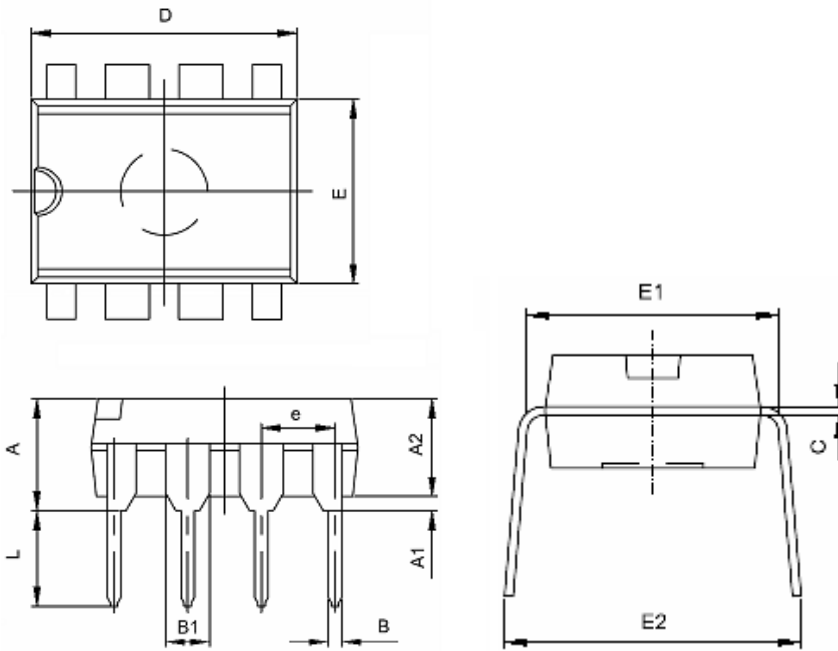
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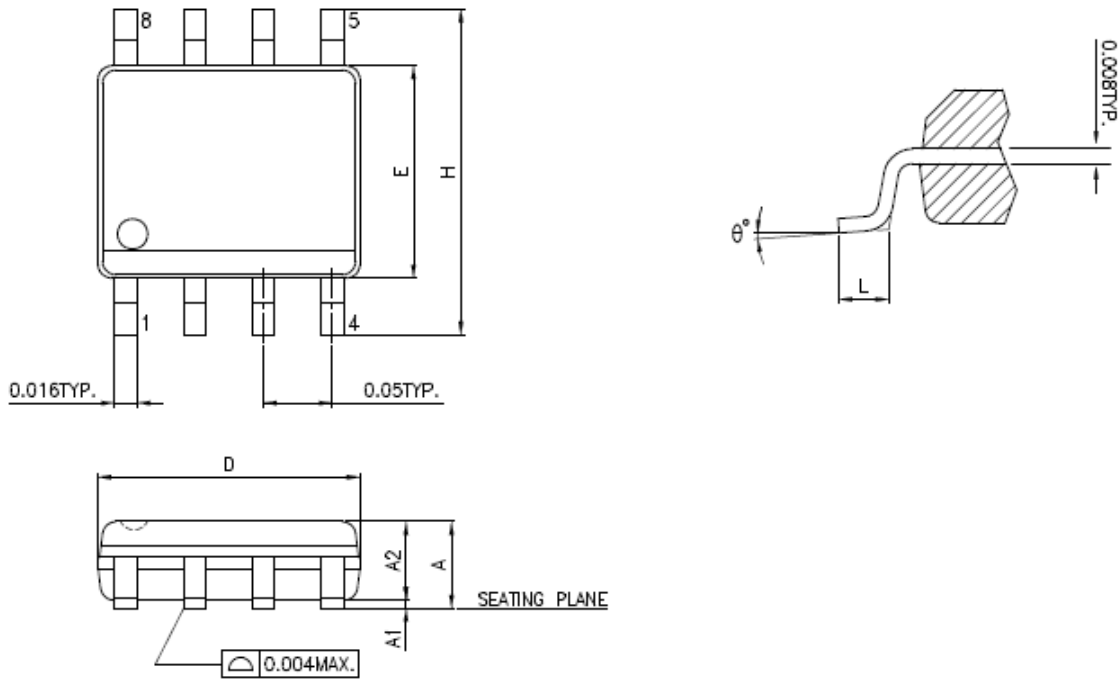
Package Information

DIP-8 Package



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.710	4.310	0.146	0.170
A1	0.510		0.020	
A2	3.200	3.600	0.126	0.142
B	0.360	0.560	0.014	0.022
B1	1.524(TYP)		0.060(TYP)	
C	0.204	0.360	0.008	0.014
D	9.000	9.400	0.354	0.370
E	6.200	6.600	0.244	0.260
E1	7.620(TYP)		0.300(TYP)	
e	2.540(TYP)		0.100(TYP)	
L	3.000	3.600	0.118	0.142
E2	8.200	9.400	0.323	0.370

SOP-8 Package (mm)



Symbols	Dimensions In Inches			Dimensions In millimeters		
	MIN.	NOR.	MAX.	MIN.	NOR.	MAX.
A	0.050	0.061	0.072	1.270	1.549	1.829
A1	0.000	-----	0.010	0.000	-----	0.254
A2	-----	-----	0.062	-----	-----	1.575
D	0.185	0.193	0.200	4.699	4.902	5.080
E	0.147	0.154	0.160	3.734	3.912	4.064
H	0.225	0.237	0.249	5.715	6.020	6.325
L	0.013	0.033	0.053	0.330	0.838	1.346
θ	0°	4°	8°	0°	4°	8°

SOT-23-6L:

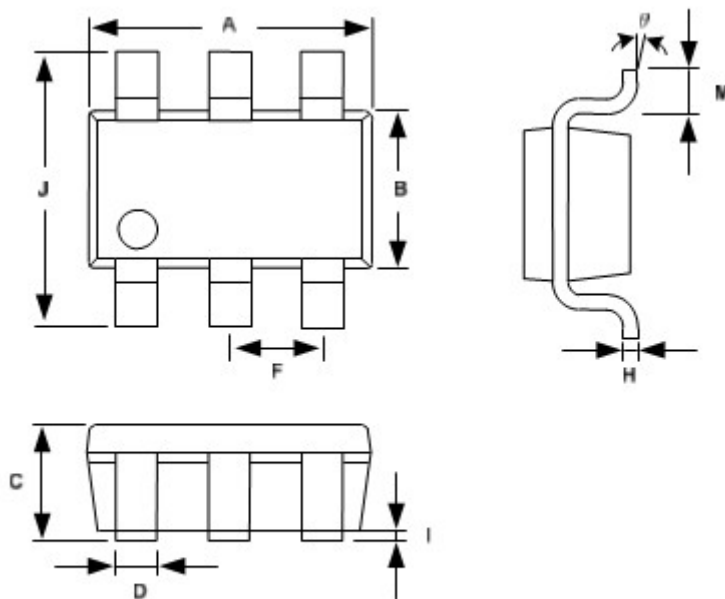
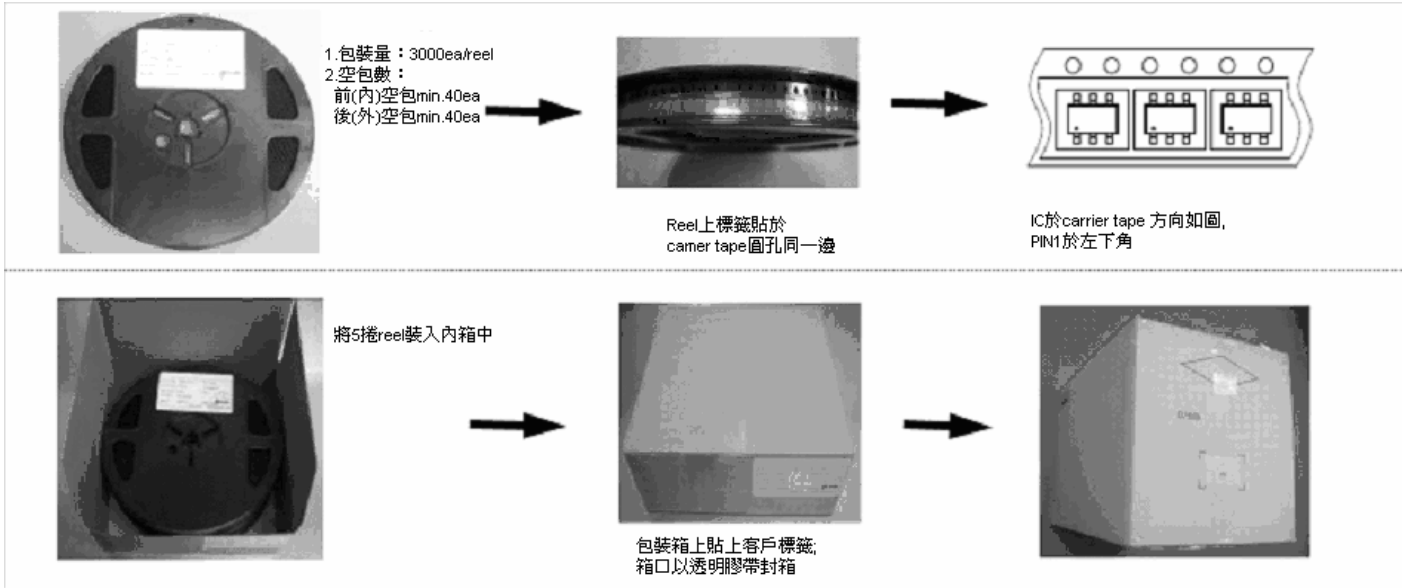


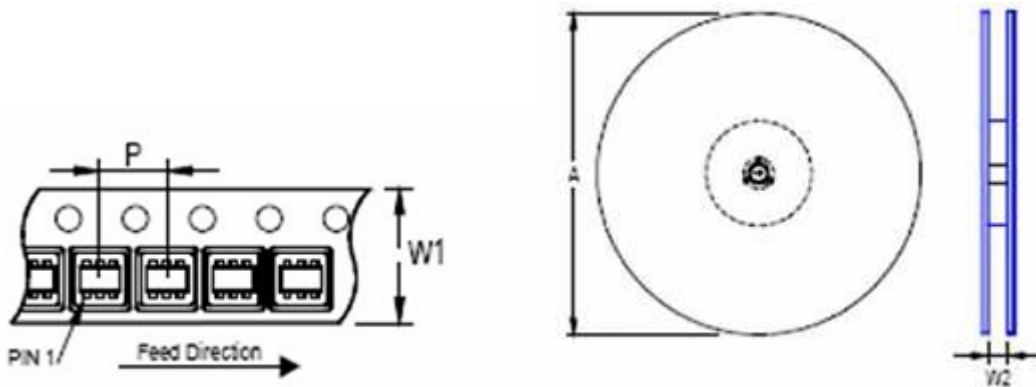
Fig 8

Symbol	Dimension in mm		Dimension in inch	
	MIN.	MAX.	MIN.	MAX.
A	2.692	3.099	0.106	0.122
B	1.397	1.803	0.055	0.071
C	-----	1.450	-----	0.057
D	0.300	0.550	0.012	0.022
F	0.838	1.041	0.033	0.041
H	0.080	0.254	0.003	0.010
I	0.050	0.150	0.002	0.006
J	2.600	3.000	0.102	0.118
M	0.300	0.600	0.012	0.024
θ	0°	10°	0°	10°

Shipping packing



Tape Reel Data



Package Type SOT-23-6	Tape Size (W1) (mm)	Pocket Pitch (P) (mm)	Reel Size (A) (mm)	Reel Width (W2) Min./Max. (mm)	Units Per Reel pcs.
6 Lead	8	4	180	8.4/9.9	3000

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Update History

Revision	Date	Update
1.00	August 26, 2015	Preliminary version