General Description

The EST1M302 is higher integrated circuit incorporates all advanced sensing function to control the output current.

The EST1M302 integrates three groups of the OCP (Over Current Protection) which has a OVP (Over Voltage Protection), functions with related lockout to protect system. If there is no power input to VCC pin , all the state of protection functions will reset and the system will auto-recovery.

The EST1M302 also provides a voltage control function which could regulate the output voltage easily.

Features

- SPS CCCV controller
- CMOS output stage
- 2-OCPs/OVP latch/auto-recovery function
- Low operation current

Application

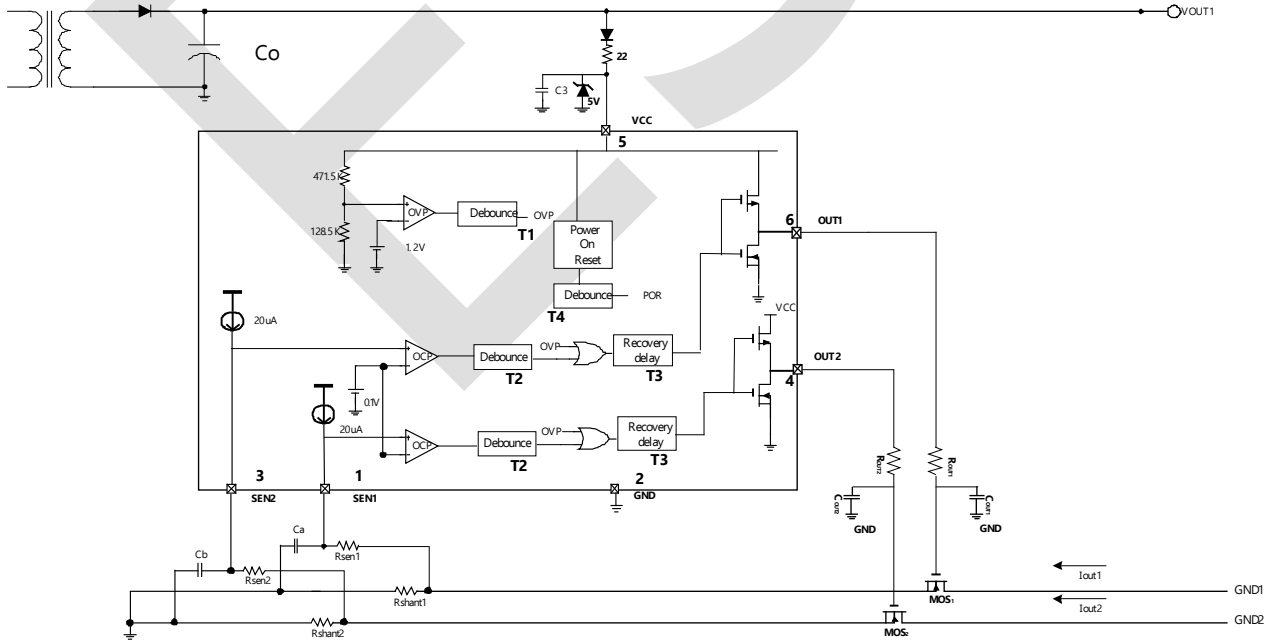
- Battery chargers
- AC-DC adaptor

Ordering Information

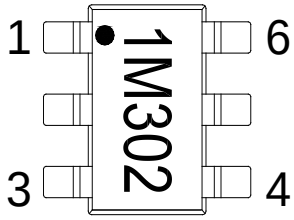
Order Number	Package	Packaging	Note
EST1M302	SOP-23-6	Tube	Tube or Tape&Reel

Note: Infinno lead-free products contain molding compounds/die attach materials and 100% matte tin plate termination finish; which are fully compliant with RoHS. Infinno lead-free products meet or exceed the lead-free requirements of IPC/JEDEC J-STD-020C for MSL classification at lead-free peak reflow temperature. Infinno defines “Green” to mean lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500ppm by weight).

Application Circuit



Pin Assignments and Package Type



Designation	No.	I/O	Description
SEN1	1	I	OCP negative and comparator negative terminal input 1
GND	2	I	IC Ground, OCP positive and comparator positive terminal input
SEN2	3	I	OCP negative and comparator negative terminal input 2
OUT2	4	O	Power MOS control pin2
VCC	5	I	Power supply input pin
OUT1	6	O	Power MOS control pin1

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Storage Temperature (Tstg)	---	-40 to 140	℃
Operating Temperature (Topr)	---	-25 to 125	℃
Junction Temperature (Tj)	---	150	℃
Supply Voltage (VCC)	VCC	-0.5 to 6	V
Input Voltage Range (VI)	GND, SEN1, SEN2,	-0.5 to 6	V
Output Voltage Range (VO)	OUT1,OUT2	-0.5 to 25	V
Power Dissipation	PD	800	V
Thermal Resistance	θJA	85/DIP, 150/SOP	mW
ESD	VESD	2000	℃/W
Storage Temperature (Tstg)	VCC	-40 to 140	V

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 reliablity

DC Electrical Characteristics (VCC =12V, Ta=25°C)

Input Power Supply:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Supply Voltage	VCC	3.0	5	5.8	V	
Supply Current	Icc		0.25	0.4	mA	Standby mode
Reset Threshold Voltage	VIH	2.6	2.8	3.1	V	HIGH □ LOW

Over-current protection:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Offset Voltage	VOS	-2	0	2	mV	
ISINK Pin Drive Current	IS	19.5	20	20.5	uA	

Output Voltage Protection:

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Over Volatge Protection	OVP	5.4	5.5	5.6	V	
Over Volatge Protection	Hysis		200		mV	OVP Auto-recovery Threshold

Out, CMOS Driver Output

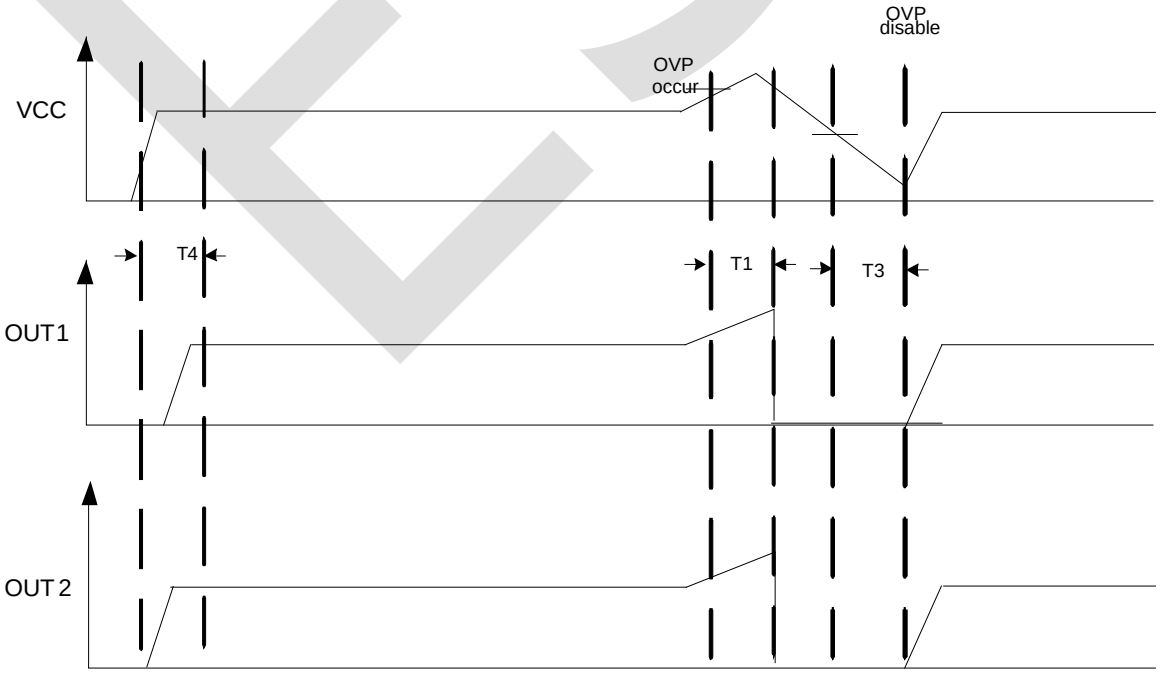
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Driver source current	I_{OH}			VCC-0.3	V	Pin-VCC Voltage
Driver sink current	V_{OL}			0.3	V	OVP Auto-recovery Threshold

AC Electrical Characteristics (Vcc=5V, Ta=25℃)

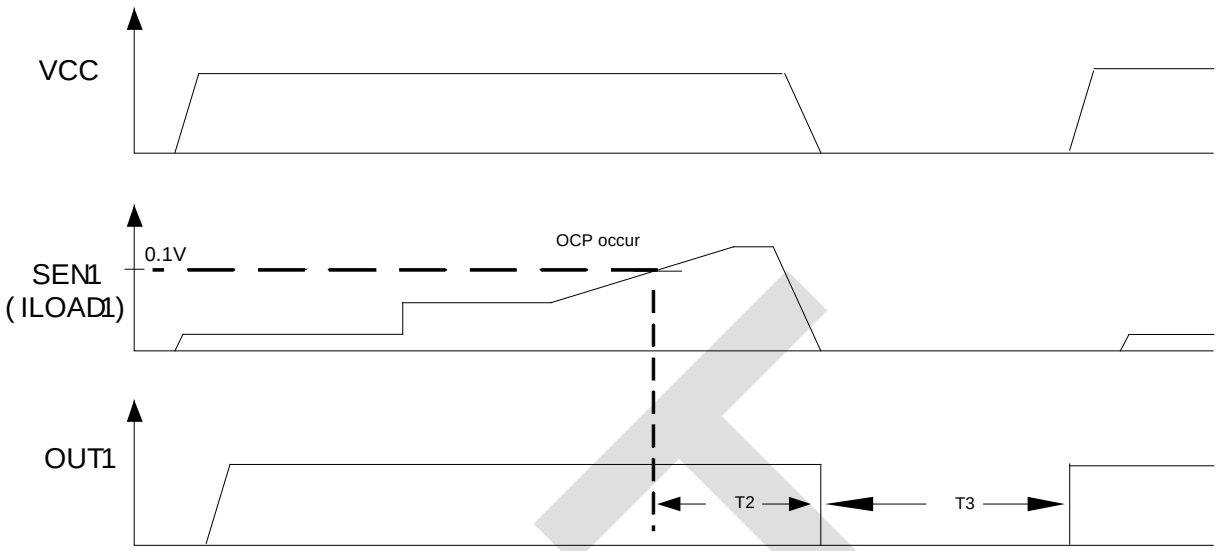
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Over Voltage Protection de-bounce	T1	58	73	88	uS	
Over Current Protection delay time	T2	30	40	50	mS	
Fault auto-recovery time	T3	300	500	700	mS	OUT1,2 High To Low
Power on reset delay time	T4	16	20	24	mS	VCC>VPOR

Time Chart

OVP Latch Function



OCP Latch Function:

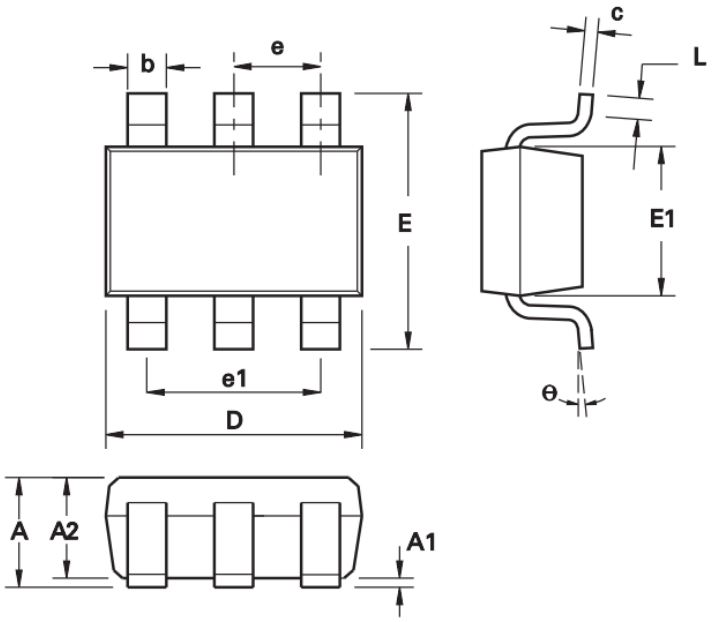


Output voltage section, the output voltage is follow equation1:

$$I_{protection} = \frac{100mV - R_{sen} * 20uA}{R_{mos}} \text{ (uA)} \qquad \text{.....(1)}$$

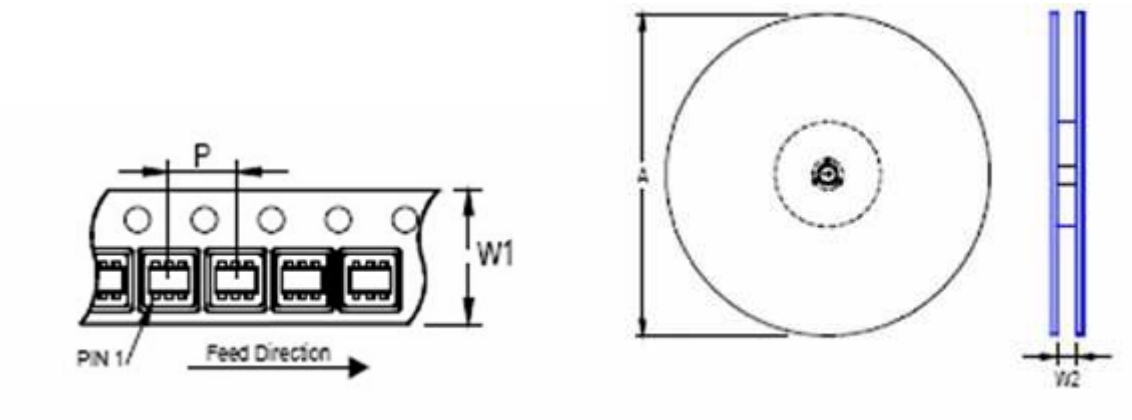
Package Information

SOT23-6



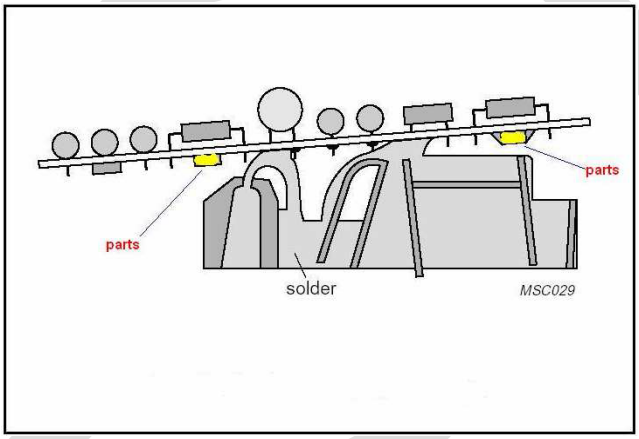
DIM	Millimeters	
	Min.	Max.
A	0.90	1.45
A1	0.00	0.15
A2	0.90	1.30
b	0.20	0.50
C	0.09	0.26
D	2.70	3.10
E	2.20	3.20
E1	1.30	1.80
e	0.95 REF	
e1	1.90 REF	
L	0.10	0.60
a°	0°	30°

TAPE REEL DATA

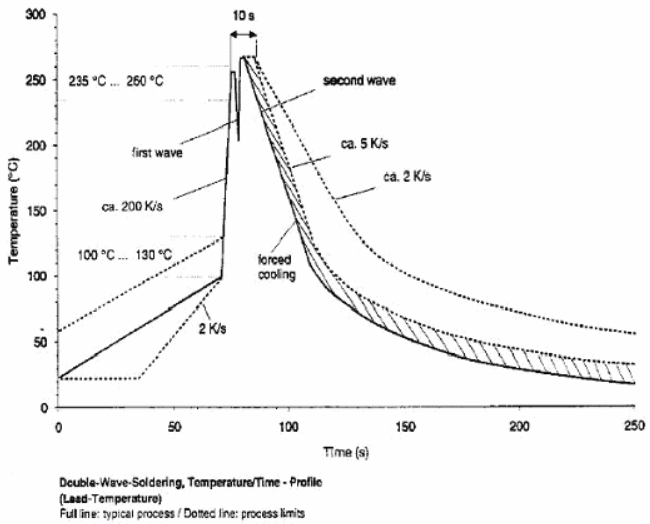


Package Type SOT-26	Tape Size (W1) (mm)	Pocket Pitch (P) (mm)	Reel Size (A) (mm)	Reel Width (W2) Min./Max. (mm)	Units Per Reel pcs.
6 Lead	8	4	180	8.4/9.9	3000

WAVE SOLDERING PROCESS



WAVE SOLDERING PROFILE



Double-Wave-Soldering, Temperature/Time - Profile
(Lead-Temperature)
Full line: typical process / Dotted line: process limits

Update History

Revision	Date	Update
1.00	2015-3-7	Preliminary version