Driver IC for Vibrators
Monolithic IC MM1426

Outline

This IC was developed as a driver for vibrator motors, and has an output voltage set at 1.3V.
The input voltage is monitored, and if a constant voltage is not input the output is turned off.

Features

1. Compact package for small mounting area.
2. In addition to output control through the input voltage, the IC can be turned on and off through the CONT pin.
3. Good ripple rejection.
4. Output currents of up to 150mA.
5. Operating voltage of up to 12V.
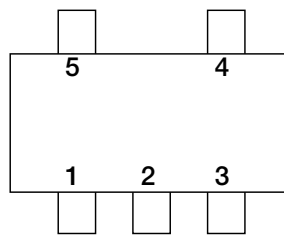6. Output voltage is available in 0.1V steps from 1.2V to 2.0V.

Package

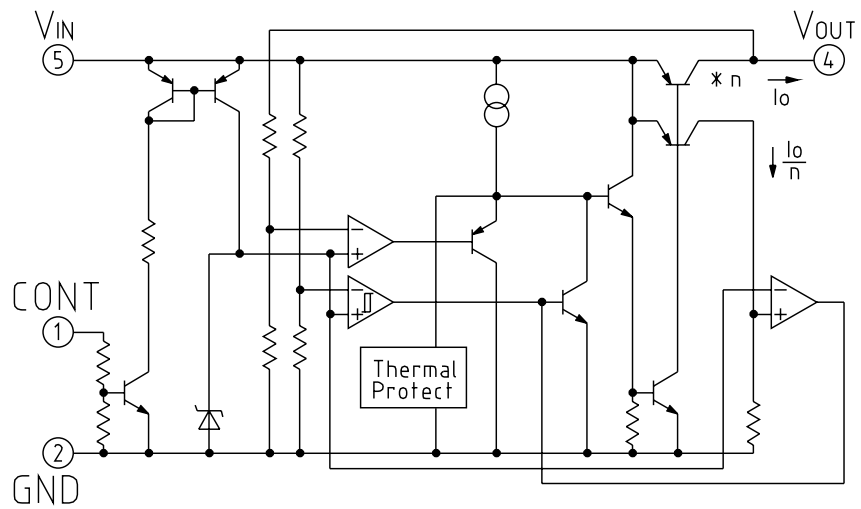SOT-25A

Applications

Cellular phones, PHS, game, pagers.

Pin Assignment

1	CONT
2	GND
3	N.C
4	V_{OUT}
5	V_{IN}

SOT-25

Equivalent Circuit Diagram

Pin Description

Pin No.	Pin name	Functions	Equivalent circuit diagram
1	CONT	Output voltage on/off-control pin <table><tr><td>V_{CONT}</td><td>Output</td></tr><tr><td>L</td><td>OFF</td></tr><tr><td>H</td><td>ON</td></tr></table> Connect cont-terminal with V_{IN}, when it is not used.	CONT 300k 400k
2	GND	GND pin	
3	N.C		
4	V_{OUT}	Regulator Output pin	
5	V_{IN}	Voltage-supply input pin. Output voltage is not output when input voltage is less than input voltage detection value. Note that consumption current flows even when output voltage is OFF due to input voltage detection. Turn output OFF with the CONT pin in order to suppress consumption current completely.	

Absolute Maximum Ratings

Item	Symbol	Ratings	Unit
Operating temperature	T_{OPR}	−20~+75	°C
Storage temperature	T_{STG}	−40~+125	°C
Supply voltage	V_{CC}	−0.3~+12	V
Output current	I_{OUT}	200	mA
Power dissipation	Pd	150 (Alone)	mW

Recommended Operating Conditions

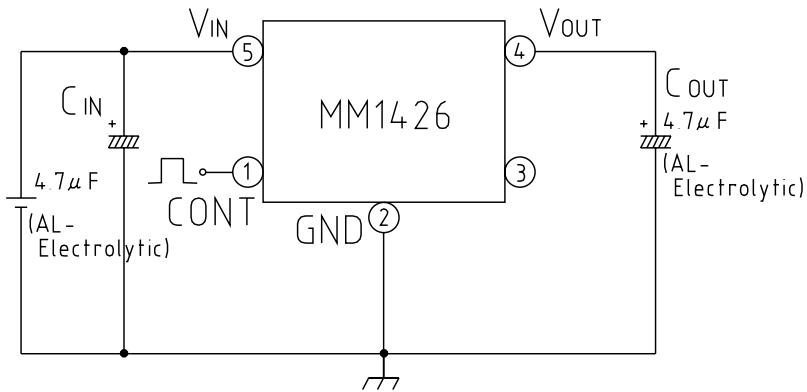| Item	Symbol	Ratings	Unit
Operating temperature	T_{OPR}	−20~75	°C
Output current	I_{OP}	0~150	mA
Operating voltage	V_{OP}	1.8~12	V

Electrical Characteristics (Except where noted otherwise, Ta=25°C)

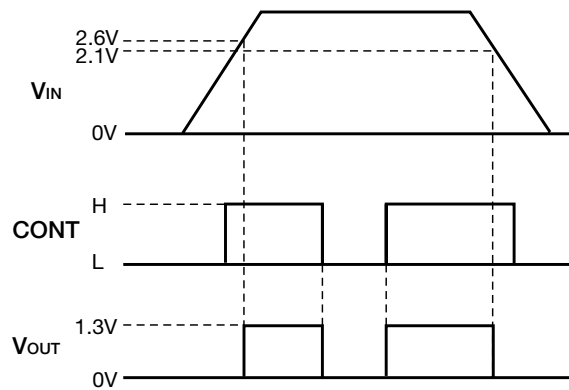| Item	Symbol	Measurement conditions	Min.	Typ.	Max.	Unit
Output voltage	Vo	V_{IN}=3.5V Io=30mA	−3%	Vo	+3%	V
No-Load input current	Iccq1	V_{IN}=3.5V Io=0mA		120	240	µA
Input current 1 (OFF)	Iccq2	V_{IN}=1.8V V_{CONT}=1.6V		80	160	µA
Input current 2 (OFF)	Iccq3	V_{IN}=3.5V V_{CONT}=0V			0.1	µA
Line regulation	△V1	V_{IN}=3V~5V Io=30mA		10	20	mV
Load regulation	△V2	V_{IN}=3.5V Io=0~100mA		30	60	mV
Vo temperature coefficient	△Vo/△T	Tj=−20~+75°C V_{IN}=3.5V Io=30mA		100		ppm/°C
Ripple rejection	RR	V_{IN}=3.5V f=120Hz V_{RIPPLE}=1Vp-p, Io=30mA	55	70		dB
V_{IN} low detector voltage	VsL	V_{IN}=H→L Io=30mA	2.0	2.1	2.2	V
V_{IN} low detector voltage temperature coefficient	△VsL/△T	Tj=−20~+75°C V_{IN}=H→L Io=30mA		200		ppm/°C
V_{IN} high detector voltage	VsH	V_{IN}=L→H Io=30mA		2.6	2.8	V
High threshold voltage	Vonh	V_{IN}=H→L, L→H		500		mV
Cont terminal current	I_{ON}	V_{CONT}=1.6V		5	10	µA
High threshold voltage	H		1.6		V_{IN}+0.3	V
Low threshold voltage	L		−0.3		0.4	V

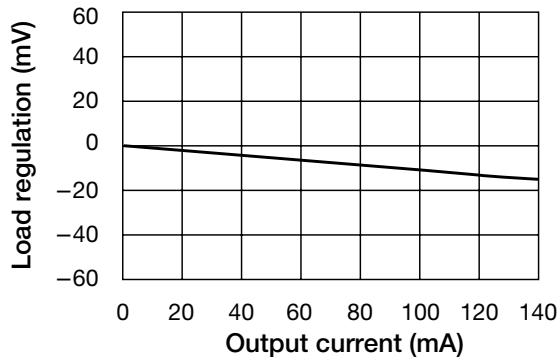## Measuring Circuit

Application Circuits

NOTE 1 : This regulator is not internally compensated and thus requires an external output-capacitor (C$_{OUT}$) for stability.
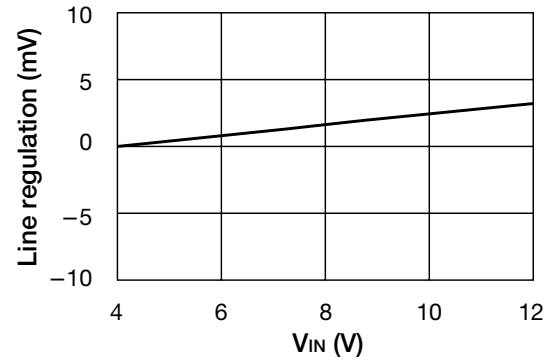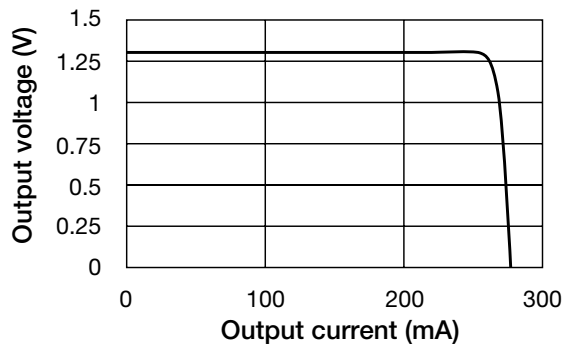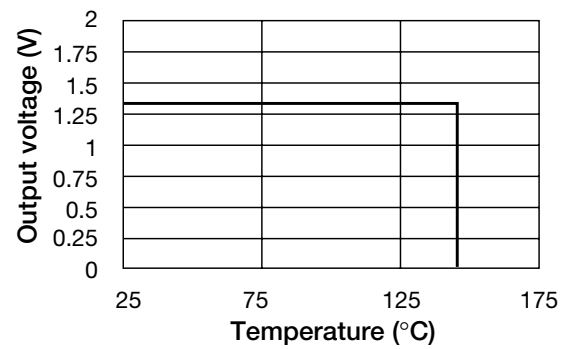
Timing Chart

Characteristics

■ Load regulation

Load regulation (mV) vs Output current (mA)

■ Line regulation

Line regulation (mV) vs V_IN (V)

■ Current limit

Output voltage (V) vs Output current (mA)

■ Thermal shutdown

Output voltage (V) vs Temperature (°C)

■ Allowable loss

Allowable loss (mW) vs Temperature (°C)

- - - - - Alone

——— On Board
57x31x0.8mm