

To all our customers

Regarding the change of names mentioned in the document, such as Mitsubishi Electric and Mitsubishi XX, to Renesas Technology Corp.

The semiconductor operations of Hitachi and Mitsubishi Electric were transferred to Renesas Technology Corporation on April 1st 2003. These operations include microcomputer, logic, analog and discrete devices, and memory chips other than DRAMs (flash memory, SRAMs etc.) Accordingly, although Mitsubishi Electric, Mitsubishi Electric Corporation, Mitsubishi Semiconductors, and other Mitsubishi brand names are mentioned in the document, these names have in fact all been changed to Renesas Technology Corp. Thank you for your understanding. Except for our corporate trademark, logo and corporate statement, no changes whatsoever have been made to the contents of the document, and these changes do not constitute any alteration to the contents of the document itself.

Note : Mitsubishi Electric will continue the business operations of high frequency & optical devices and power devices.

Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

PRELIMINARY

MITSUBISHI<Standard LinearICs>

M62525FP

HIGH PRECISION LOW INPUT/OUTPUT DIFFERENTIAL(3.3V, 2.5V)
FIXED OUTPUT VOLTAGE REGULATOR WITH RESET

DESCRIPTION

M62525FP is a monolithic integrated circuit integrating 2ch regulator and reset IC targeted for printer, CD-ROM, CD-R, and the other OA equipments. This device has 2 regulators with high precision output, low input/output differential, high current capability, and high ripple rejection ratio. Compact application design is made easy by small 16pin package.

FEATURES

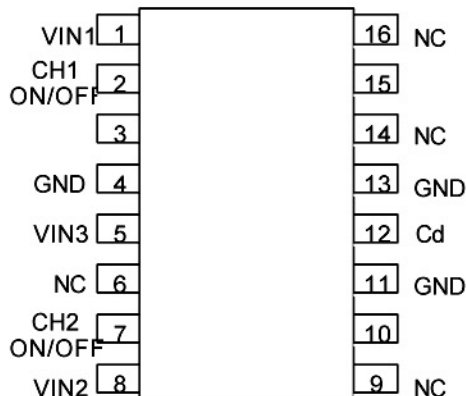
- *High precision output voltage: $3.3V \pm 2\%$ (CH1), $2.5V \pm 2\%$ (CH1)
- *High output current: 300mA(max.) for each channel
- *High ripple rejection ratio: 80dB(typ.)
- *Low input/output differential: 0.3V(typ.) (IL=150mA)
- *Small limiting current due to shorted loads by drooping fold-back protection: 50mA(typ.)
- *Load regulation: 20mV(typ.)
- *ON/OFF control available for regulator output
- *Non-adjustment for reset detection voltage: $4.0V \pm 2\%$
- *Reset: monitors input voltage 5V

APPLICATION

OA equipments such as printer, CD-ROM, and so forth

Some parametric limits are subject to change.

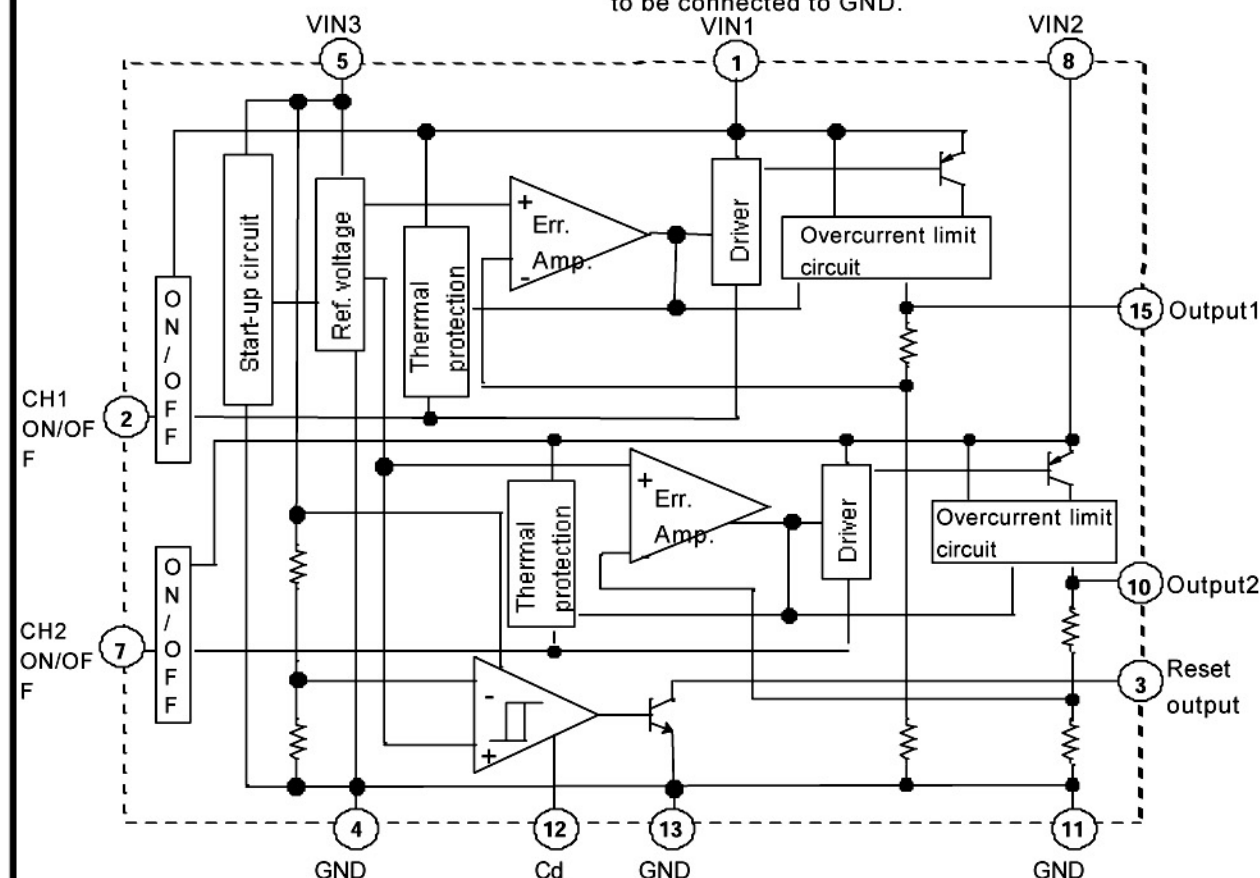
PIN CONFIGURATION(TOP VIEW)



Outline 16P2N-A

Note: Same voltage should be applied to VIN1, VIN2, and VIN3.

GND terminals(4pin, 11pin, 14pin) should be put together to be connected to GND.



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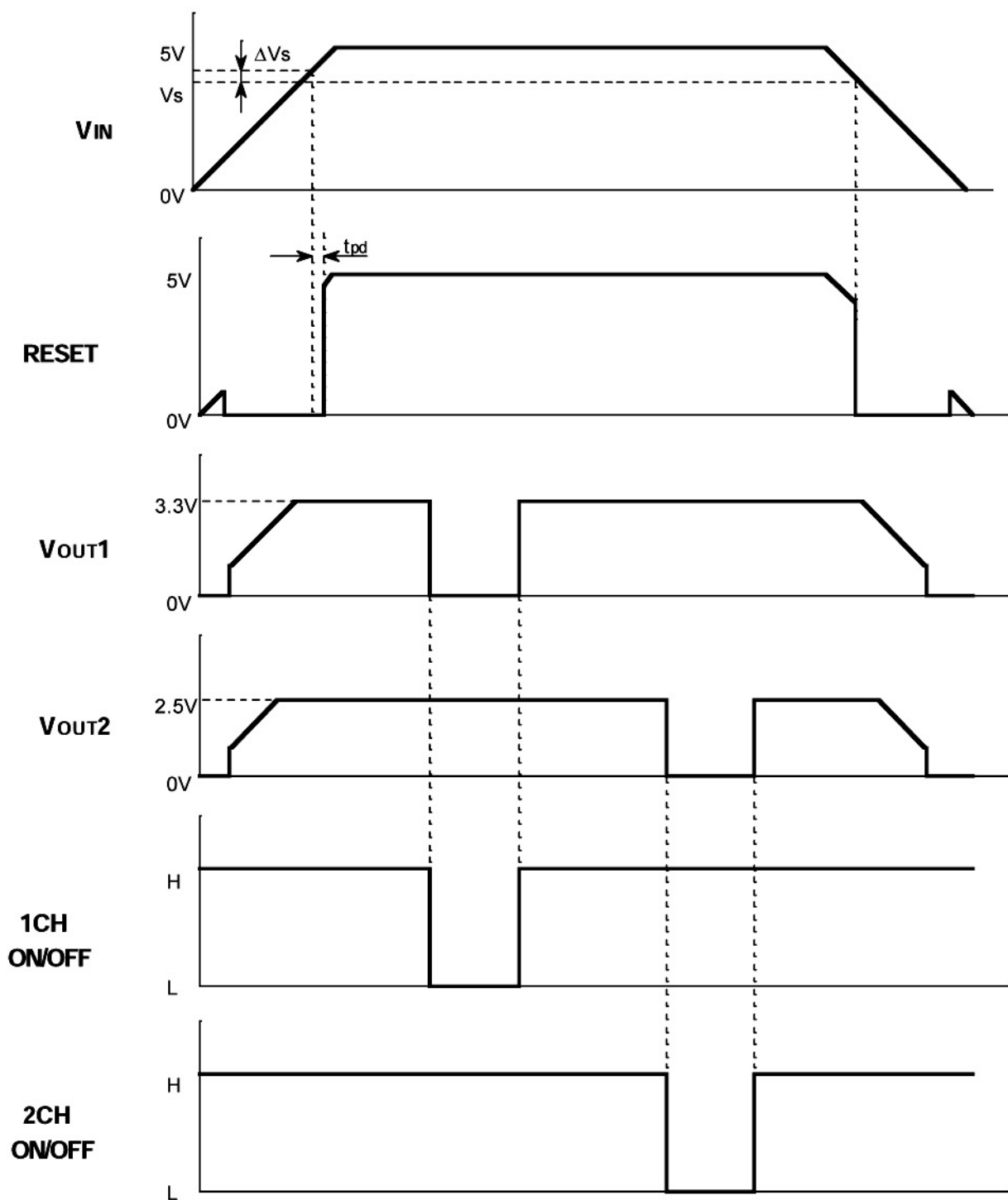
ABSOLUTE MAXIMUM RATINGS(Ta=25°C,unless otherwise noted.)

Symbol	Parameter	Condition	Ratings	Unit
V _{IN}	Input voltage		-0.3~9	V
I _L	Load current *1		300	mA
P _d	Power dissipation		790	mW
K _θ	Thermal derating ratio	Ta>25°C	6.32	mW/°C
T _{opr}	Operating temperature		-20~+75	°C
T _{stg}	Storage temperature		-40~+150	°C

ELECTRICAL CHARACTERISTICS(Ta=25°C, V_{IN}=5V, C_I=10μF, Co1=Co2=47μF, unless otherwise noted.)

BLOCK	Symbol	Parameter	Test conditions	Limits			Unit
				Min.	Typ.	Max.	
All device	V _{IN}	Supply voltage range		V _{OUT1} +0.3		8	V
	I _{CC1}	Circuit current	I _L =0mA		2.2		mA
	I _{CC2}	Circuit current at OFF	V _{ON} /OFF1,V _{ON} /OFF2=0V		500		μA
Regulator	V _{OUT1}	Output voltage(1ch)		3.234	3.3	3.366	V
	V _{OUT2}	Output voltage(2ch)		2.45	2.5	2.55	
	V _{IO}	Input/output differential	I _L =150mA		0.3		V
	Reg-IN	Input regulation	V _{IN} =4.4V~5.5V,I _L =30mA		10		mV
	Reg-L1	Load regulation(1ch)	I _{L1} =0mA~250mA		20		mV
	Reg-L2	Load regulation(2ch)	I _{L2} =0mA~250mA		20		mV
	V _{NO}	Output noise voltage	BW=10Hz~100KHz		40	120	μVrms
	RR	Ripple rejection ratio	vin=0dBm,f=120Hz,I _L =30mA	60	80		dB
	I _{OS}	Output short holding current			50		mA
	TCVO	Output voltage temp.coefficient	Ta=-20~75°C, I _L =30mA		0.2		mV/°C
Reset	V _S	Detection voltage		3.92	4.0	4.08	V
	ΔV _S	Hysteresis voltage		100	150	200	mV
	t _{pd}	Delay time	C _d =0μF		30	90	μs
			C _d =0.1μF		23		ms
	V _{SAT}	Output saturation voltage	V _{IN} =3.5V, I _{SINK} =1mA		0.2	0.4	V
ON/OFF control	V _{OPL}	Threshold operating voltage	L reset type minimum supply voltage for IC operation	RL=2.2kΩ V _{SAT} ≤0.4V	0.7	0.8	V
				RL=100kΩ V _{SAT} ≤0.4V	0.6	0.7	
	V _{ON}	ON threshold voltage		1.6		V _{IN} +0.3	V
	V _{OFF}	OFF threshold voltage		-0.3		0.4	V

TIMING CHART

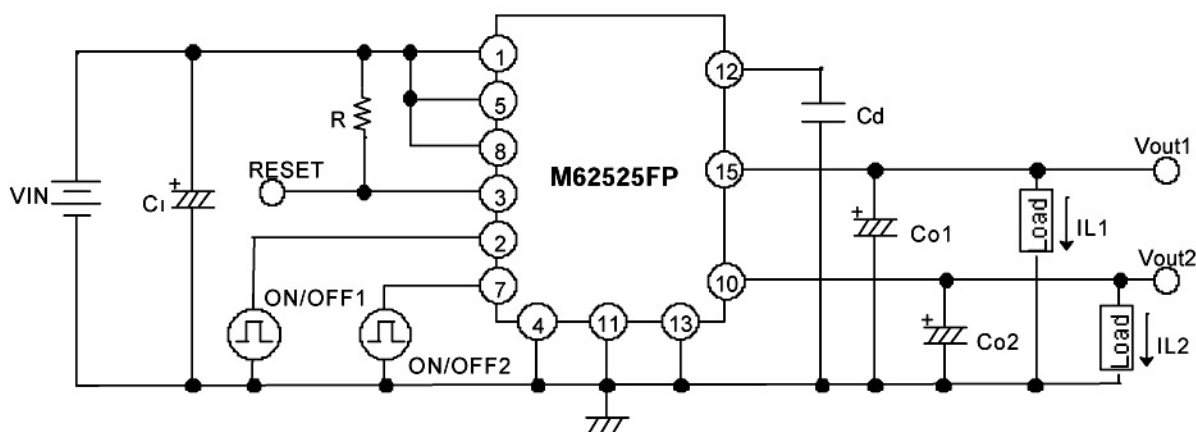


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STANDARD CONNECTIONS



Note1. R is a pull-up resistance for reset terminal. 2.2k Ω is recommended for the value.

Note2. C1 works for stabilizing input voltage. Recommended value is 10 μ F.

Note3. Co works for preventing the output voltage from oscillation. Minimum value is 10 μ F.
Recommended value is 47 μ F.

Note4. Delay time for reset is changeable by the capacitance connected to Cd terminal.
Even when no capacitor is connected, 30 μ sec.(typ.) delay time is available.
Below shows how to set the delay time.

$$\text{Delay time: } T_{pd}(\text{ms}) = 0.23 \times C_d(\mu\text{F})$$

Example: when 0.1 μ F is connected to Cd terminal.

$$\begin{aligned} T_{pd}(\text{ms}) &= 0.23 \times 0.1(\mu\text{F}) \\ &= 23(\text{ms}) \end{aligned}$$

Note5. Connect ON/OFF terminal and VIN when ON/OFF function is not needed.

Note6. Get the capacitors close to IC terminals in case the operation is not stabilized by the wiring resistance between each capacitor and IC terminals.