

# SI-3000KWM Series 2-Output, Surface-Mount, Low Dropout Voltage Linear Regulator IC

## ■Features

- Compact surface-mount package (SOT252-5)
- Output current: 1.0A × 2
- Low dropout voltage:  $V_{DIF} \leq 0.6V$  (at  $I_o = 1A$ )
- Built-in overcurrent and thermal protection circuits

## ■Applications

- Secondary stabilized power supply (local power supply)

## ■Absolute Maximum Ratings

( $T_a=25^\circ C$ )

Parameter	Symbol	Ratings		Unit
		SI-3002KWM/SI-3003KWM		
DC Input Voltage	$V_{IN}^{*1}$	18		V
Output Control Terminal Voltage	$V_c$	6		V
Output Current <sup>*1</sup>	$I_{o1}$	1.0		A
	$I_{o2}$	1.0		
Power Dissipation (with two outputs ON)	$P_D^{*2}$	1		W
Junction Temperature	$T_j$	-30 to +125		$^\circ C$
Operating Ambient Temperature	$T_{op}$	-30 to +85		$^\circ C$
Storage Temperature	$T_{stg}$	-40 to +125		$^\circ C$
Thermal Resistance (Junction to Ambient Air)	$\theta_{j-a}$	95		$^\circ C/W$
Thermal Resistance (Junction to Lead)	$\theta_{j-c}$	6		$^\circ C/W$

\*1:  $V_{IN}$  (max),  $I_{o1}$  (max) and  $I_{o2}$  (max) are restricted by the relation  $P_D = (V_{IN} - V_{O1}) \times I_{O1} + (V_{IN} - V_{O2}) \times I_{O2}$ .

\*2: When mounted on glass-epoxy board of  $30 \times 30mm^2$  (copper laminate area 4.3%)

Thermal protection may operate when the junction temperature exceeds 135 $^\circ C$ .

## ■Electrical Characteristics

Parameter	Symbol	Ratings						Unit	
		SI-3002KWM			SI-3003KWM				
		min.	typ.	max.	min.	typ.	max.		
Output Voltage	$V_{O1}$	3.234	3.300	3.366	2.450	2.500	2.550	V	
	Conditions	$V_{IN}=5V, I_o=10mA$			$V_{IN}=3.3V, I_o=10mA$				
	$V_{O2}$	2.450	2.500	2.550	1.764	1.800	1.836		
	Conditions	$V_{IN}=5V, I_o=10mA$			$V_{IN}=3.3V, I_o=10mA$				
Line Regulation	$\Delta V_{OLINE1}$			20			20	mV	
	Conditions	$V_{IN}=4.5$ to 10V, $I_o=10mA$			$V_{IN}=3.2$ to 5V, $I_o=10mA$				
	$\Delta V_{OLINE2}$			20			20		
	Conditions	$V_{IN}=4.5$ to 10V, $I_o=10mA$			$V_{IN}=3.2$ to 5V, $I_o=10mA$				
Load Regulation	$\Delta V_{OLOAD1}$			30			30	mV	
	Conditions	$V_{IN}=5V, I_o=0$ to 1A			$V_{IN}=3.3V, I_o=0$ to 1A				
	$\Delta V_{OLOAD2}$			30			30		
	Conditions	$V_{IN}=5V, I_o=0$ to 1A			$V_{IN}=3.3V, I_o=0$ to 1A				
Dropout Voltage	$V_{DIF1}$			0.6			0.6	V	
	Conditions	$I_o=1A$			$I_o=1A$				
Temperature Coefficient of Output Voltage	$\Delta V_{O1}/\Delta T_a$		$\pm 0.3$			$\pm 0.3$		mV/ $^\circ C$	
	Conditions	$T_j=0$ to 100 $^\circ C$			$T_j=0$ to 100 $^\circ C$				
	$\Delta V_{O2}/\Delta T_a$		$\pm 0.3$			$\pm 0.3$			
	Conditions	$T_j=0$ to 100 $^\circ C$			$T_j=0$ to 100 $^\circ C$				
Ripple Rejection	$R_{REJ1}$		60			60		dB	
	Conditions	$V_{IN}=5V, f=100$ to 120Hz			$V_{IN}=3.3V, f=100$ to 120Hz				
	$R_{REJ2}$		60			60			
	Conditions	$V_{IN}=5V, f=100$ to 120Hz			$V_{IN}=3.3V, f=100$ to 120Hz				
Overcurrent Protection Starting Current <sup>*1</sup>	$I_{S1 1}$	1.2			1.2			A	
	Conditions	$V_{IN}=5V$			$V_{IN}=3.3V$				
	$I_{S1 2}$	1.2			1.2				
Quiescent Circuit Current	$I_q$		1	1.5		1	1.5	mA	
	Conditions	$V_{IN}=5V, I_o=0A, V_c=2V$			$V_{IN}=3.3V, I_o=0A, V_c=2V$				
Circuit Current at Output OFF	$I_q(OFF)$			0.5			0.5	mA	
	Conditions	$V_{IN}=5V, V_c=0V$			$V_{IN}=3.3V, V_c=0V$				
VC Terminal	Control Voltage (Output ON) <sup>*2</sup>	$V_c, IH$	2		2			V	
	Control Voltage (Output OFF)	$V_c, IL$					0.8	V	
	Control Current (Output ON)	$I_c, IH$			5			5	$\mu A$
	Control Current (Output OFF)	$I_c, IL$	-100			-100			$\mu A$
	Conditions	$V_c=2.7V$			$V_c=2.7V$				
	Conditions	$V_c=0.4V$			$V_c=0.4V$				

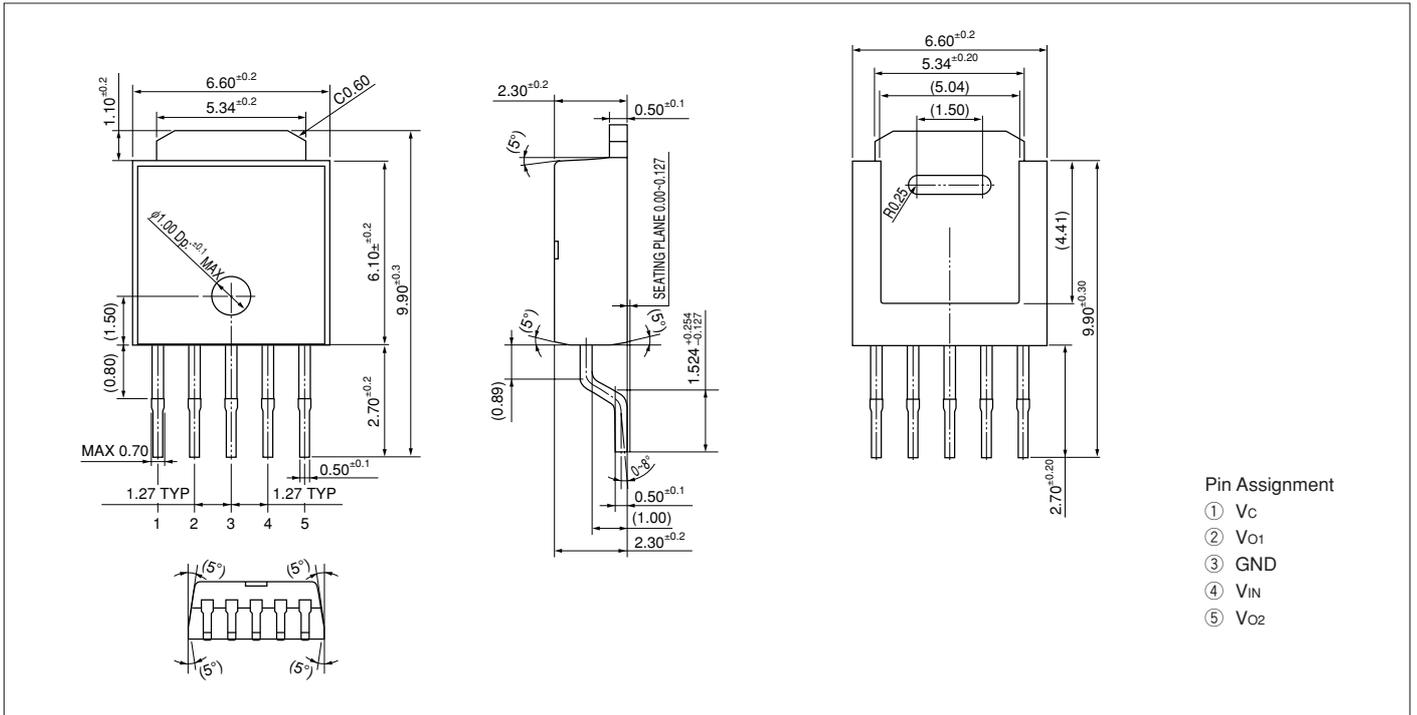
\*1:  $I_{S1 1}$  and  $I_{S1 2}$  are specified at the 5% drop points of output voltages  $V_{O1}$  and  $V_{O2}$  on the condition that  $V_{IN}$  = the condition of protection starting current,  $I_o = 10 mA$ .

\*2: Output is OFF when the output control terminal  $V_c$  is open. Each input level is equivalent to LS-TTL. Therefore, the devices can be driven directly by LS-TTLs.

Channels 1 and 2 are turned on or off at the same time.

External Dimensions

(Unit : mm)



Block Diagram

