

SI-3000KWF Series 2-Output, Low Dropout Voltage Linear Regulator IC

■Features

- Compact full-mold package (equivalent to TO220F)
- 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°C)

Parameter	Symbol	Ratings	Unit
		SI-3002KWF/SI-3003KWF	
DC Input Voltage	V_{IN}^{*1}	18	V
Output Control Terminal Voltage	V_c	6	V
Output Current ^{*1}	I_{O1}	1.0	A
	I_{O2}	1.0	
Power Dissipation (with two outputs ON)	P_D^{*2}	14	W
Junction Temperature	T_j	−30 to +125	°C
Operating Ambient Temperature	T_{op}	−30 to +85	°C
Storage Temperature	T_{stg}	−40 to +125	°C
Thermal Resistance (Junction to Ambient Air)	θ_{j-a}	66.7	°C/W
Thermal Resistance (Junction to Lead)	θ_{j-c}	7	°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: T_C = 25°C (With infinite heatsink)

Thermal protection may operate when the junction temperature exceeds 135°C.

■Electrical Characteristics

Parameter		Symbol	Ratings						Unit
			SI-3002KWF			SI-3003KWF			
			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		ΔV _{OLINE1}			20			20	mV
		Conditions	V _{IN} =4.5 to 10V, I _o =10mA			V _{IN} =3.2 to 5V, I _o =10mA			
		ΔV _{OLINE2}			20			20	
		Conditions	V _{IN} =4.5 to 10V, I _o =10mA			V _{IN} =3.2 to 5V, I _o =10mA			
Load Regulation		ΔV _{OLOAD1}			30			30	mV
		Conditions	V _{IN} =5V, I _o =0 to 1A			V _{IN} =3.3V, I _o =0 to 1A			
		ΔV _{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		ΔV _{O1} /ΔT _a		±0.3			±0.3		mV/°C
		Conditions	T _j =0 to 100°C			T _j =0 to 100°C			
		ΔV _{O2} /ΔT _a		±0.3			±0.3		
		Conditions	T _j =0 to 100°C			T _j =0 to 100°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*1		I _{S1 1}	1.2			1.2			A
		Conditions	V _{IN} =5V			V _{IN} =3.3V			
		I _{S1 2}	1.2			1.2			
		Conditions	V _{IN} =5V			V _{IN} =3.3V			
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)*2	V _C , I _H	2			2			V
	Control Voltage (Output OFF)	V _C , I _L			0.8			0.8	V
	Control Current (Output ON)	I _C , I _H			5			5	μA
	Conditions	V _C =2.7V			V _C =2.7V				
	Control Current (Output OFF)	I _C , I _L	−100			−100			μA
	Conditions	V _C =0.4V			V _C =0.4V				

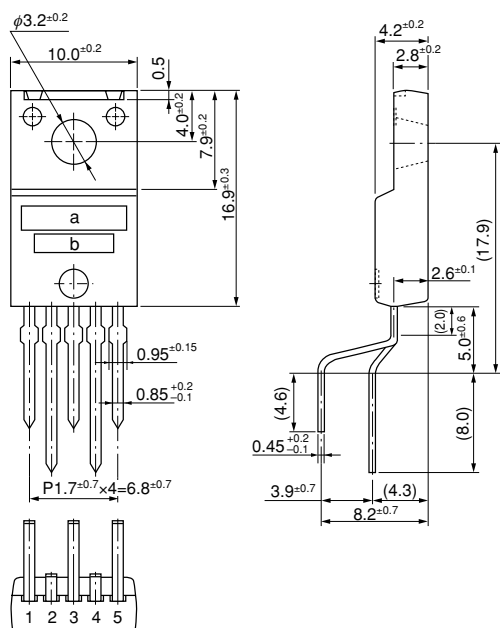
*1: $IS1\ 1$ and $IS1\ 2$ are specified at the 5% drop points of output voltages V_{O1} and V_{O2} on the condition that V_{IN} = the condition of overcurrent protection starting current, $I_o = 10\ mA$.

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

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

External Dimensions

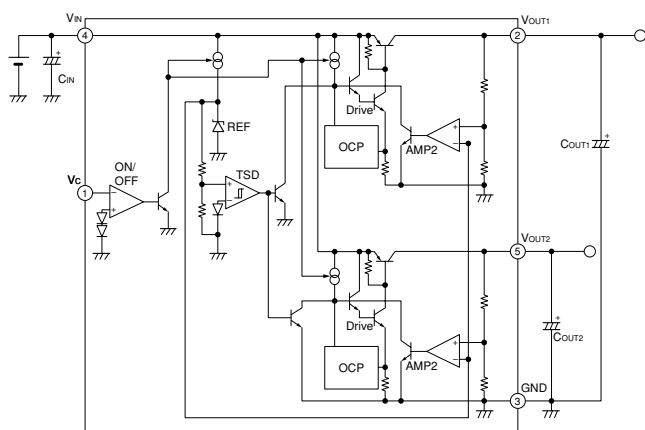
(Unit : mm)



Pin Assignment

- ① V_c
- ② V_{O1}
- ③ GND
- ④ V_{IN}
- ⑤ V_{O2}

Block Diagram



T_a-P_D Characteristics

