



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



SI-3000KD Series Surface-Mount, Low Current Consumption, Low Dropout Voltage

■ Features

- Compact surface-mount package (TO263-5)
- Output current: 1.0A
- Low dropout voltage: $V_{DIF} \leq 0.6V$ (at $I_o = 1.0A$)
- Low circuit current consumption: $I_q \leq 350 \mu A$ (600 μA for SI-3010KD, SI-3050KD)
- Low circuit current at output OFF: $I_q (OFF) \leq 1 \mu A$
- Built-in overcurrent, thermal protection circuits
- Compatible with low ESR capacitors (SI-3012KD and SI-3033KD)

■ Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Ratings		Unit
		SI-3012KD/3033KD	SI-3010KD/3050KD	
DC Input Voltage	V _{IN}	17	35 ^{*1}	V
Output Control Terminal Voltage	V _c	V _{IN}		V
DC Output Current	I _o	1.0		A
Power Dissipation	P _D ^{*2}	3		W
Junction Temperature	T _j	-30 to +125		°C
Storage Temperature	T _{stg}	-30 to +125		°C
Thermal Resistance (Junction to Ambient Air)	θ _{JA}	33.3		°C/W
Thermal Resistance (Junction to Case)	θ _{JC}	3		°C/W

*1: A built-in input-overvoltage-protection circuit shuts down the output voltage at the Input Overvoltage Shutdown Voltage of the electrical characteristics.

*2: When mounted on glass-epoxy board of 1600mm² (copper laminate area 100%).

■ Applications

- Secondary stabilized power supply (local power supply)

■ Electrical Characteristics 1 (Low Input Voltage type compatible with low ESR output capacitor) (T_a=25°C, V_c=2V, unless otherwise specified)

Parameter	Symbol	Ratings						Unit
		SI-3012KD (Variable type)			SI-3033KD			
		min.	typ.	max.	min.	typ.	max.	
Input Voltage	V _{IN}	2.4 ^{*3}		*4	*3		*4	V
Output Voltage (Reference Voltage for SI-3012KD)	V _O (V _{ADJ})	1.24	1.28	1.32	3.234	3.300	3.366	V
Line Regulation	ΔV _{OLINE}	V _{IN} =3.3V, I _o =10mA			V _{IN} =5V, I _o =10mA			mV
	Conditions	V _{IN} =3.3 to 8V, I _o =10mA (V _O =2.5V)			V _{IN} =5 to 10V, I _o =10mA			
Load Regulation	ΔV _{OLOAD}				15			mV
	Conditions	V _{IN} =3.3V, I _o =0 to 1A (V _O =2.5V)			V _{IN} =5V, I _o =0 to 1A			
Dropout Voltage	V _{DIF}	0.4			0.4			V
	Conditions	I _o =0.5A (V _O =2.5V)			I _o =0.5A			
	Conditions	I _o =1A (V _O =2.5V)			I _o =1A			
Quiescent Circuit Current	I _q	350			350			μA
	Conditions	V _{IN} =3.3V, I _o =0A, V _c =2V, R ₂ =2.4kΩ			V _{IN} =5V, I _o =0A, V _c =2V			
Circuit Current at Output OFF	I _q (OFF)	1			1			μA
	Conditions	V _{IN} =3.3V, V _c =0V			V _{IN} =5V, V _c =0V			
Temperature Coefficient of Output Voltage	ΔV _O /ΔT _a	±0.3			±0.3			mV/°C
	Conditions	T _j =0 to 100°C (V _O =2.5V)			T _j =0 to 100°C			
Ripple Rejection	R _{REJ}	55			55			dB
	Conditions	V _{IN} =3.3V, f=100 to 120Hz, I _o =0.1A (V _O =2.5V)			V _{IN} =5V, f=100 to 120Hz, I _o =0.1A			
Overcurrent Protection Starting Current ^{*1}	I _{S1}	1.1			1.1			A
	Conditions	V _{IN} =3.3V			V _{IN} =5V			
V _c Terminal	Control Voltage (Output ON) ^{*2}	2			2			V
	Control Voltage (Output OFF)			0.8			0.8	V
	Control Current (Output ON)			40			40	μA
	Conditions	V _c =2V			V _c =2V			
Control Current (Output OFF)	I _c , I _L	-5	0		-5	0		μA
	Conditions	V _c =0V			V _c =0V			

*1: I_{S1} is specified at the 5% drop point of output voltage V_O under the condition of Output Voltage parameter.

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

*3: Refer to the Dropout Voltage parameter.

*4: V_{IN} (max) and I_o (max) are restricted by the relation P_D = (V_{IN} - V_O) × I_o. Please calculate these values referring to the Copper laminate area vs. Power dissipation data.

■Electrical Characteristics 2 (High Input Voltage Type)

Parameter	Symbol	Ratings						Unit
		SI-3010KD (Variable type)			SI-3050KD			
		min.	typ.	max.	min.	typ.	max.	
Input Voltage	V_{IN}	2.4 ^{*1}		27 ^{*5}	^{*1}			V
Output Voltage (Reference Voltage V_{ADJ} for SI-3010KD)	V_O (V_{ADJ})	0.98	1.00	1.02	4.90	5.00	5.10	V
	Conditions	$V_{IN}=7V, I_O=10mA$			$V_{IN}=7V, I_O=10mA$			
Line Regulation	ΔV_{OLINE}			30			30	mV
	Conditions	$V_{IN}=6$ to 11V, $I_O=10mA$ ($V_O=5V$)			$V_{IN}=6$ to 11V, $I_O=10mA$			
Load Regulation	ΔV_{OLOAD}			75			75	mV
	Conditions	$V_{IN}=7V,$ $I_O=0$ to 1A ($V_O=5V$)			$V_{IN}=7V, I_O=0$ to 1A			
Dropout Voltage	V_{DIF}			0.3			0.3	V
	Conditions	$I_O=0.5A$ ($V_O=5V$)			$I_O=0.5A$			
	Conditions	$I_O=1A$ ($V_O=5V$)			$I_O=1A$			
Quiescent Circuit Current	I_q			600			600	μA
	Conditions	$V_{IN}=7V, I_O=0A, V_C=2V$ $R_2=10k\Omega$			$V_{IN}=7V, I_O=0A,$ $V_C=2V$			
Circuit Current at Output OFF	I_q (OFF)			1			1	μA
	Conditions	$V_{IN}=7V, V_C=0V$			$V_{IN}=7V, V_C=0V$			
Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T_a$		± 0.5			± 0.5		mV/ $^{\circ}C$
	Conditions	$T_j=0$ to 100 $^{\circ}C$ ($V_O=5V$)			$T_j=0$ to 100 $^{\circ}C$			
Ripple Rejection	RREJ		75			75		dB
	Conditions	$V_{IN}=7V,$ $f=100$ to 120Hz, $I_O=0.1A$ ($V_O=5V$)			$V_{IN}=7V,$ $f=100$ to 120Hz, $I_O=0.1A$			
Overcurrent Protection Starting Current ^{*2}	I_{S1}	1.1			1.1			A
	Conditions	$V_{IN}=7V$			$V_{IN}=7V$			
Vc Terminal	Control Voltage (Output ON) ^{*3}	V_C, I_H	2.0		2.0			V
	Control Voltage (Output OFF) ^{*3}	V_C, I_L					0.8	V
	Control Current (Output ON)	I_C, I_H			40		40	μA
	Control Current (Output OFF)	I_C, I_L	-5	0		-5	0	μA
	Conditions	$V_C=2V$			$V_C=2V$			
	Conditions	$V_C=0V$			$V_C=0V$			
Input Overvoltage Shutdown Voltage	V_{OVP}	33			26			V
	Conditions	$I_O=10mA$			$I_O=10mA$			

*1: Refer to the Dropout Voltage parameter.

*2: I_{S1} is specified at the 5% drop point of output voltage V_O under the condition of Output Voltage parameter.

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

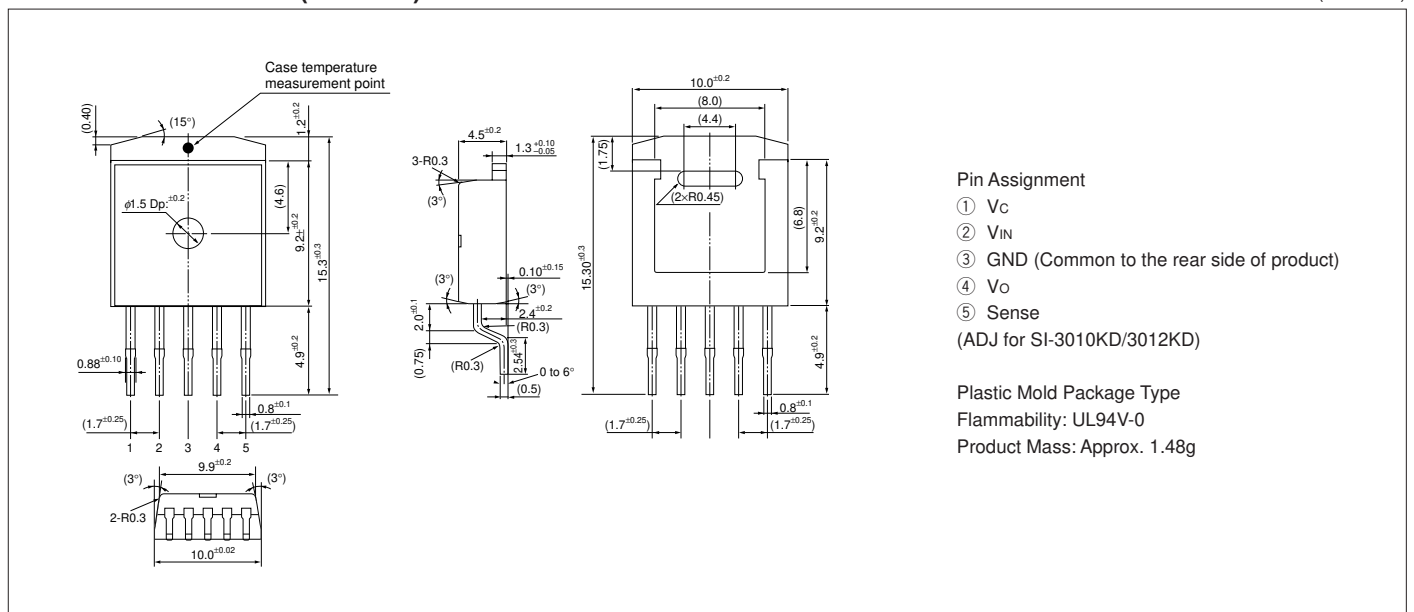
*4: SI-3010KD, SI-3050KD, cannot be used in the following applications because the built-in foldback-type overcurrent protection may cause errors during start-up stage.

(1) Constant current load (2) Positive and negative power supply (3) Series-connected power supply (4) V_O adjustment by raising ground voltage

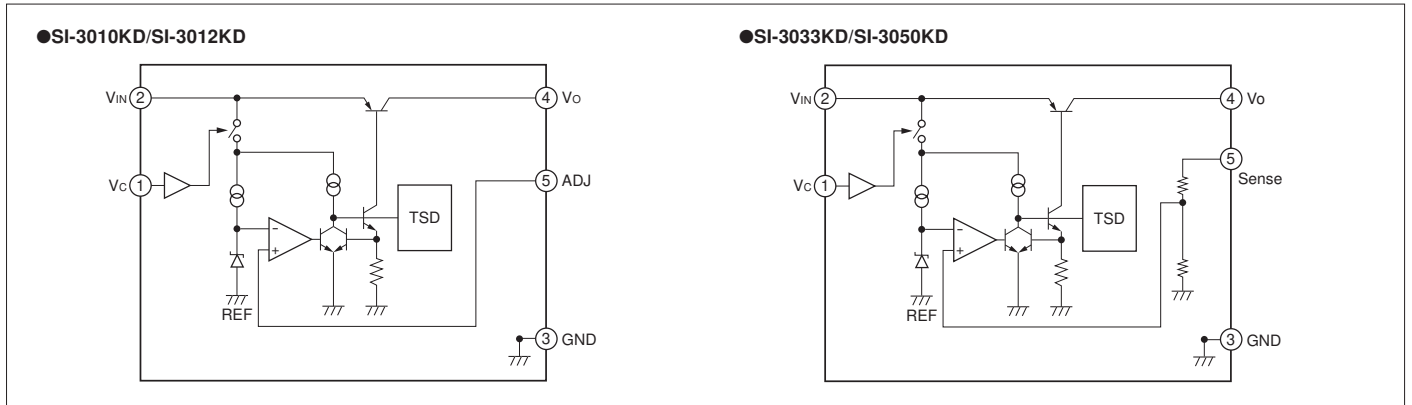
*5: V_{IN} (max) and I_O (max) are restricted by the relation $P_D = (V_{IN} - V_O) \times I_O$. Please calculate these values referring to the Copper laminate area vs. Power dissipation data as shown hereinafter.

■External Dimensions (TO263-5)

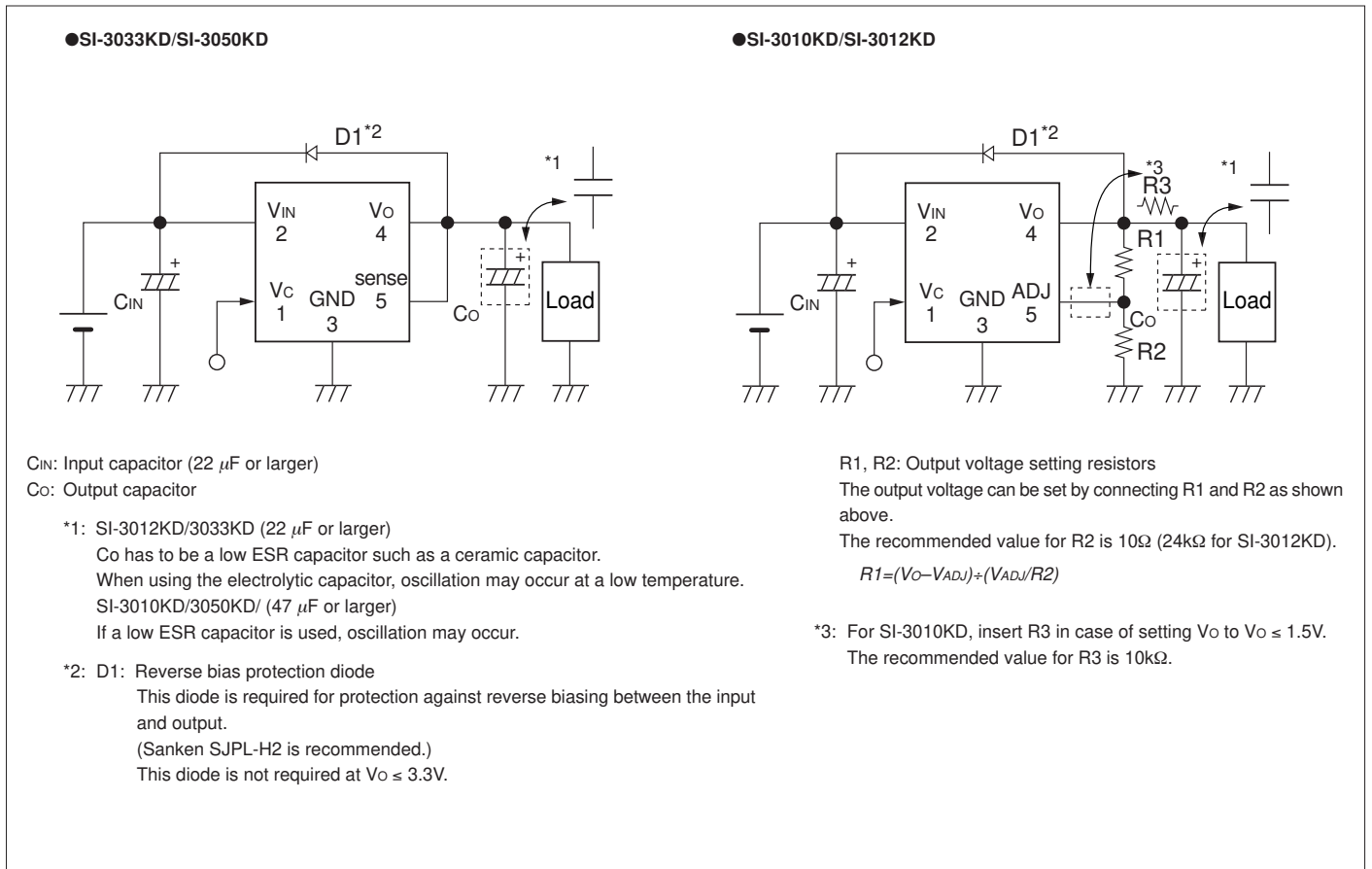
(unit : mm)



■Block Diagram



■Typical Connection Diagram



■Reference Data

