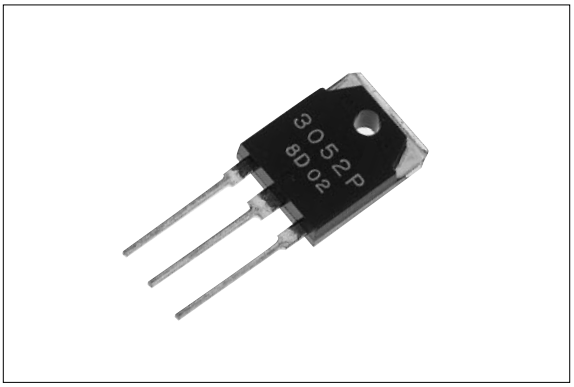
SI-3000P Series

3-Terminal, Dropper Type

■Features

- TO-3P package 3-terminal regulator
- Output current: 2.0A
- Wide range of DC input voltage
- Built-in foldback overcurrent protection circuit



■Applications

- For stabilization of the secondary stage of switching power supplies
- Electronic equipment

■Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Ratings	Unit
DC Input Voltage	V_{IN}	45	V
DC Output Current	I_O	2.0	A
Power Dissipation	P_{D1}	50(T_C=25°C)	W
	P_{D2}	2.0(Without heatsink, stand-alone operation)	W
Junction Temperature	T_j	–30 to +125	°C
Ambient Operating Temperature	T_{op}	–20 to +80	°C
Storage Temperature	T_{stg}	–30 to +125	°C
Thermal Resistance (junction to case)	$R_{th(j-c)}$	2.0	°C/W

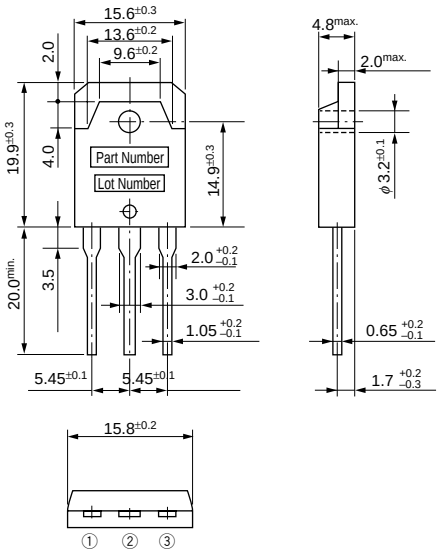
■Electrical Characteristics

(T_a=25°C)

Parameter	Symbol	Ratings												unit
		SI-3052P			SI-3122P			SI-3152P			SI-3242P			
		min.	typ.	max.	min.	typ.	max.	min.	typ.	max.	min.	typ.	max.	
Input Voltage	V_{IN}	8		30	15		35	18		40	27		40	V
Output Voltage	V_O	4.9	5.0	5.1	11.8	12.0	12.2	14.8	15.0	15.2	23.8	24.0	24.2	V
	Conditions	V_{IN}=10V, I_O=0.5A			V_{IN}=19V, I_O=0.5A			V_{IN}=23V, I_O=0.5A			V_{IN}=33V, I_O=0.5A			
Dropout Voltage	V_{DIF}			3			3			3			3	V
	Conditions	I_O=2.0A												
Line Regulation	ΔV_{OLINE}		2	10		10	30		10	30		25	50	mV
	Conditions	V_{IN}=8.5 to 11.5V, I_O=0.5A			V_{IN}=16 to 22V, I_O=0.5A			V_{IN}=19.5 to 26.5V, I_O=0.5A			V_{IN}=28 to 38V, I_O=0.5A			
Load Regulation	ΔV_{OLOAD}		40	100		80	200		80	200		120	300	mV
	Conditions	V_{IN}=10V, I_O=0 to 2.0A			V_{IN}=19V, I_O=0 to 2.0A			V_{IN}=23V, I_O=0 to 2.0A			V_{IN}=33V, I_O=0 to 2.0A			
Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T_a$		±0.5			±1.5			±1.5			±2.5		mV/°C
Ripple Rejection	R_{REJ}	60			60			60			60			dB
	Conditions	f=100 to 120Hz												
Overcurrent Protection Starting Current	I_{S1}	2.4			2.4			2.4			2.4			A
	Conditions	V_{IN}=10V			V_{IN}=19V			V_{IN}=23V			V_{IN}=33V			
Limited Current at Overcurrent Protection Operation	I_{S2}			0.6			0.6			0.6			0.6	A
	Conditions	V_{IN}=10V			V_{IN}=19V			V_{IN}=23V			V_{IN}==33V			

■Outline Drawing

(unit:mm)

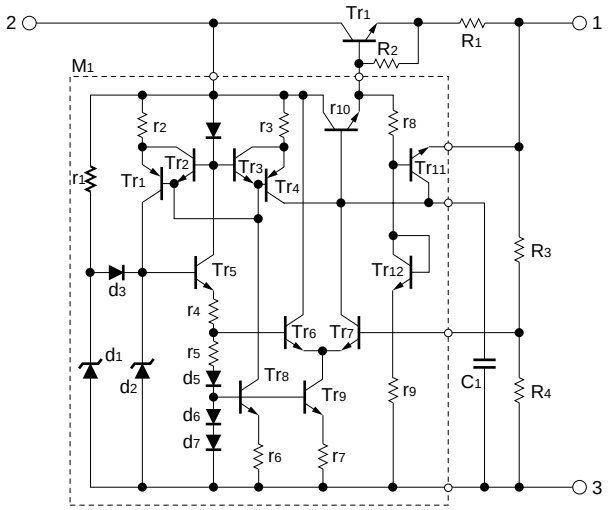


Plastic Mold Package Type (TO-3P)
Flammability: UL94V-0
Weight: Approx. 6g

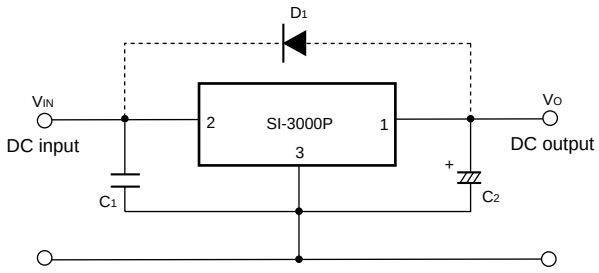
Terminal Connections

① Output
② Input (backside of case)
③ Ground

■Block Diagram



■Standard External Circuit



C_1: Oscillation prevention capacitor (approx. 0.33µF)
Connection to terminal No.2 must be made as short as possible.

C_2: Output capacitor (47 to 100µF)
Connection to terminal No.1 must be made as short as possible.

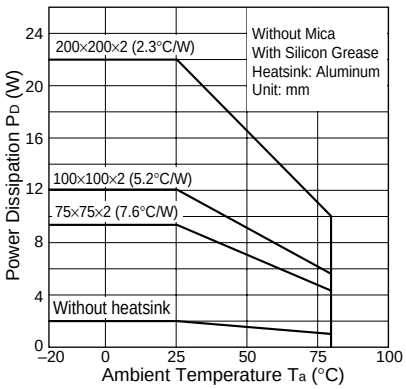
D_1: Protection diode (RM1Z)
Required for protection against reverse biasing of input and output.

Note 1: Connect a 47µF to 100µF capacitor to both sides of the load if the wiring between the output terminal and the load is long.

Note 2: An isolation type diode is provided from input to ground and also from output to ground. These may be destroyed if the device is reverse biased. In this case, use a diode with low V_F to protect them.

Note 3: The output voltage may not be adjusted by raising the ground voltage (using a diode or resistor).

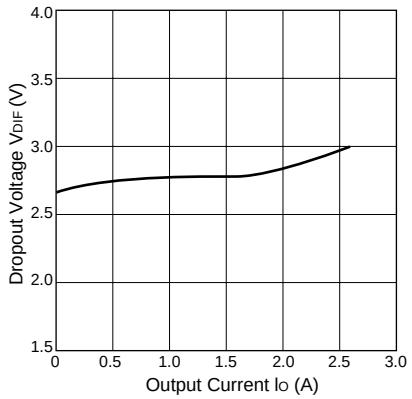
■T_a-P_D Characteristics



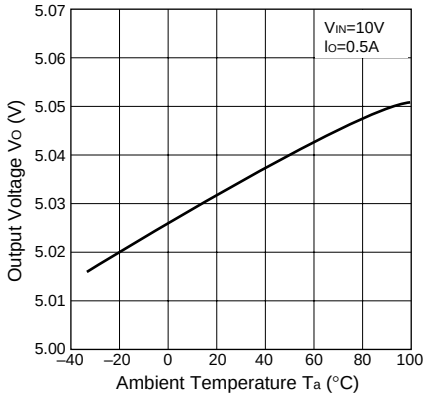
■Typical Characteristics

(T_a=25°C)

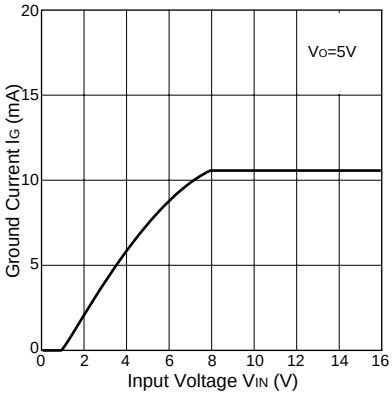
Io vs. VDIF Characteristics



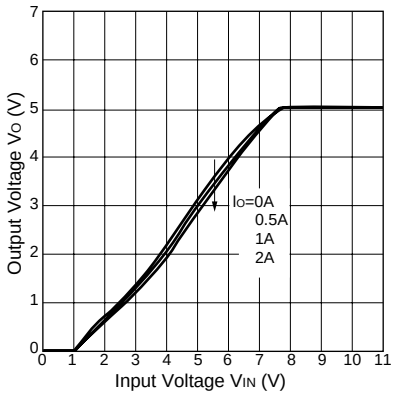
Temperature Coefficient of Output Voltage(SI-3052P)



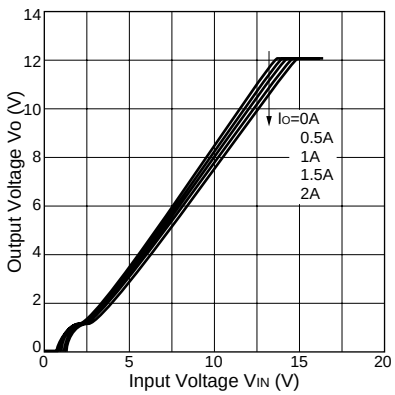
Circuit Current(SI-3052P)



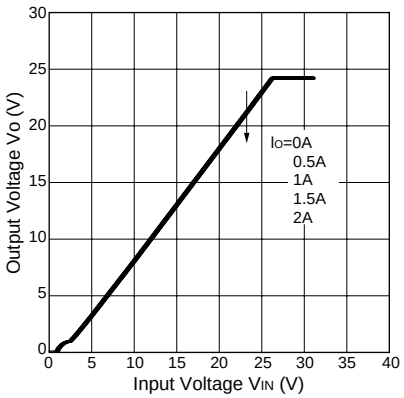
Rise Characteristics(SI-3052P)



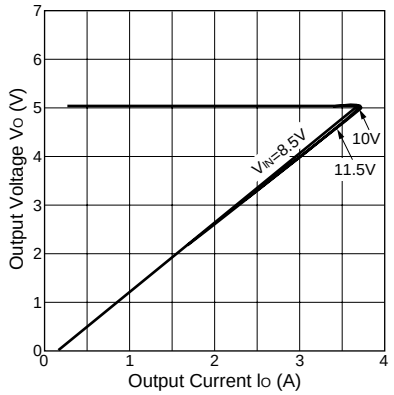
Rise Characteristics(SI-3122P)



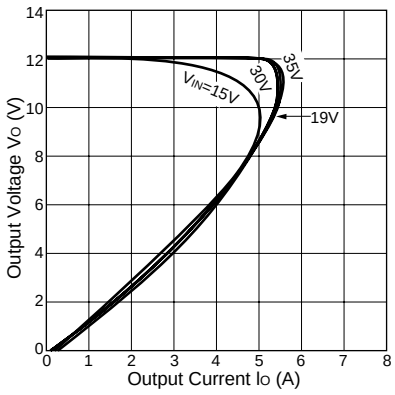
Rise Characteristics(SI-3242P)



Overcurrent Protection Characteristics(SI-3052P)



Overcurrent Protection Characteristics(SI-3122P)



Overcurrent Protection Characteristics(SI-3242P)

