MIP0122SU

Silicon MOS IC

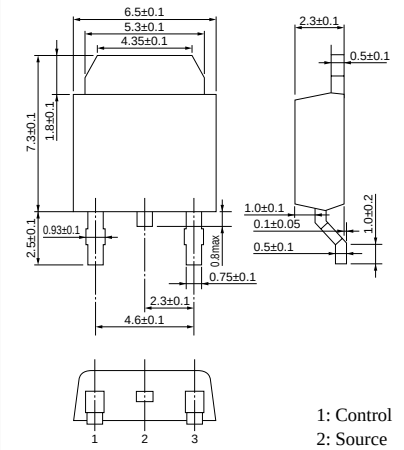
■ Features

- Single chip IC with high breakdown voltage power MOS FET and CMOS control circuits
- Allowing to input worldwide mains (AC 85 to 274V)
- For AC 100V input (85 to 132VAC)

■ Applications

- Switching power supply (to 10W)
- AC adaptor
- Battery charger

unit: mm

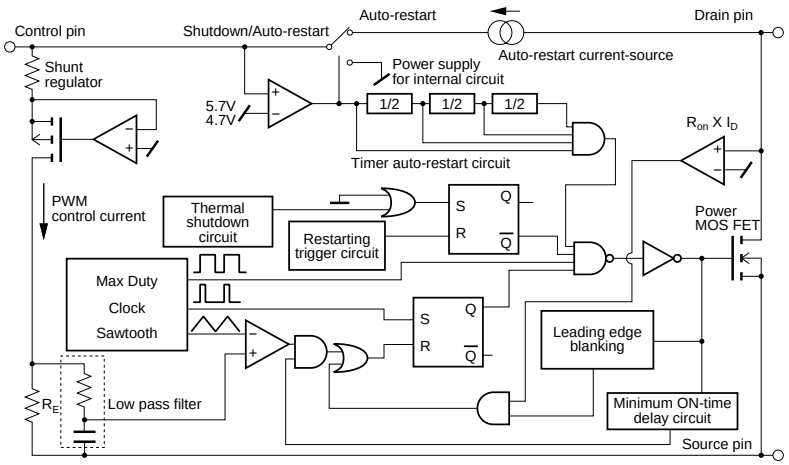


1: Control
2: Source
3: Drain
U Type Package (a)

■ Absolute Maximum Ratings (Ta = 25 ± 3°C)

Parameter	Symbol	Ratings	Unit
Drain voltage	V_D	400	V
Control voltage	V_C	8	V
Output current	I_D	$I_{LIMIT\ MAX}$	A
Control current	I_C	0.1	A
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

■ Block Diagram



■ Electrical Characteristics (T_C = 25 ± 2°C)

	Parameter	Symbol	Conditions	min	typ	max	Unit
Control functions	Output frequency	f_{OSC}	I_C = 4mA	90	100	110	kHz
	Maximum duty cycle	MAXDC	I_C = 2mA	64	67	70	%
	Minimum duty cycle	MINDC	I_C = 10mA			3	%
Auto-restart	Control pin charging current	I_C	V_C = 0	–2.4	–1.9	–1.2	mA
			V_C = 5V	–2	–1.5	– 0.8	
	Auto-restart threshold voltage	$V_{C(on)}$		5	5.7	6.3	V
	Lockout threshold voltage	$V_{C(off)}$		4	4.7	5.3	V
	Auto-restart hysteresis voltage	ΔV_C		0.5	1	1.5	V
	Auto-restart duty cycle	T_{SW}/T_{TIM}			5	8	%
	Auto-restart frequency	f_{TIM}			1.2		Hz
Circuit protection	Self-protection current limit	I_{LIMIT}		0.88		1.25	A
	Leading edge blanking delay	$t_{on(BLK)}$	I_C = 4mA		0.15		µs
	Current limit delay	$t_{d(OCL)}$	I_C = 4mA		0.1		µs
	Thermal shutdown temperature	T_{OTP}	I_C = 4mA	130	140	150	°C
	Latched shutdown trigger current	I_{OVP}		25	45	75	mA
	Power-up reset threshold voltage	$V_{C\ reset}$		2.3	3.3	4.2	V
Output	ON-state resistance	$R_{DS(on)}$	I_D = 0.11A		6.4	7.5	Ω
	OFF-state current	I_{DSS}	V_{DS} = 280V, I_C = 4mA latch mode			0.5	mA
	Breakdown voltage	V_{DSS}	I_C = 4mA, I_D = 0.5mA latch mode	400			V
	Rise time	t_r			0.1	0.2	µs
	Fall time	t_f			0.1	0.2	µs
Power supply voltage	Drain supply voltage	$V_{D(MIN)}$		36			V
	Shunt regulator voltage	V_C	I_C = 4mA	5.4	5.7	6.1	V
	Control supply/discharge current	I_{CD1}	Output MOS FET enabled	0.7	1.2	1.7	mA
		I_{CD2}	Output MOS FET disabled	0.5	0.8	1.1	mA