

UNISONIC TECHNOLOGIES CO., LTD

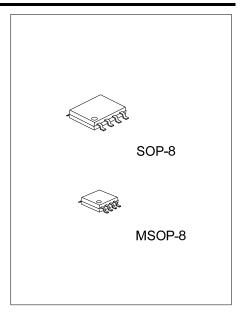
UC3552 **CMOS IC**

PWM DC-DC CONVERTER WITH INTERNAL SWITCH AND **SOFT-START**

DESCRIPTION

The UTC UC3552 is a step-up PWM DC-DC converter with a internal switch which is 1.6A, 0.23Ω. UTC UC3552 offers users flexibility in determining loop dynamics and adjusting operating frequency cause it's equipped with an external compensation pin ,and it also allows the use of small, low equivalent resistance (ESR) ceramic output capacitors. UTC UC3552 is capable of converting a standard input of 3.3V to multiple outputs of 8V, - 8V, and 23V. Otherwise, filtering and loop performance are enhanced and facilitated by a high switching frequency of either 640 kHz or1.3MHz.

As a power-smart design in shutdown mode a soft-start with an external capacitor that sets the input current ramp rate, reduces the current consumption to 0.1µA. A mere 2.6V input yields an impressive output voltage to 12V when operating.

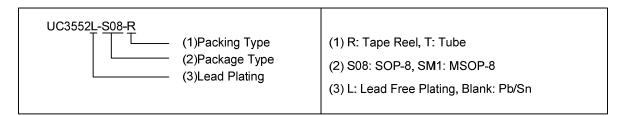


FEATURES

- * 1.6A, 0.23Ω, internal switch
- * High efficiency: 90%
- * Adjustable output: V_{DD} to 12V
- * Adjustable frequency: 640kHz or 1.3MHz
- * Wide input range: +2.6V ~ +5.5V * Low shutdown current: 0.1µA
- * Programmable soft-start

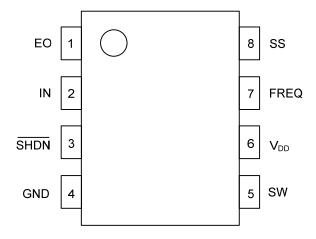
ORDERING INFORMATION

Ordering	Number	Dookogo	Packing	
Lead Free	Halogen Free	Package		
UC3552L-S08-R	UC3552G-S08-R	SOP-8	Tape Reel	
UC3552L-S08-T	UC3552G-S08-T	SOP-8	Tube	
UC3552L-SM1-R	UC3552G-SM1-R	MSOP-8	Tape Reel	
UC3552L-SM1-T	UC3552G-SM1-T	MSOP-8	Tube	



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■ PIN CONFIGURATION

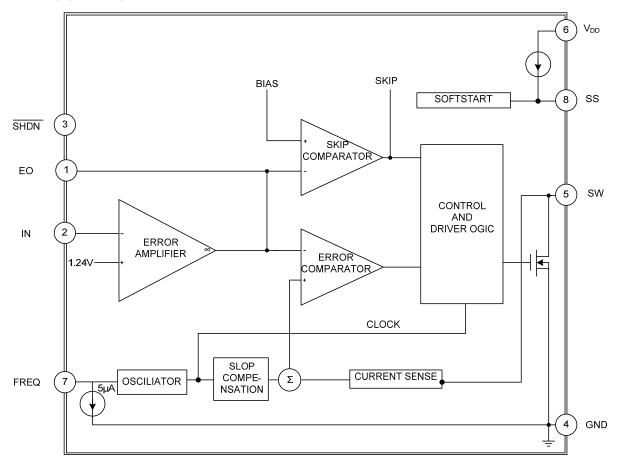


■ PIN DESCRIPTION

PIN NO.	PIN NAME	I/O	DESCRIPTION
1	EO	I	Compensation pin for Error Amplifier
2	IN		Feedback pin with a typical reference voltage of 1.24V
3	SHDN	I	Shutdown control pin. The device will turn off when SHDN is low
4	GND		Ground
5	SW	0	Switch pin
6	V_{DD}		Power supply pin
7	FREQ	1	Frequency select pin. Switch oscillator frequency to 640kHz when FREQ is low, and 1.3MHz when FREQ is high
8	SS		Soft-Start control pin. No soft-start when the pin is left open

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■ BLOCK DIAGRAM



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■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT	
SW to GND		-0.3 ~ +14	V	
IN, SHDN, V _{DD} , FREQ to GND		-0.3 ~ +6	V	
SS, EO to GND			-1.3V ~ (V _{DD} +0.3V)	V
RMS SW Pin Current		I_{SW}	1.2	Α
Continuous Power Dissipation (T _C = 70°C)	SOP-8	Б	350	mW
Continuous Power Dissipation (1c = 70 C)	MSOP-8	P_D	300	mW
Junction Temperature		T_J	+125	°C
Operating Temperature		T_OPR	-20 ~ +85	°C
Storage Temperature		T_{STG}	-45 ~ +125	°C

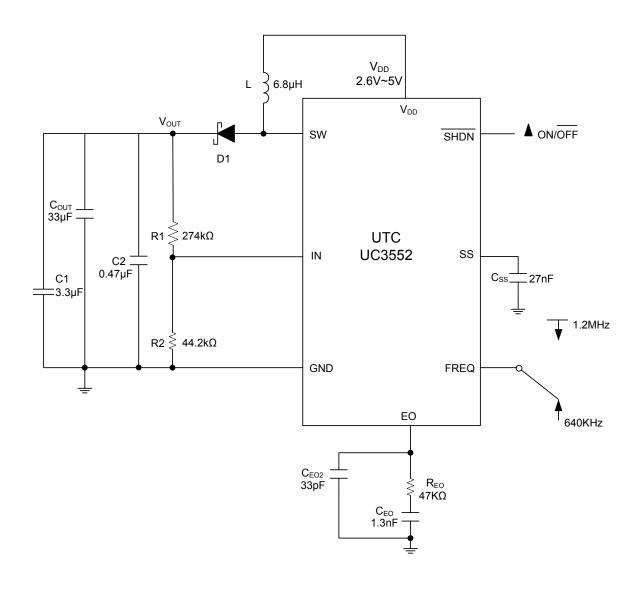
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS

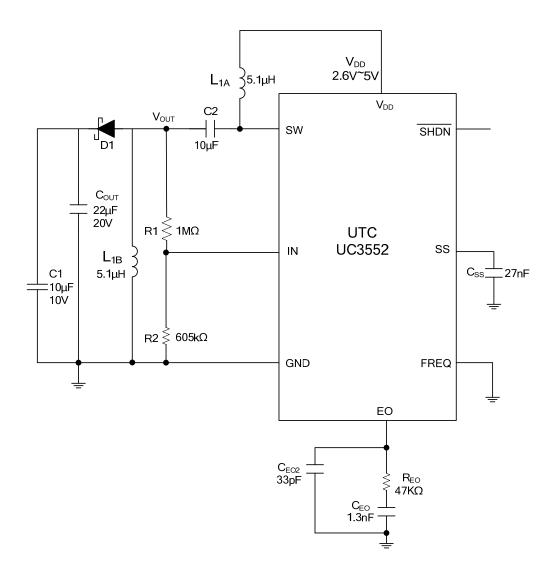
 $T_C = +25^{\circ}C$, $V_{DD} = \overline{SHDN} = 3V$, FREQ = GND, unless otherwise specified.)

		TECT CONDITIONS	NAINI	TVD	MAN	LINIT	
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Input Supply Voltage	V_{DD}		2.6		5.5	V	
V _{DD} Under Voltage Lockout	UVLO	When V _{DD} is rising, typical hysteresis is 40mV; SW remains off below this	2.25	2.38	2.52	V	
		level	2.20 2.00 2.02		2.02	ľ	
Quiescent Current	I _{DD}	V _{DD} = 1.3V, not switching		0.21	0.35	mA	
Quiodochi Guirent		$V_{DD} = 1.0V$, switching		1.2	5.0		
Shutdown Current	I _{SC}	SHDN = GND		0.1	10.0	μΑ	
ERROR AMPLIFIER	_						
Feedback Voltage	V _{IN}	Level to produce V _{EO} = 1.24V	1.22	1.240	1.258	V	
V _{DD} Input Bias Current	I _{I(BIAS)}	V _{IN} = 1.24V		0	40	nA	
Feedback-Voltage Line		Level to produce $V_{EO} = 1.24V$,		0.05	0.15	%/V	
Regulation		2.6V < V _{DD} < 5.5V		0.05	0.15	70/ V	
Transconductance	g m	ΔI = 5μA	70	105	240	μΑ/V	
Voltage Gain	G _V			1500		V/V	
OSCILLATOR							
Faceuran	f _{osc}	FREQ = GND	540	640	740	kHZ	
Frequency		FREQ = V _{DD}	1100	1320	1600		
Massinas yan Durby Cycela	t _{DUTY}	FREQ = GND	79	85	92	%	
Maximum Duty Cycle		FREQ = V _{DD}		85			
N-CHANNEL SWITCH							
Current Limit	I _{LIMIT}	V _{DD} = 1V, Duty Cycle = 65%	1.2	1.6	2.3	Α	
On-Resistance	R _{ON}	I _{SW} = 1.2A		0.23	0.50	Ω	
Leakage Current	I _{LEAK}	V _{SW} = 12V		0.01	20.00	μA	
SOFT-START							
Reset Switch Resistance					300	Ω	
Charge Current		V _{SS} = 1.2V	1.5	4.0	7.0	μA	
CONTROL INPUTS							
Input Low Voltage	V _{IL}	SHDN , FREQ; V _{DD} = 2.6V ~ 5.5V			$0.3V_{DD}$	V	
Input High Voltage	V _{IH}	SHDN , FREQ; V _{DD} = 2.6V ~ 5.5V	$0.7V_{DD}$			V	
Hysteresis		SHDN , FREQ		$0.1V_{DD}$		V	
FREQ Pull-Down Current	I _{FREQ}		1.8	5.0	9.0	μΑ	
SHDN Input Current	I _{SHDN}			0.001	1.000	μΑ	

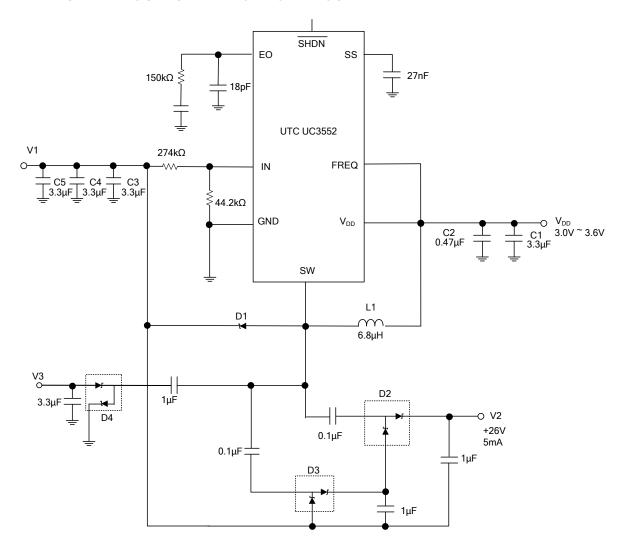
■ TYPICAL APPLICATION CIRCUIT



■ IN A SEPIC CONFIGURATION



■ MULTIPLE-OUTPUT TFT LCD POWER SUPPLY



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