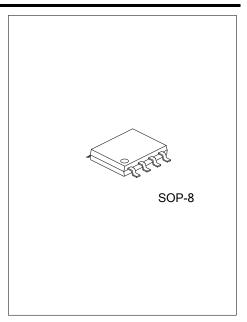
MC3063 Preliminary CMOS IC

# 1.5A, STEP-UP/DOWN/INVERTING SWITCHING REGULATORS

#### ■ DESCRIPTION

The UTC MC3063 Series is a higher frequency DC-DC converters. These devices consist of an internal temperature compensated reference, comparator, a controlled duty cycle oscillator with an active current limit circuit, a driver and a high current output switch. This series was specifically designed to be incorporated in Step-Down, Step-Up and Voltage-Inverting applications with a minimum number of external components.

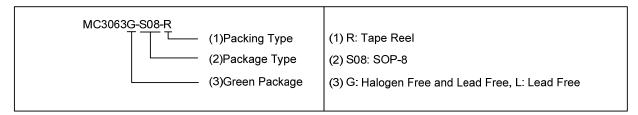


#### ■ FEATURES

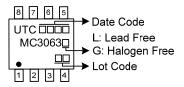
- \* MAX. 40V Input
- \* MAX. load to 1.5A
- \* Output Voltage Adjustable
- \* Frequency Operation of 150kHz
- \* Precision 1.5% Reference

## ■ ORDERING INFORMATION

Ordering Number		Dookogo	Packing	
Lead Free	Halogen Free	- Package	Packing	
MC3063L-S08-R	MC3063G-S08-R	SOP-8	Tape Reel	

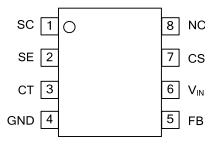


#### ■ MARKING



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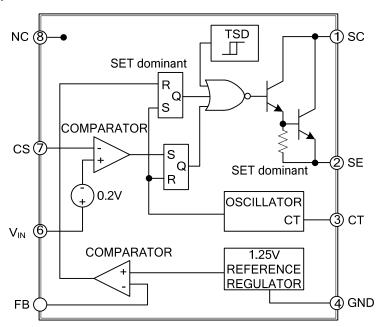
# ■ PIN CONFIGURATION



## **■ PIN DESCRIPTION**

PIN NO.	PIN NAME	DESCRIPTION
1	SC	Internal Darlington switch collector
2	SE	Internal Darlington switch emitter
3	СТ	Timing Capacitor
4	GND	Ground
5	FB	Feedback Voltage
6	$V_{IN}$	Voltage Supply
7	CS	Peak Current Sense
8	N.C.	Pin Not Connected

## ■ BLOCK DIAGRAM



# ■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
V <sub>IN</sub> Pin 6	V <sub>CC</sub>	0 ~ +40	٧
FB Pin 5	$V_{CII}$	-0.2 ~ +V <sub>CC</sub>	٧
Darlington SC Pin 1	$V_{SWC}$	0 ~ +40	٧
Darlington SE Pin 2 (Transistor OFF)	$V_{\sf SWE}$	-0.6 ~ +V <sub>CC</sub>	٧
Darlington SC to SE Pin 1~2	$V_{SWCE}$	0 ~ +40	V
Darlington Switch Current	I <sub>SW</sub>	1.5	Α
CS Pin 7	$V_{IPK}$	-0.2 ~ V <sub>CC</sub> +0.2	V
CT Pin 3	$V_{TCAP}$	-0.2 ~ +1.4	V

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.

# ■ POWER DISSIPATION AND THERMAL CHARACTERISTICS

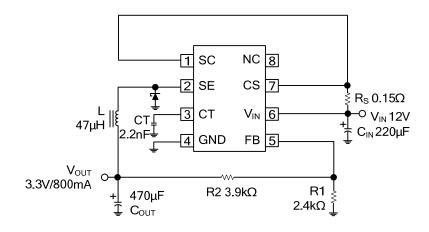
PARAMETER	SYMBOL	RATINGS	UNIT	
Thermal Resistance, Junction-to-Air	$R_{\theta JA}$	180	°C/W	
Thermal Resistance, Junction-to-Case	$R_{ heta JC}$	45		
Storage Temperature Range	T <sub>STG</sub>	-65 ~ +150	°C	
Maximum Junction Temperature	T <sub>J MAX</sub>	+150	°C	
Operating Junction Temperature Range	TJ	0 ~ +70	°C	

# ■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OSCILLATOR						
Frequency	f <sub>OSC</sub>	V <sub>Pin</sub> 5=0V, CT=2.2nF, T <sub>J</sub> =25°C	110	150	190	kHz
Capacitor Discharging Current	I <sub>DISCHG</sub>	Pin 7 to V <sub>IN</sub> , T <sub>J</sub> =25°C		1600		μΑ
Capacitor Charging Current	I <sub>CHG</sub>	Pin 7 to V <sub>IN</sub> , T <sub>J</sub> =25°C		270		μΑ
Current Limit Sense Voltage	V <sub>IPK (Sense)</sub>	T <sub>J</sub> =25°C	165	200	235	mV
OUTPUT SWITCH						
Darlington Switch Collector to Emitter Voltage Drop	V <sub>SWCE (DROP)</sub>	I <sub>SW</sub> =1.0A, Pin 2 to GND, T <sub>J</sub> =25°C		1.0	1.3	V
Collector Off-State Current	I <sub>C (OFF)</sub>	V <sub>CE</sub> =40V		0.01	100	μA
COMPARATOR						
Feedback Voltage	$V_{FB}$	T <sub>J</sub> =25°C		1.250		V
reedback voltage			-1.5		+1.5	%
Threshold Voltage Line Regulation	REG <sub>LINE</sub>	V <sub>IN</sub> =5.0V~40V	-6.0	2.0	6.0	mV
TOTAL DEVICE						
Supply Current	I <sub>IN</sub>	$V_{IN}$ =5.0V~40V, CT=2.2nF, Pin 7= $V_{IN}$ , $V_{Pin}$ 5> $V_{th}$ , Pin 2=GND, remaining pins open			7.0	mA
Thermal Shutdown Threshold				160		°C
Hysteresis				10		°C

Note: T<sub>LOW</sub>=0°C, T<sub>high</sub>=+70°C.

## ■ TYPICAL APPLICATION CIRCUIT



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