



**F6406/G**

**LINEAR INTEGRATED CIRCUIT**

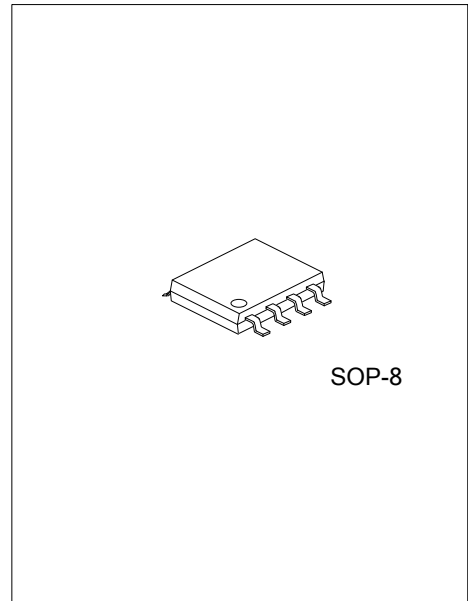
**2-PHASE DC-FAN MOTOR  
PRE-DRIVER IC**

■ DESCRIPTION

The UTC **F6406/G** is a 2-phase pre-driver IC for dc-fan motors, providing the functions of motor lock protection, auto-restart, and rotation detection signal output. UTC **F6406** is with RD option and UTC **F6406G** with FG.

■ FEATURES

- \* Wide supply voltage range of 2.5V to 30V
- \* Lock protection
- \* Auto-restart when the motor lock is undone
- \* RD(latch-type lockup detection) output (F6406)
- \* FG(frequency generator) output (F6406G)



■ ORDERING INFORMATION

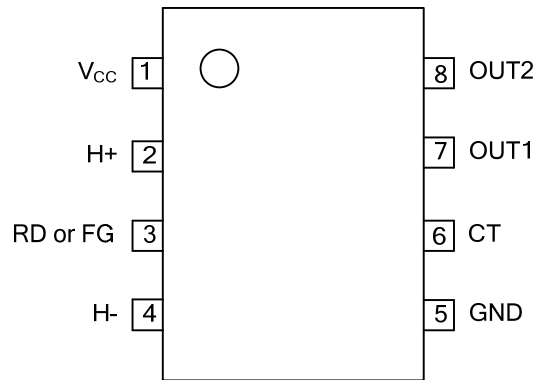
Ordering Number		Package	Packing
Lead Free	Halogen Free		
F6406L-S08-R	F6406P-S08-R	SOP-8	Tape Reel
F6406LP-S08-R	F6406GP-S08-R	SOP-8	Tape Reel

<p>F6406P-S08-R</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel</li> <li>(2) S08: SOP-8</li> <li>(3) P: Halogen Free and Lead Free, L: Lead Free</li> </ul>
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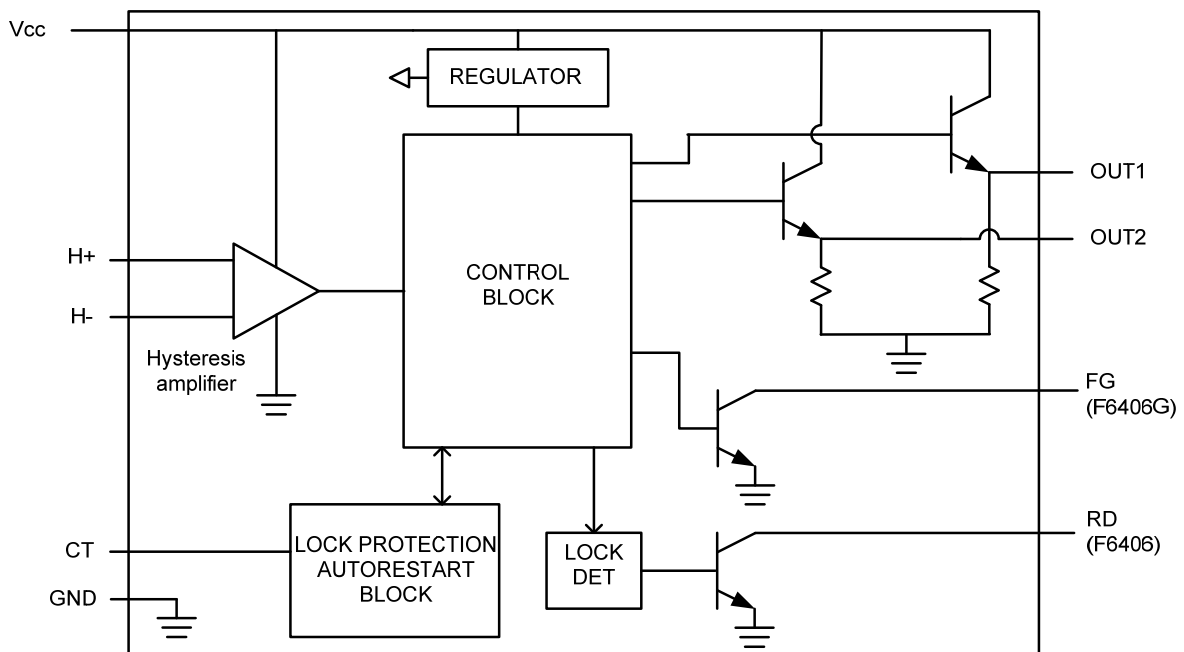
■ MARKING

F6406P	F6406GP
<p>8 7 6 5 → Date Code UTC □ □ □ □ L: Lead Free F6406 □ □ → P: Halogen Free ● □ □ □ → Lot Code 1 2 3 4</p>	<p>8 7 6 5 → Date Code UTC □ □ □ □ L: Lead Free F6406G □ □ → P: Halogen Free ● □ □ □ → Lot Code 1 2 3 4</p>

## ■ PIN CONFIGURATION



## ■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{CC}$	2.5V ~ 30V	V
Hall Input Common Mode Voltage Range	$V_{HIC}$	1.0 ~ $V_{CC}-0.5$	V
Circuit Current	$I_{OUT}$	80	mA
Power Dissipation	$P_D$	700	mW
Operating Ambient Temperature	$T_{OPR}$	-20 ~ +85	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

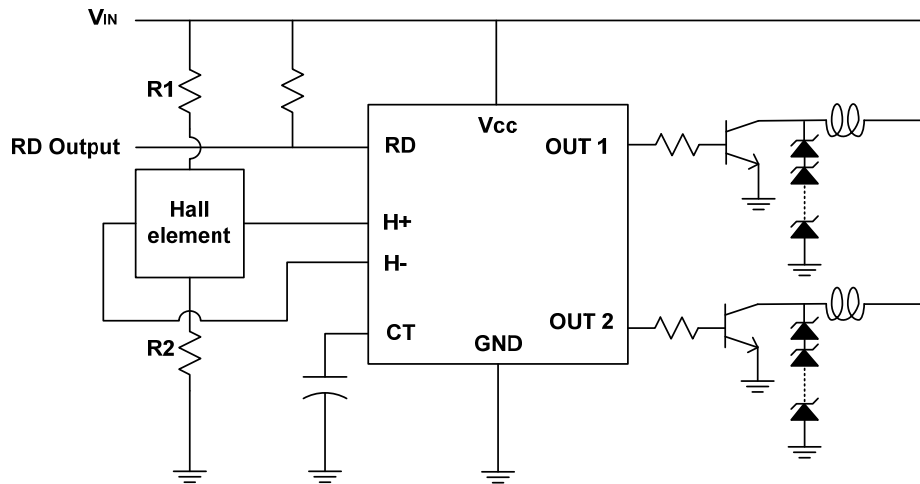
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ( $V_{CC}=12\text{V}$ ,  $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Current Drain	$I_{CC}$	In drive mode	CT=L	3.2	8.7	mA
			CT=H	3.2	5	mA
Lockup Detection Capacitor Charge Current	$I_{CT1}$	$V_{CT}=1.1\text{V}$	2	3.45	5.25	$\mu\text{A}$
Capacitor Discharge Current	$I_{CT2}$	$V_{CT}=1.1\text{V}$	0.35	0.8	1.45	$\mu\text{A}$
Charge/Discharge Ratio	$R_{CT}$	$R_{CD}=I_{CT1}/I_{CT2}$	3	4.5	8	
CT Charge Voltage	$V_{CT1}$		2.2	2.6	3	V
CT Discharge Voltage	$V_{CT2}$		0.4	0.6	0.8	V
Output High Level Voltage	$V_{OL}$	$I_{OUT}=10\text{mA}$	10	10.5		V
Hall Input Sensitivity	$V_{Hin}$	Zero peak value (including offset and hysteresis)	3		15	mV
RD Output Pin Low Voltage (F6406)	$V_{RDL}$	$I_{RD}=5\text{mA}$		0.1	0.3	V
RD Current Capacity (F6406)	$I_{RD}$	$V_{RDL}=2\text{V}$	20			mA
FG Low Voltage (F6406G)	$V_{FGL}$	$I_{FG}=5\text{mA}$		0.1	0.3	V
FG Driver Capacity (F6406G)	$I_{FG}$	$V_{FGL}=2\text{V}$	20			mA
FG Leakage Current (F6406G)	$I_{FGL}$	$V_{FGL}=15\text{V}$			50	$\mu\text{A}$

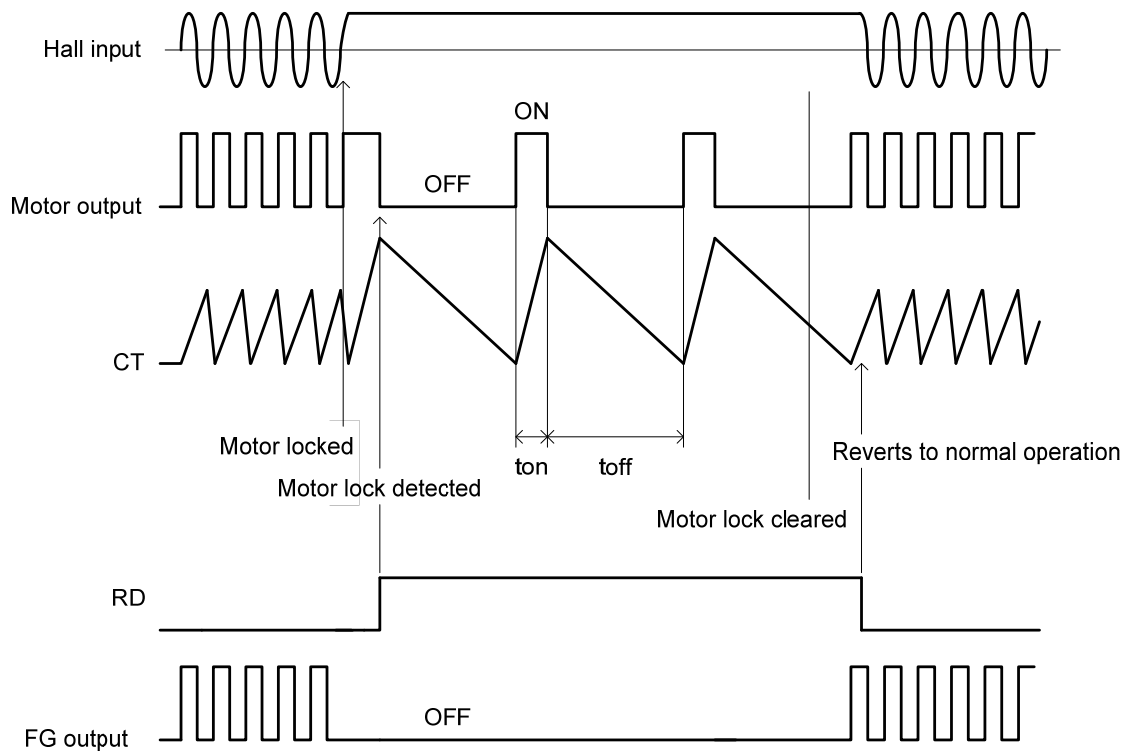
## ■ TYPICAL APPLICATION CIRCUIT

F6406



\*Same value of hall bias resistors is selected for R1 and R2.

## ■ LOCKUP PROTECTION / AUTOMATIC RECOVERY



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