



51494

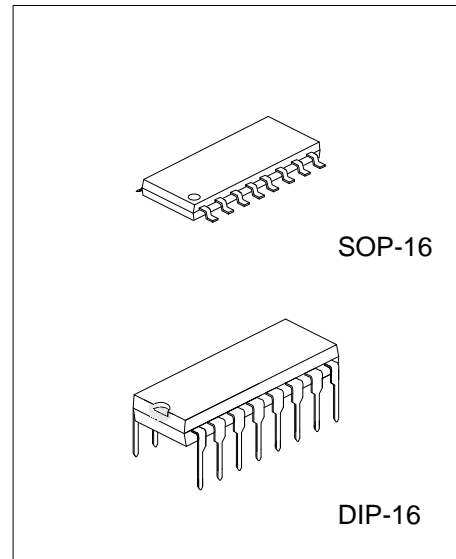
LINEAR INTEGRATED CIRCUIT

DESCRIPTION

The UTC **51494** is a monolithic bipolar integrate circuit that provides same 494 function and built in power good signal circuit for easy using **51494** can be easily implemented by just adding a capacitor.

FEATURES

- * Fully integrated with compact 16-pin dip
- * All necessary functions included for most popular half bridge circuit.
- * Built-in power good delay and power fail lead function.
- * Power good delay time is linearly.
- * Proportional to external capacitor value.
- * Reduced external components for cost down and components for cost down and compact size.

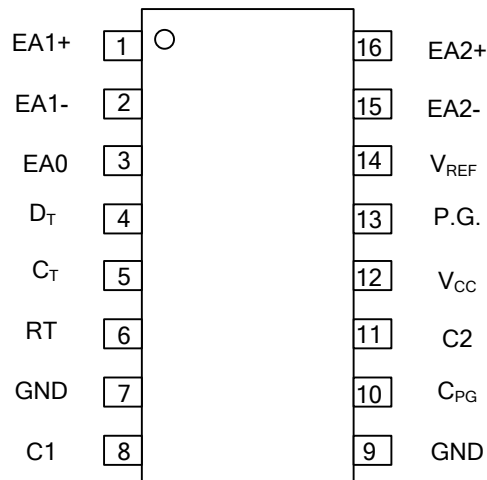


ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
51494L-S16-R	51494G-S16-R	SOP-16	Tape Reel
51494L-S16-T	51494G-S16-T	SOP-16	Tube
51494L-D16-T	51494G-D16-T	DIP-16	Tube

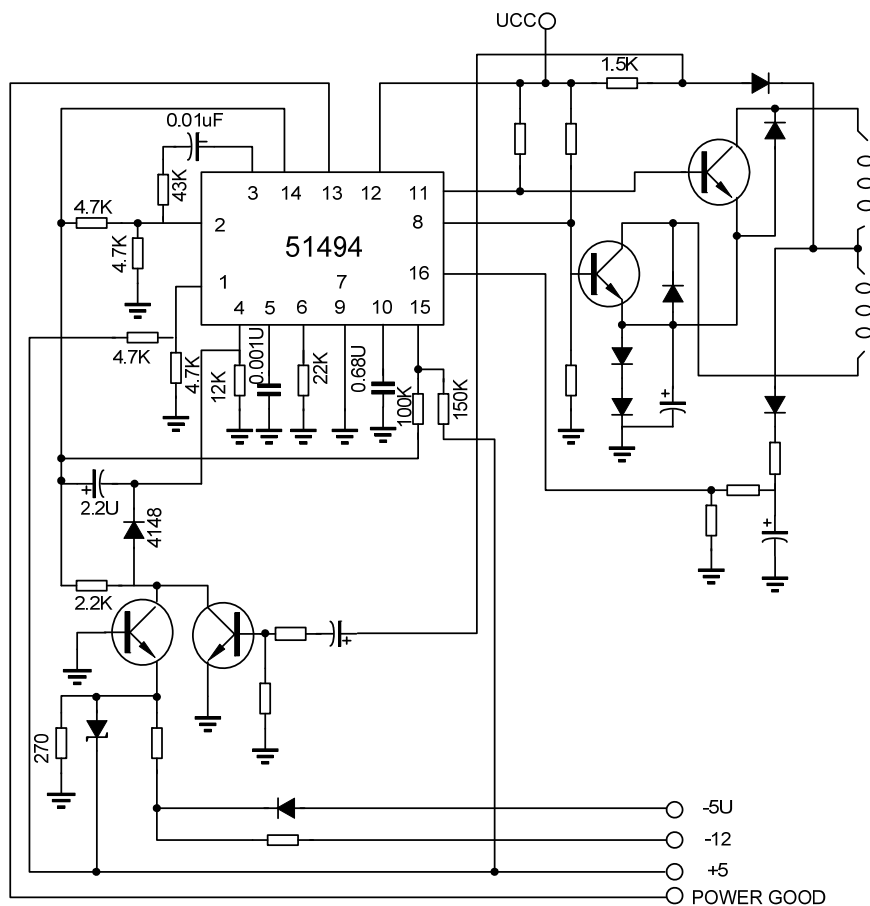
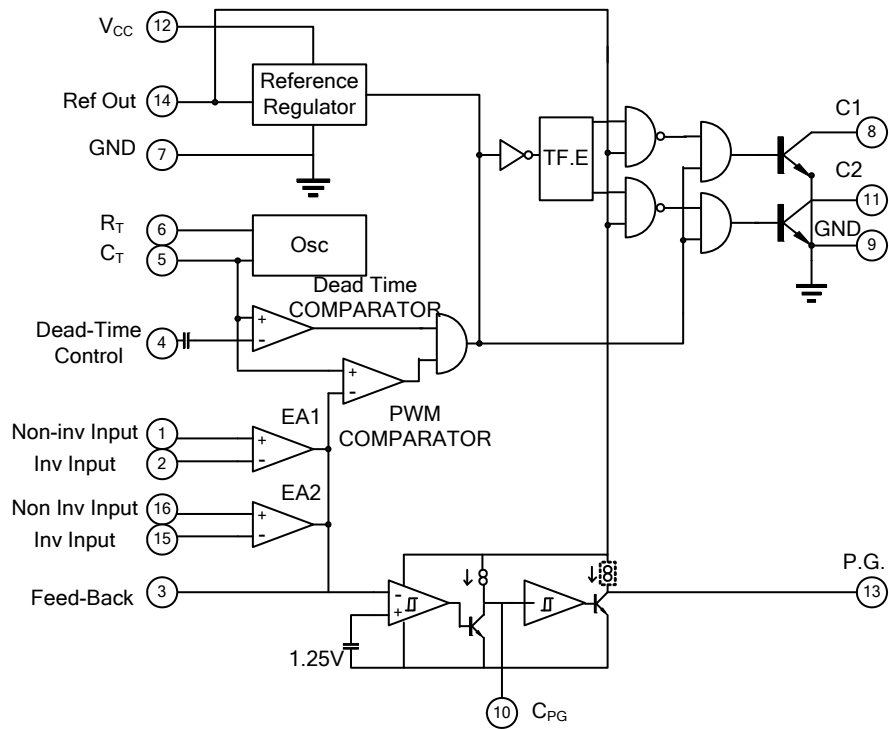
<p>51494L-D16-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) D16: DIP-16, S16: SOP-16</p> <p>(3) G: Halogen Free, L: Lead Free</p>
---	---

■ PIN ASSIGNMENT



PIN	NAME	FUNCTION
1	EA1+	Error amplifier noninverting input, same as pin 1 of 494
2	EA1-	Error amplifier inverting input, same as pin 2 of 494
3	EA0	Error amplifier output and feedback, same as pin 3 of 494
4	D _T	Dead time control input, same as pin 4 of 494
5	C _T	Connect capacitor to oscillator circuit for operating frequency, same as pin 5 of 494
6	R _T	Connect resistor to oscillator circuit for operating frequency, same as pin 6 of 494
7	GND	Ground terminal of IC, same as pin 7 of 494
8	C1	Collector of output transistor one, same as pin 8 of 494
9	GND	Ground terminal of IC
10	C _{PG}	Terminal for capacitor to determine power good delay time
11	C2	Collector of output transistor two, same as pin 11 of 494
12	V _{CC}	Supply voltage, same as pin 12 of 494
13	P.G.	Output for power good signal
14	V _{REF}	Reference voltage output, same as pin 14 of 494
15	EA2-	Error amplifier inverting input, same as pin 15 of 494
16	EA+	Error amplifier noninverting input, same as pin 16 of 494

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

(Unless otherwise specified, all is over operating free-air temperature Range)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	42	V
Voltage from any pin to ground (except pin8 & pin11)	V_{IN}	$V_{CC} + 0.3$	V
Collector Output Voltage	V_{C1}, V_{C2}	42	V
Peak Collector Output	I_{C1}, I_{C2}	250	mA
Power Dissipation	P_D	1500	mW
Operating Temperature	T_{OPR}	0 ~ +70	°C
Storage Temperature	T_{STG}	-40 ~ +150	°C
Junction Temperature	T_J	125	°C

Note: 1. 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 (Unless otherwise specified, $T_A=0\sim 70^\circ\text{C}$, $V_{CC}=15\text{V}$, $f=10\text{kHz}$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
REFERENCE SECTION						
Reference Voltage	V_{REF}	$I_{REF} = 1.0\text{mA}$	4.75	5	5.25	V
Line Regulation	V_{LINE}	$7\text{V} < V_{CC} < 40\text{V}$		2	25	mV
Load Regulation	V_{LOAD}	$1\text{mA} < I_{REF} < 5\text{mA}$		1	15	mV
Temperature Coefficient		$0^\circ\text{C} < F_A < 70^\circ\text{C}$		0.01	0.03	%/°C
OSCILLATOR SECTION						
Oscillator Frequency	F_{OSC}	$C_T = 0.01\mu\text{F}$, $R_T = 12\text{k}\Omega$		10		kHz
Oscillator Frequency Change Over Operating Temperature Range	Δf_{OSC}	$C_T = 0.01\mu\text{F}$, $R_T = 12\text{k}\Omega$			2	%
DEAD TIME CONTROL SECTION						
Input Bias Current (Pin 4)	$I_{B(DT)}$	$V_{CC} = 15\text{V}$, $0\text{V} < V_4 < 5.25\text{V}$		-2	-10	μA
Maximum Duty Cycle, Each Output	$D_{C(MAX)}$	$V_{CC} = 15\text{V}$, Pin 4 = 0V Output Control Pin = V_{REF}	43		45	%
Input Threshold Voltage	Zero Duty	V_{TH}		3	3.3	V
	Max Duty		0			
ERROR AMPLIFIER SECTION						
Input Offset Voltage	V_{ICS}	$V_3 = 2.5\text{V}$		2	10	mV
Input Offset Current	I_{ICS}	$V_3 = 2.5\text{V}$		25	250	nA
Input Bias Current	I_{IB}	$V_3 = 2.5\text{V}$		0.2	1	μA
Input Common-mode Voltage Range	V_{ICR}	$7\text{V} < V_{CC} < 40\text{V}$	-0.3		V_{CC}	V
Large Signal Open-Loop Voltage Range	G_{VO}	$0.5\text{V} < V_3 < 3.5\text{V}$	60	74		dB
Unity-Gain Band width	f_c			650		kHz

■ ELECTRICAL CHARACTERISTICS(Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OUTPUT SECTION						
Collector Off-State Current	$I_{C(OFF)}$	$V_{CC}=V_C=40V, V_E=0$		2	100	μA
Emitter Off-State Current	$I_{E(OFF)}$	$V_{CC}=V_C=40V, V_E=0$			-100	μA
Output Saturation Voltage Common-Emitter	$V_{CE(SAT)}$	$V_E=15V, I_C=200mA$		1.1	1.3	V
OUTPUT CONTROL (pin13)						
Standby Power Supply Current	I_{CC}			6	10	mA
Output AC Characteristic						
Raise Time Common-Emitter	T_R			100	200	ns
Fall Time Common-Emitter	T_R			25	100	ns
PWM COMPARATOR SECTION						
Inhibit Threshold Voltage	V_{THI}	Zero Duty cycle		4	4.5	V
Output Source Current	I_{O+}	$0.5V < V_3 < 3.5V$	2			mA
Output Sink Current	I_{O-}	$0.5V < V_3 < 3.5V$	-0.2	-0.6		mA
POWER GOOD SECTION						
Power Good Delay Time	t_{PD}	$C_D = 1\mu F$	230	280	330	ms
		$C_D = 0.47\mu F$	108	130	160	
Power Fail Lead Time	T_{P1}			4		ms
Output High Voltage	V_{OH}	$V_{PINN} = 5V, I_L = 1mA$	4.75			V
Output Saturation Voltage	V_{SAT}	$V_{PINN} = 5V, I_{SINK} = 4mA$			0.4	V
Output Leakage Current	I_{OH}				100	μA

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.