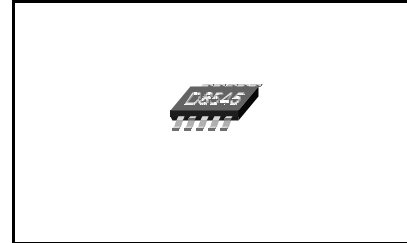


DIT8545

Ceratrans Driver for LCD Backlight

DESCRIPTIONS

DIT8545 is an advanced LCD backlight inverter control IC based on the piezo-ceramic transformer. The new control scheme employing the variable frequency and duty control achieves the very high efficiency over 90%. In this control scheme, the soft start and zero voltage switching functions are automatically obtained. DIT8545 can realize the CCFL backlight inverter with small size and low cost.



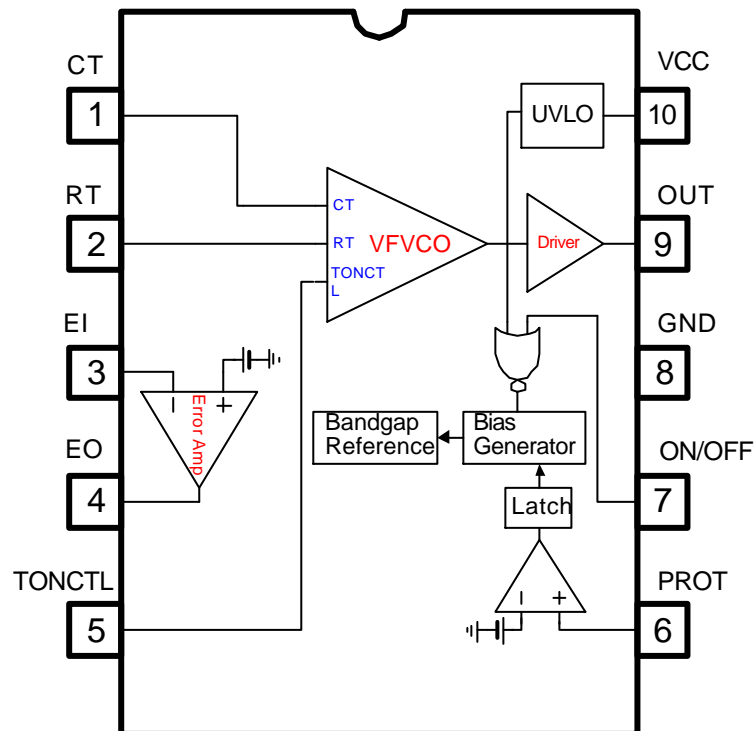
FEATURES

- Soft start function
- Programmable Operating Frequency
- Analog Dimming Control Function
- Burst Dimming Control
- ON/OFF Control Function
- Open Lamp Protection
- 10SSOP Package

ORDER INFORMATION

Device	Package	Operating Temp
DIT8545	10SSOP-225	-25°C ~ +85°C

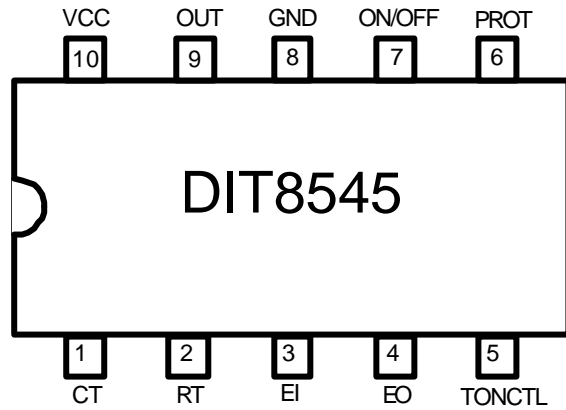
BLOCK DIAGRAM



DIT8545

Ceratrans Driver for LCD Backlight

PIN CONNECTIONS



PIN DESCRIPTIONS

NO	SYMBOL	I/O	DESCRIPTION
1	CT	I	TIMING CAPACITOR CONNECTION
2	RT	I	TIMING RESISTOR CONNECTION
3	EI	I	ERROR AMPLIFIER INPUT
4	EO	O	ERROR AMPLIFIER OUTPUT
5	TONCTL	I	SWITCH ON TIME CONTROL INPUT
6	PROT	I	OPEN LAMP PROTECTION INPUT
7	ON/OFF	-	ON/OFF CONTROL INPUT
8	GND	I	GROUND
9	OUT	O	OUTPUT
10	VCC	-	SUPPLY VOLTAGE INPUT

DIT8545

Ceratrans Driver for LCD Backlight

ABSOLUTE MAXIMUM RATINGS

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Supply Voltage	Vcc	13.5	V
Power Dissipation	Pd	0.3	W
Operating Temperature	Topr	-25 ~ +85	°C
Storage Temperature	Tstg	-55 ~ 150	°C

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Supply Voltage	Vcc	3~13.5	V
Oscillator Frequency	fosc	40~250	kHz

ELECTRICAL CHARACTERISTICS

(Ta = 25°C, VCC=5V, RT=13.8K CT=1.5V, PROT=0V unless otherwise specified.)

CHARACTERISTICS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
[Operating Current Specifications]						
On State Supply Current	Icc(on)	ON/OFF=2V	-	3.5	6	mA
Off State Supply Current	Icc(off)	ON/OFF=0V	-	350	600	uA
Average Operating Current	Iop	CT=470pF	-	4	7	mA
On State Start-up Current	Ist(on)	VCC=VthH - 0.3V ON/OFF=2V	-	250	400	uA
Off State Start-up Current	Ist(off)	VCC=VthH - 0.3V ON/OFF=0V	-	200	400	uA
[Voltage Controlled Oscillator]						
RT Voltage	Vref		1.235	1.260	1.285	V
RT Terminal Maximum Current	IRTmax	RT=0V	-	7	16	mA
RT Voltage Line Regulation	Vline	VCC=5V ->12V	-20	2	20	mV
RT Voltage Load Regulation	Vload	I _o =100uA~1mA	-20	2	20	mV

DIT8545

Ceratrans Driver for LCD Backlight

ELECTRICAL CHARACTERISTICS

(Ta = 25°C, VCC=5V, RT=13.8K CT=1.5V, PROT=0V unless otherwise specified.)

CHARACTERISTICS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Frequency	Fosc	CT=470pF	120	135	150	kHz
Frequency Change With Supply Voltage	Dfosc	VCC=5V to 12V	-	0.3	1.5	%/V
Minimum Duty Ratio	Dmin	TONCTL = 0V	10	20	30	%
Maximum Duty Ratio	Dmax	TONCTL = 3V	55	65	75	%
TONCTL Input Bias Current	Ib(TON)	TONCTL = 0V	-	-0.1	-1	uA
[UVLO Section]						
Upper Threshold Voltage	VthH	VCC Variation	2.6	2.8	2.95	V
Lower Threshold Voltage	VthL	VCC Variation	2.4	2.6	2.8	V
UVLO Hysteresis Voltage	Vhys	VCC Variation	0.1	0.2	0.4	V
[ON/OFF Section]						
ON/OFF Logic High Voltage	Von/off	-	1	1.3	1.8	V
ON/OFF Input Bias Current	Ib(on/off)	ON/OFF=2V	5	20	50	uA
[Error Amplifier Section]						
Erramp Input Bias Current	Ib(EI)			-0.1	-1	uA
Inverting Reference Voltage	Vfb		1.220	1.260	1.300	V
Erramp Output Source Current	Isource		3	10	30	mA
Erramp Output Sink Current	Isink		5	15	40	mA
Erramp Output High Voltage	Vhigh		3.2	4.2	4.5	V
Erramp Output Low Voltage	Vlow		-	0.1	0.4	V
[Open Lamp Protection Section]						
Protection Input Bias Current	Iprot	PROT=1.5V	-	1	40	uA
Protection Input Voltage	Vprot	-	1	1.35	1.60	V

DIT8545

Ceratrans Driver for LCD Backlight

ELECTRICAL CHARACTERISTICS

(Ta = 25°C, VCC=5V, RT=13.8K, CT=1.5V, PROT=0V unless otherwise specified.)

CHARACTERISTICS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
[Output Driver Section]						
Output High Voltage 1	Voh1	VCC = 3V, Io = 1uA	2.0	2.4	2.8	V
Output High Voltage 2	Voh2	VCC = 5V, Io = 1uA	3.5	4.5	5.5	V
Output High Voltage 3	Voh3	VCC = 8V, Io = 20mA	2.5	3.3	4.2	V
Output Low Voltage 1	Vol1	VCC = 3V, Io = 100uA	-	0.1	0.4	V
Output Low Voltage 2	Vol2	VCC=5V, Io = 1mA	-	0.2	0.4	V
Output Voltage with UVLO Activated	Vouv	VCC=2V	0	0.2	0.4	V
Output Source Current	Io(source)		20			mA
Output Sink Current	Io(sink)		20			mA

ELECTRICAL DIAGRAMS

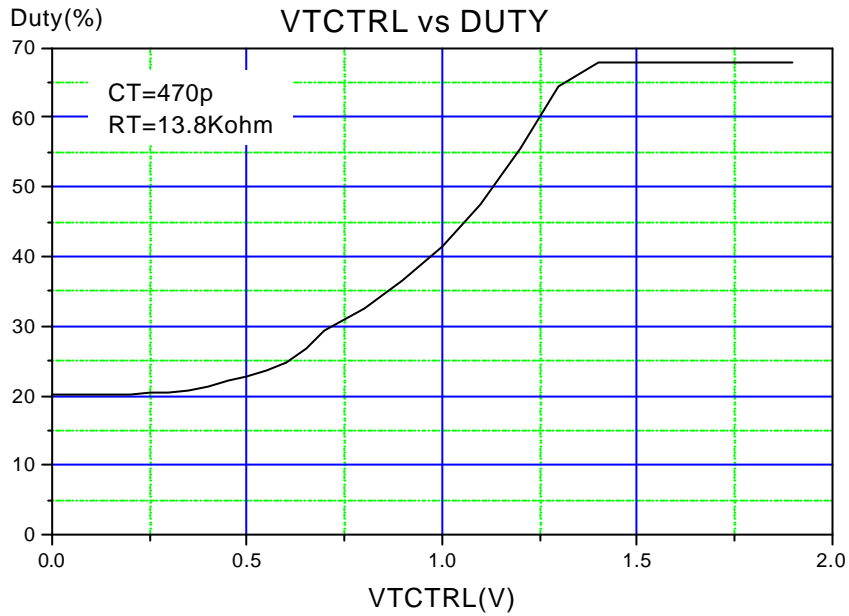


Fig.1 : VTCTRL vs. DUTY

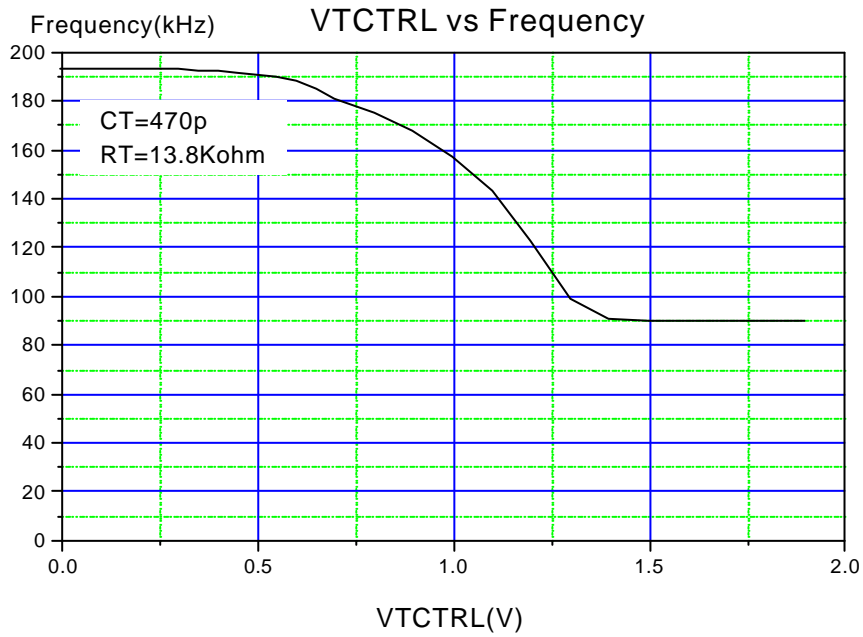


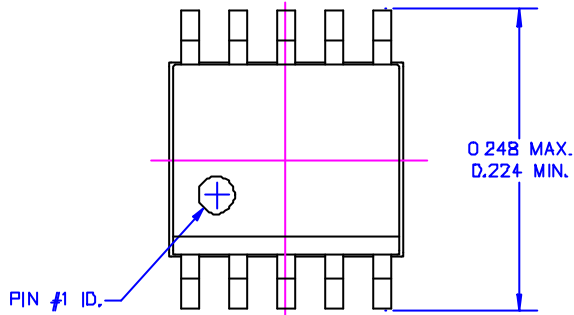
Fig.2 : VTCTRL vs. Frequency

DIT8545

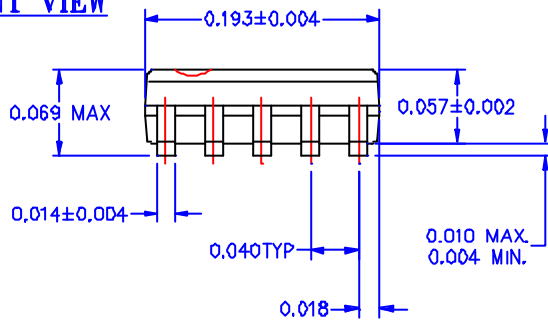
Certrans Driver for LCD Backlight

PACKAGE DIMENSION

TOP VIEW



FRONT VIEW



SIDE VIEW

