LINFINITY MICROELECTRONICS

THE INFINITE POWER OF INNOVATION

LIN Doc #: 1842

SG1842/SG1843 Series

CURRENT MODE PWM CONTROLLER

PRODUCTION DATA SHEET

DESCRIPTION

The SG1842/43 family of control IC's provides all the necessary features to implement off-line fixed frequency, current-mode switching power supplies with a minimum number of external components. Current-mode architecture demonstrates improved line regulation, improved load regulation, pulse-by-pulse current limiting and inherent protection of the power supply output switch.

The bandgap reference is trimmed to ±1% over temperature. Oscillator discharge current is trimmed to less than ±10%. The SG1842/43 has under-voltage lockout, current limiting circuitry and start-up current of less than 1mA.

The totem-pole output is optimized to drive the gate of a power MOSFET. The output is low in the off state to provide direct interface to an N channel device.

The SG1842/43 is specified for operation over the full military ambient temperature range of -55°C to 125°C. The SG2842/43 is specified for the industrial range of -25°C to 85°C, and the SG3842/43 is designed for the commercial range of 0°C to 70°C.

KEY FEATURES

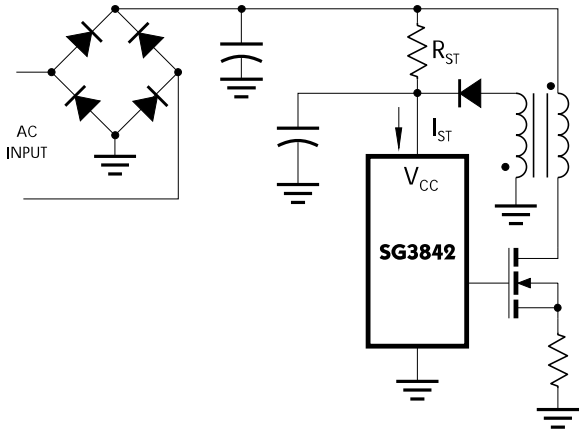
- OPTIMIZED FOR OFF-LINE CONTROL
- LOW START-UP CURRENT (<1mA)
- AUTOMATIC FEED FORWARD COMPENSATION
- TRIMMED OSCILLATOR DISCHARGE CURRENT
- PULSE-BY-PULSE CURRENT LIMITING
- ENHANCED LOAD RESPONSE CHARACTERISTICS
- UNDER-VOLTAGE LOCKOUT WITH 6V HYSTERESIS (SG1842 only)
- DOUBLE-PULSE SUPPRESSION
- HIGH-CURRENT TOTEM-POLE OUTPUT (1AMP PEAK)
- INTERNALLY TRIMMED BANDGAP REFERENCE
- 500KHZ OPERATION
- UNDERVOLTAGE LOCKOUT
  SG1842 - 16 volts
  SG1843 - 8.4 volts
- LOW SHOOT-THROUGH CURRENT <75mA OVER TEMPERATURE

HIGH RELIABILITY FEATURES

- AVAILABLE TO MIL-STD-883B AND DESC SMD
- SCHEDULED FOR MIL-M38510 QPL LISTING
- RADIATION DATA AVAILABLE
- LINFINITY LEVEL "S" PROCESSING AVAILABLE

PRODUCT HIGHLIGHT

TYPICAL APPLICATION OF SG3842 IN A FLYBACK CONVERTER



PACKAGE ORDER INFORMATION

T_A (°C)	M Plastic DIP 8-pin	N Plastic DIP 14-pin	DM Plastic SOIC 8-pin	D Plastic SOIC 14-pin	Y Ceramic DIP 8-pin	J Ceramic DIP 14-pin	F Cer. Flatpack 10-pin	L Ceramic LCC 20-pin
0 to 70	SG3842M	SG3842N	SG3842DM	SG3842D	SG3842Y	SG3842J	—	—
	SG3843M	SG3843N	SG3843DM	SG3843D	SG3843Y	SG3843J	—	—
-25 to 85	SG2842M	SG2842N	SG2842DM	SG2842D	SG2842Y	SG2842J	—	—
	SG2843M	SG2843N	SG2843DM	SG2843D	SG2843Y	SG2843J	—	—
-55 to 125	—	—	—	—	SG1842Y	SG1842J	—	SG1842L
	—	—	—	—	SG1843Y	SG1843J	—	SG1843L
MIL-STD/883	—	—	—	—	SG1842Y/883B	SG1842J/883B	—	SG1842L/883B
	—	—	—	—	SG1843Y/883B	SG1843J/883B	—	SG1843L/883B
DESC	—	—	—	—	SG1842Y/DESC	SG1842J/DESC	SG1842F/DESC	SG1842L/DESC
			—	—	SG1843Y/DESC	SG1843J/DESC	SG1843F/DESC	SG1843L/DESC

Note: All surface-mount packages are available in Tape & Reel.

FOR FURTHER INFORMATION CALL (714) 898-8121

Rev. 1.6 4/00

11861 WESTERN AVENUE, GARDEN GROVE, CA. 92841

ABSOLUTE MAXIMUM RATINGS (Notes 1 & 2)

Supply Voltage (I_{CC} < 30mA) ..... Self Limiting
Supply Voltage (Low Impedance Source) 30V
Output Current (Peak) ..... ±1A
Output Current (Continuous) 350mA
Output Energy (Capacitive Load) 5µJ
Analog Inputs (Pins 2, 3) ..... -0.3V to +6.3V
Error Amp Output Sink Current 10mA
Power Dissipation at T_A = 25°C (DIL-8) 1W
Operating Junction Temperature
  Hermetic (J, Y, F, L Packages) ..... 150°C
  Plastic (N, M, D, DM Packages) ..... 150°C
Storage Temperature Range ..... -65°C to +150°C
Lead Temperature (Soldering, 10 Seconds) ..... 300°C

Note 1. Exceeding these ratings could cause damage to the device.
Note 2. All voltages are with respect to Pin 5. All currents are positive into the specified terminal.

THERMAL DATA

M PACKAGE:

THERMAL RESISTANCE-JUNCTION TO AMBIENT, θ_{JA}	95°C/W

N PACKAGE:

THERMAL RESISTANCE-JUNCTION TO AMBIENT, θ_{JA}	65°C/W

DM PACKAGE:

THERMAL RESISTANCE-JUNCTION TO AMBIENT, θ_{JA}	165°C/W

D PACKAGE:

THERMAL RESISTANCE-JUNCTION TO AMBIENT, θ_{JA}	120°C/W

Y PACKAGE:

THERMAL RESISTANCE-JUNCTION TO AMBIENT, θ_{JA}	130°C/W

J PACKAGE:

THERMAL RESISTANCE-JUNCTION TO AMBIENT, θ_{JA}	80°C/W

F PACKAGE:

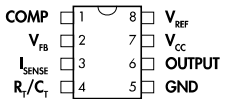
THERMAL RESISTANCE-JUNCTION TO CASE, θ_{JC}	80°C/W
THERMAL RESISTANCE-JUNCTION TO AMBIENT, θ_{JA}	145°C/W

L PACKAGE:

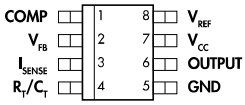
THERMAL RESISTANCE-JUNCTION TO CASE, θ_{JC}	35°C/W
THERMAL RESISTANCE-JUNCTION TO AMBIENT, θ_{JA}	120°C/W

Junction Temperature Calculation: $T_J = T_A + (P_D \times \theta_{JA})$.
The θ_{JA} numbers are guidelines for the thermal performance of the device/pc-board system. All of the above assume no ambient airflow.

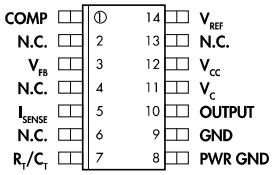
PACKAGE PIN OUTS



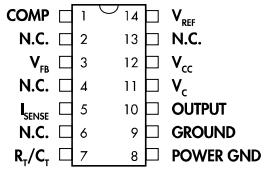
M & Y PACKAGE
(Top View)



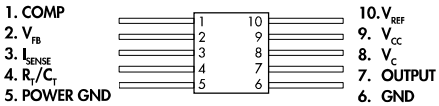
DM PACKAGE
(Top View)



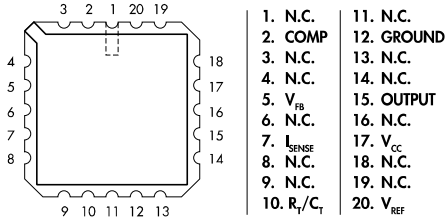
D PACKAGE
(Top View)



J & N PACKAGE
(Top View)



F PACKAGE
(Top View)



L PACKAGE
(Top View)

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