Alternator Voltage Regulator FET Driver

The CS3361 integral alternator regulator integrated circuit provides the voltage regulation for automotive, 3–phase alternators.

It drives an external logic level N channel enhancement power FET for control of the alternator field current. In the event of a charge fault, a lamp output pin is provided to drive an external darlington transistor capable of switching on a fault indicator lamp. An overvoltage or no Stator signal condition activates the lamp output.

This IC has customized current sense circuitry enabling it to drive FET transistors. The CS3361 is available in an SOIC–14 package.

Features

- Drives Logic Level Power NFET
- 80 V Load Dump
- Temperature Compensated Regulation Voltage
- Shorted Field Protection Duty Cycle, Self Clearing
- This is a Pb–Free Device



SOIC-14 D SUFFIX CASE 751A







Figure 1. Block Diagram

PACKAGE PIN DESCRIPTION

PIN NO.	PIN SYMBOL	FUNCTION
1	Driver	Output driver for external power switch.
2	GND	Ground.
3, 6, 7, 9, 13	NC	No Connection.
4	OSC	Timing capacitor for oscillator.
5	Lamp	Base driver for lamp driver indicates no stator signal or overvoltage condition.
8	IGN	Switched ignition power up.
10	Stator	Stator signal input for stator timer.
11	Sense	Battery sense voltage regulator comparator input and protection.
12	V _{CC}	Supply for IC.
14	SC	Short circuit sensing.

MAXIMUM RATINGS

Rating	Value	Unit
Storage Temperature Range, T _S	-55 to +165	°C
Junction Temperature Range	-40 to 150	°C
Continuous Supply	27	V
I _{CC} Load Dump (@ V _{CC} = 80 V _{peak})	400	mA
Lead Temperature Soldering: Reflow: (SMD styles only) (Note 1)	260 peak	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected. 1. 60 second maximum above 183°C.

PACKAGE THERMAL DATA

Parameter	SO-14	Unit	
R _{OJC}	Typical	30	°C/W
R _{OJA}	Typical	125	°C/W

APPLICATIONS INFORMATION

The CS3361 is designed for use in an alternator charging system.

In a standard alternator design (Figure 3), the rotor carries the field winding. An alternator rotor usually has several N and S poles. The magnetic field for the rotor is produced by forcing current through a field or rotor winding. The Stator windings are formed into a number of coils spaced around a cylindrical core. The number of coils equals the number of pairs of N and S poles on the rotor. The alternating current in the Stator windings is rectified by the diodes and applied to the regulator. By controlling the amount of field current, the magnetic field strength is controlled and hence the output voltage of the alternator.

Referring to Figure 7, a typical application f-i/gram, the



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- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. DIMENSION & DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE PROTRUSION SHALL BE 0.13 TOTAL IN EXCESS OF AT MAXIMUM MATERIAL CONDITION.
 4. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSIONS.
 5. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.

SIDE.

GENERIC **MARKING DIAGRAM***

14	A	A	A	A	A	A	H
	2	XX	хх	хх	хх	XG	
	0	A	٩W	LY۱	٨٧	/	
[1	A	IJ	H	H	H	H	IJ

XXXXX	= Specific Device Code
A	= Assembly Location
WL	= Wafer Lot
Y	= Year
WW	= Work Week
G	= Pb-Free Package

STYLES ON PAGE 2

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STYLE 7: PIN 1. ANODE/CATHODE 2. COMMON ANODE 3. COMMON CATHODE 4. ANODE/CATHODE 5. ANODE/CATHODE

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