

Alternator Voltage Regulator FET Driver

CS3361

Features

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†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

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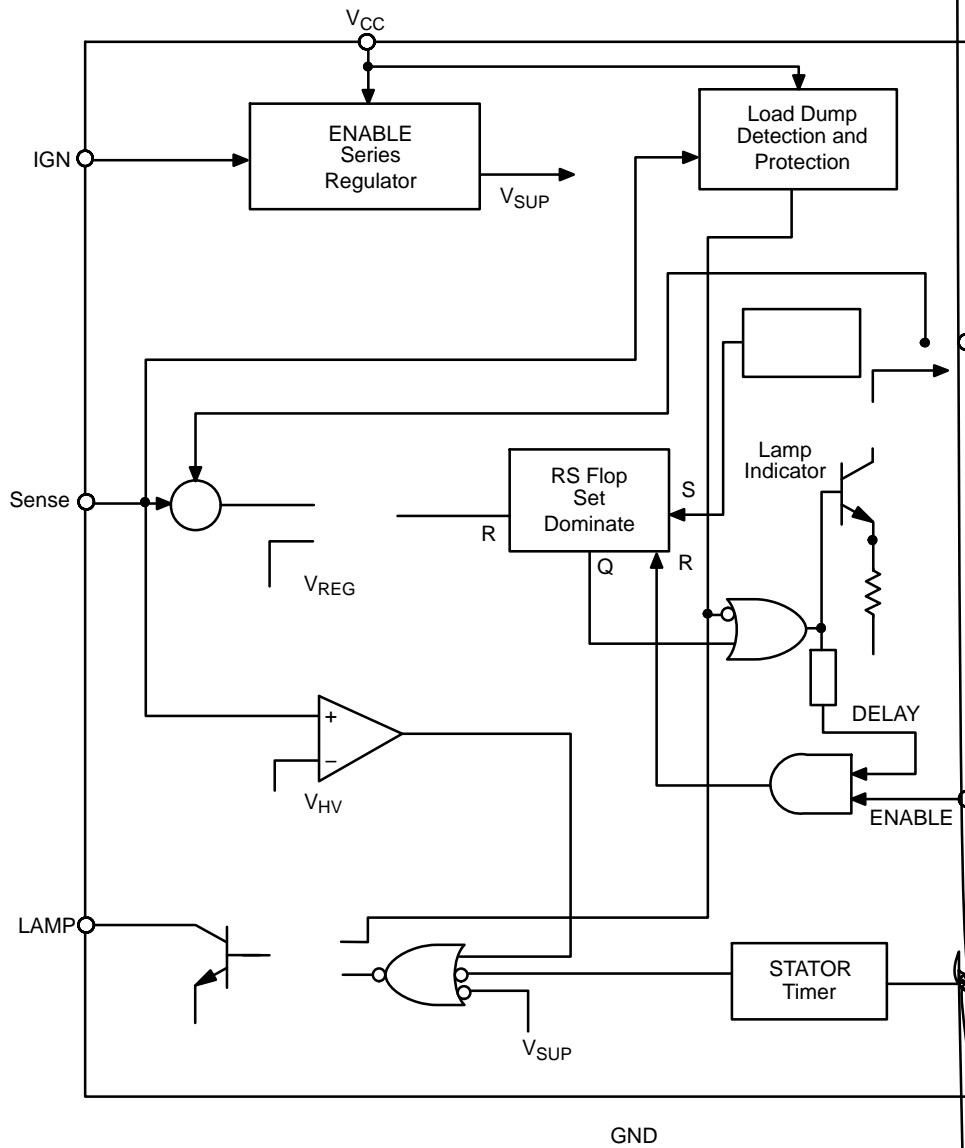


Figure 1. Block Diagram

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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

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ELECTRICAL CHARACTERISTICS ($-40^{\circ}\text{C} < T_A < 125^{\circ}\text{C}$, $-40^{\circ}\text{C} < T_J < 150^{\circ}\text{C}$, $9.0\text{ V} \leq V_{CC} \leq 17\text{ V}$; unless otherwise specified.)

Characteristic	Test Conditions	Min	Typ	Max	Unit
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Supply

Supply Current Enabled	-	-	-	10	mA
Supply Current Disabled	-	-	-	50	μA

Driver Stage

Output High Voltage	-	5.5	-	12	V
Output Low Voltage	$I_{OL} = 25\ \mu\text{A}$	-	-	0.35	V
Output High Current	$V_{DD} = 1.2\text{ V}$	-10	-6.0	-4.0	mA
Minimum ON Time	$C_{OSC} = 0.022\ \mu\text{F}$	200	-	-	μs
Minimum Duty Cycle	-	-	6.0	10	%
Short Circuit Duty Cycle	-	1.0	-	5.0	%
Field Switch Turn On Rise Time	-	15	-	75	μs
Field Switch Turn On Fall Time	-	15	-	75	μs

Stator

Input High Voltage	-	10	-	-	V
Input Low Voltage	-	-	-	6.0	V
Stator Time Out	High to Low	6.0	100	600	ms

Lamp

Output High Current	$V_{LAMP} @ 3.0\text{ V}$	-	-	50	μA
Output Low Voltage	$I_{LAMP} @ 30\text{ mA}$	-	-	0.35	V

Ignition

Input High Voltage	$I_{CC} > 1.0\text{ mA}$	1.8	-	-	V
Input Low Voltage	$I_{CC} < 100\ \mu\text{A}$	-	-	0.5	V

Oscillator

Oscillator Frequency	$C_{OSC} = 0.022\ \mu\text{F}$	90	-	210	Hz
Rise Time/Fall Time	$C_{OSC} = 0.022\ \mu\text{F}$	-	17	-	-
Oscillator High Threshold	$C_{OSC} = 0.022\ \mu\text{F}$	-	-	4.5	Vtsl5t765 36 .39685 re

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TYPICAL PERFORMANCE CHARACTERISTICS

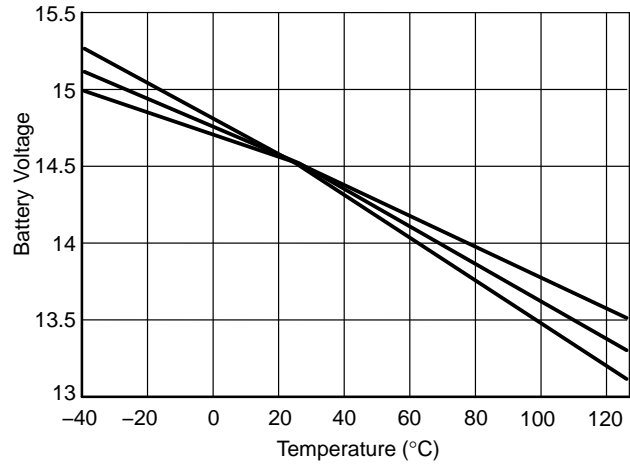


Figure 2. CS3361 Battery Voltage vs. Temperature (°C) Over Process Variation

REGULATION WAVEFORMS

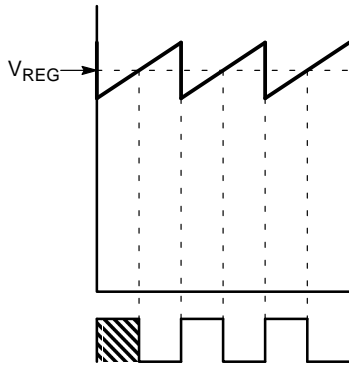


Figure 4. 50% Duty Cycle, Steady State

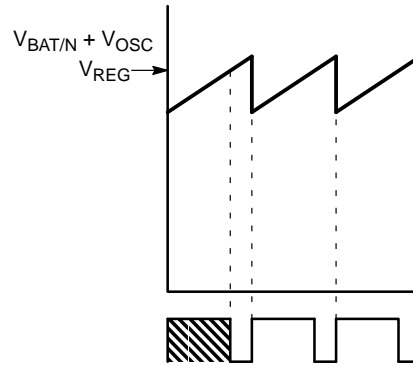


Figure 5. > 50% Duty Cycle, Increased Load

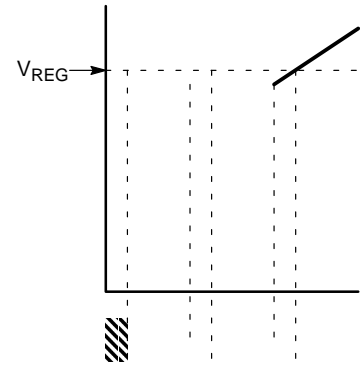
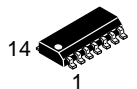


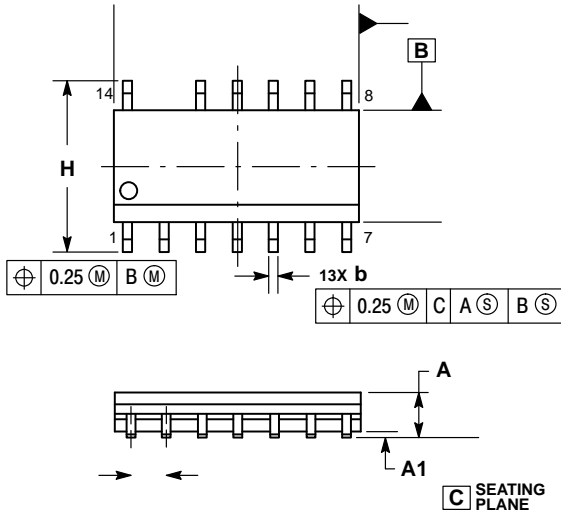
Figure 6. < 50% Duty Cycle, Decreased Load



SCALE 1:1

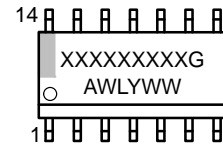
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CASE 751A-03
ISSUE L

DATE 03 FEB 2016



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. DIMENSION b 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.

GENERIC MARKING DIAGRAM*



- XXXXXX = 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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