Alternator Voltage Regulator FET Driver

CS3361

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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.

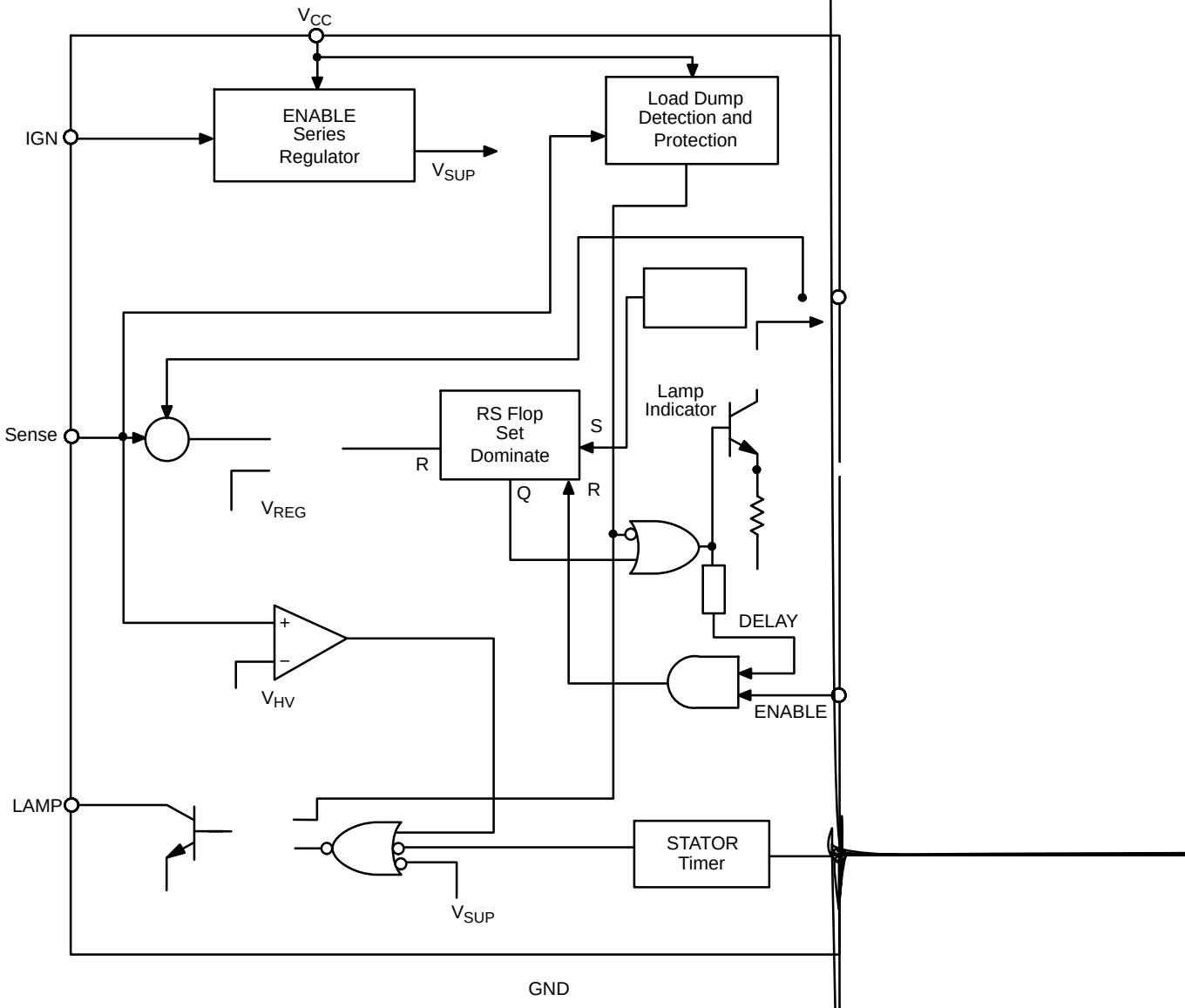


Figure 1. Block Diagram

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 alityureliabi

ELECTRICAL CHARACTERISTICS (−40°C < T_A < 125°C, −40°C < T_J < 150°C, 9.0 V ≤ V_{CC} ≤ 17 V; unless otherwise specified.)

Characteristic	Test Conditions	Min	Typ	Max	Unit
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 μA	–	–	0.35	V
Output High Current	V_{DD} = 1.2 V	−10	−6.0	−4.0	mA
Minimum ON Time	C_{OSC} = 0.022 μF	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 V	–	–	50	μA
Output Low Voltage	I_{LAMP} @ 30 mA	–	–	0.35	V
Ignition					
Input High Voltage	I_{CC} > 1.0 mA	1.8	–	–	V
Input Low Voltage	I_{CC} < 100 μA	–	–	0.5	V
Oscillator					
Oscillator Frequency	C_{OSC} = 0.022 μF	90	–	210	Hz
Rise Time/Fall Time	C_{OSC} = 0.022 μF	–	17	–	–
Oscillator High Threshold	C_{OSC} = 0.022 μF	–	–	4.5	Vtsl5t765 36 .39685 re

TYPICAL PERFORMANCE CHARACTERISTICS

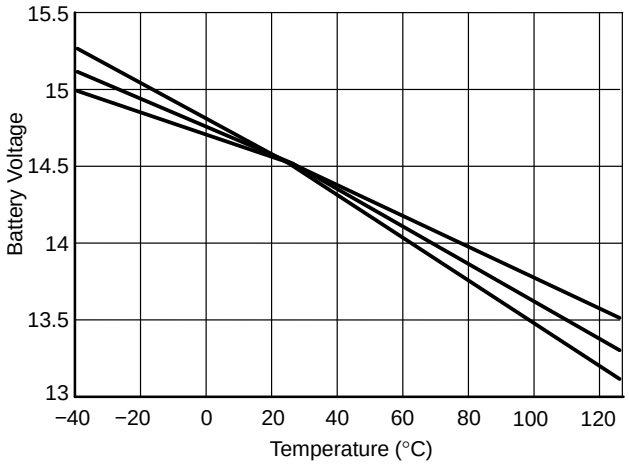


Figure 2. CS3361 Battery Voltage vs. Temperature (°C) Over Process Variation

CS3361

REGULATION WAVEFORMS

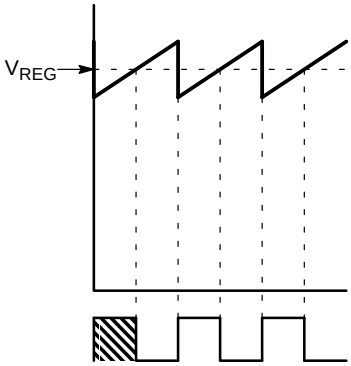


Figure 4. 50% Duty Cycle, Steady State

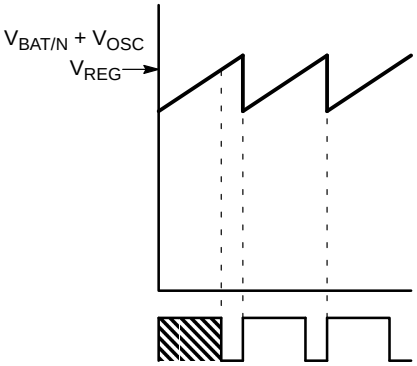


Figure 5. > 50% Duty Cycle, Increased Load

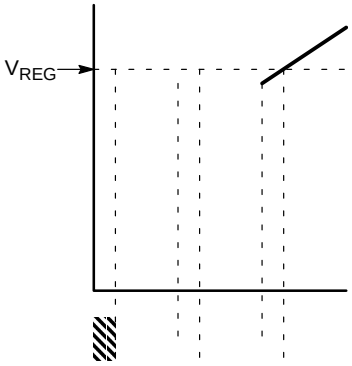
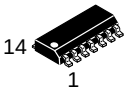


Figure 6. < 50% Duty Cycle, Decreased Load



SCALE 1:1

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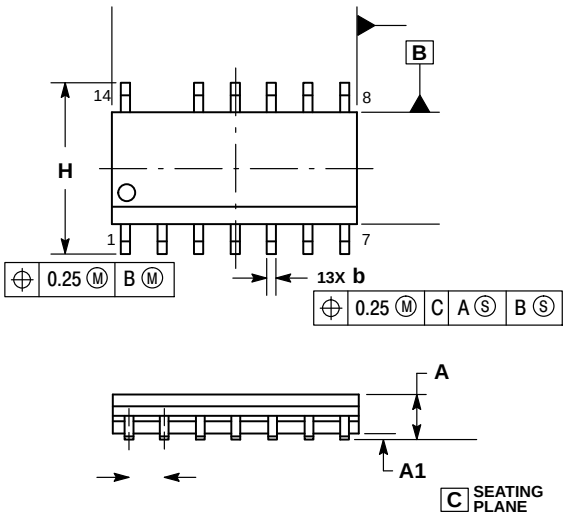
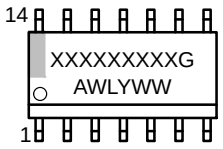


NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE PROTRUSION SHALL BE 0.13 TOTAL IN EXCESS OF AT MAXIMUM MATERIAL CONDITION.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSIONS.
5. MAXIMUM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

GENERIC
MARKING DIAGRAM*



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