

ASA28XXS SERIES

28V Input, Single Output

HYBRID-HIGH RELIABILITY DC/DC CONVERTER

Description

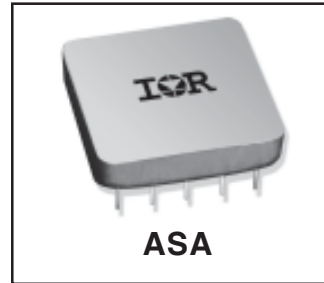
The ASA28XXS Series of DC/DC converters are high reliability thick film hybrid converters that use flyback topology operating at a nominal frequency of 550KHz. High input to output isolation is achieved through the use of transformers in the flyback power and feedback circuits.

The advanced feedback design provides fast loop response for superior line and load transient characteristics and offers greater reliability than devices incorporating optical feedback circuits.

This device is designed to meet MIL-STD-704D input requirements offering full performance over a 16V to 40V input range. Output Power of up to 5W is available.

Connecting the inhibit pin (pin 5) to the input common (pin 7) will cause the converter to shut down. It is recommended that the inhibit pin be driven by an open collector device capable of sinking at least 400 μ A. The open circuit voltage of the inhibit pin is 11.5 \pm 0.5V.

Manufactured in a facility fully qualified to MIL-PRF-38534, these converters are fabricated utilizing DSCC qualified processes. For available screening options, refer to device screening table in the data sheet. Variations in electrical, mechanical and screening requirements can be accommodated. Extensive computer simulation using complex modeling allows design modifications to be examined. Contact IR Santa Clara with specific requirements.



Features

- Up To 5.0W Output Power
- 5V, 12V, 15V Outputs
- High Reliability
- Wide Input Voltage Range -16V To 40V
- Indefinite Short Circuit and Overload Protection
- Popular Industry Standard Pin-Out
- Military Screening Available
- Parallel Seam Welded Package
- No External Capacitors Required
- Input Voltage Surge Protected to MIL-STD-704A
- Under Voltage Lockout
- Available as Standard Military Drawing
- Standard Microcircuit Drawings Available

ASA28XXS Series

Specifications

International
IR Rectifier

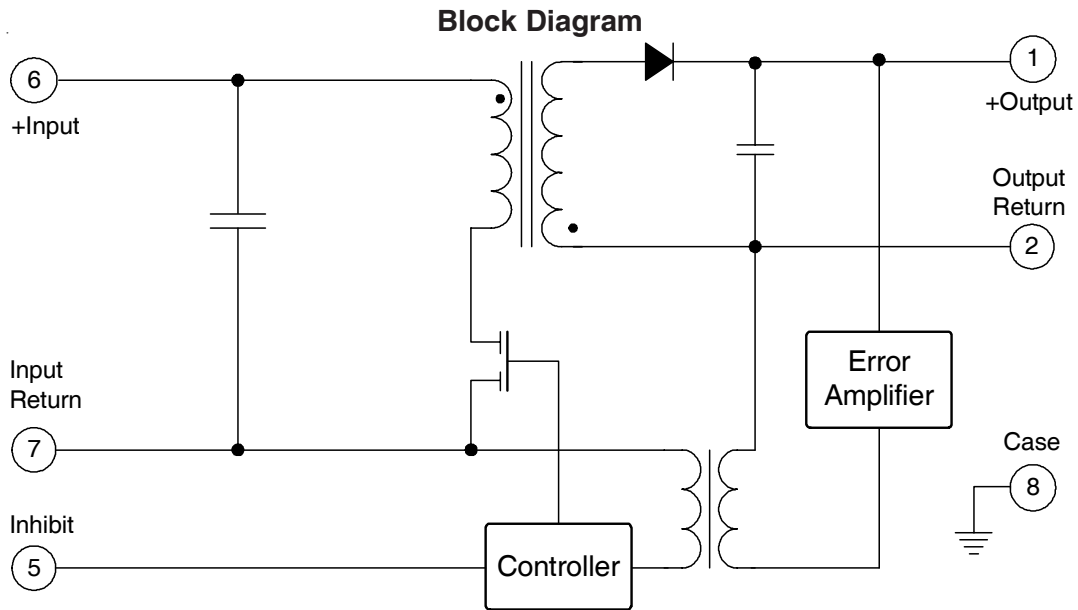
| Absolute Maximum Ratings | |
|----------------------------|---|
| Input voltage | -0.5V to +50VDC Continuous, 80V, 100 msec |
| Power output | Internally limited (6.5W typical) |
| Soldering temperature | 300°C for 10 seconds |
| Operating case temperature | -55°C to +125°C |
| Storage case temperature | -65°C to +135°C |

| TEST | Conditions -55° ≤ T _C ≤ +125°C V _{IN} = 28V dc ±5% C _L = 0 unless otherwise specified | Group A Subgroups | ASA2805S/xx | | ASA2812S/xx | | ASA2815S/xx | | Unit |
|---|---|----------------------|-------------|------|-------------|-------|-------------|-------|------------------|
| | | | Min | Max | Min | Max | Min | Max | |
| Output voltage | I _{OUT} = 0 | 1 | 4.95 | 5.05 | 11.88 | 12.12 | 14.85 | 15.15 | V |
| | | 2, 3 | 4.90 | 5.10 | 11.76 | 12.24 | 14.70 | 15.30 | |
| Output current ¹ | V _{IN} = 16, 28, and 40 V dc | 1, 2, 3 | | 1000 | | 417 | | 333 | mA |
| Output ripple voltage ² | V _{IN} = 16, 28 and 40 V dc | 1 | | 190 | | 200 | | 200 | mV _{PP} |
| | | 2, 3 | | 475 | | 290 | | 290 | |
| Line regulation | V _{IN} = 16, 28, and 40 V dc I _{OUT} = 0, 50%, 100% I _{MAX} | 1 | | 25 | | ±25 | | ±25 | mV |
| | | 2, 3 | | 50 | | ±50 | | ±50 | |
| Load regulation | V _{IN} = 16, 28, and 40 V dc I _{OUT} = 0, 50%, 100% I _{MAX} | 1 | | 25 | | ±25 | | ±25 | mV |
| | | 2, 3 | | 50 | | ±50 | | ±50 | |
| Input current | I _{OUT} = 0 Pin 5 to Pin 7 | 1, 2, 3 | | 18 | | 18 | | 18 | mA |
| | I _{OUT} = 0 Pin5 open | | | 50 | | 50 | | 50 | |
| Input ripple current ² | I _{OUT} = I _{MAX} | 1, 2, 3 | | 100 | | 100 | | 100 | mA _{PP} |
| Efficiency | I _{OUT} = I _{MAX} | 1 | 66 | | 71 | | 71 | | % |
| | | 2, 3 | | | 68 | | 68 | | |
| Isolation - Input to output or any pin to case | V _{TEST} 500 Vdc, T _C = +25°C | 1 | 100 | | 100 | | 100 | | MΩ |
| Capacitive load ^{3, 4} | No effect on dc performance, T _C = +25°C | 4 | | 500 | | 200 | | 200 | μF |
| Power dissipation, load fault | Overload ⁵ | 1, 2, 3 | | 4.0 | | 4.0 | | 4.0 | W |
| | Short circuit | | | 2.0 | | 2.0 | | 2.0 | |
| Switching frequency ⁴ | I _{OUT} = I _{MAX} | 4, 5, 6 | 500 | 600 | 500 | 600 | 500 | 600 | KHz |
| Output response to step transient load changes ⁶ | ½ I _{MAX} ⇔ I _{MAX} | 4 | -300 | +300 | -450 | +450 | -400 | +450 | mV pk |
| | | 5, 6 | -450 | +450 | | | | | |
| | 0 mA ⇔ I _{MAX} | 4 | -500 | +500 | -750 | +750 | -800 | +750 | |
| | | 5, 6 | -750 | +700 | | | | | |
| Recovery time, step transient load changes | I _{OUT} = I _{MAX} | 4, 5, 6 | | 200 | | 100 | | 100 | μs |
| | 0 mA ⇔ ½ I _{MAX} | | | 1.0 | | 1.0 | | 1.0 | ms |
| Output response transient step line changes ^{4, 8} | Input step 16 ⇔ 40 V dc I _{OUT} = I _{MAX} | 4, 5, 6 | | 500 | | 1000 | | 1000 | mV pk |
| Recovery time transient step line changes ^{4, 7, 8} | Input step 16 ⇔ 40 V dc I _{OUT} = I _{MAX} | 4, 5, 6 | | 800 | | 800 | | 800 | μs |
| Turn on overshoot | I _{OUT} = 0 mA, I _{MAX} | 4, 5, 6 | | 600 | | 600 | | 600 | mV pk |
| Turn on delay ⁹ | I _{OUT} = 0 or I _{MAX} | 4, 5, 6 | | 20 | | 25 | | 25 | ms |
| Load fault recovery ⁴ | | 4, 5, 6 | | 20 | | 25 | | 25 | ms |

For Notes to Specifications, refer to page 3

Notes to Specifications

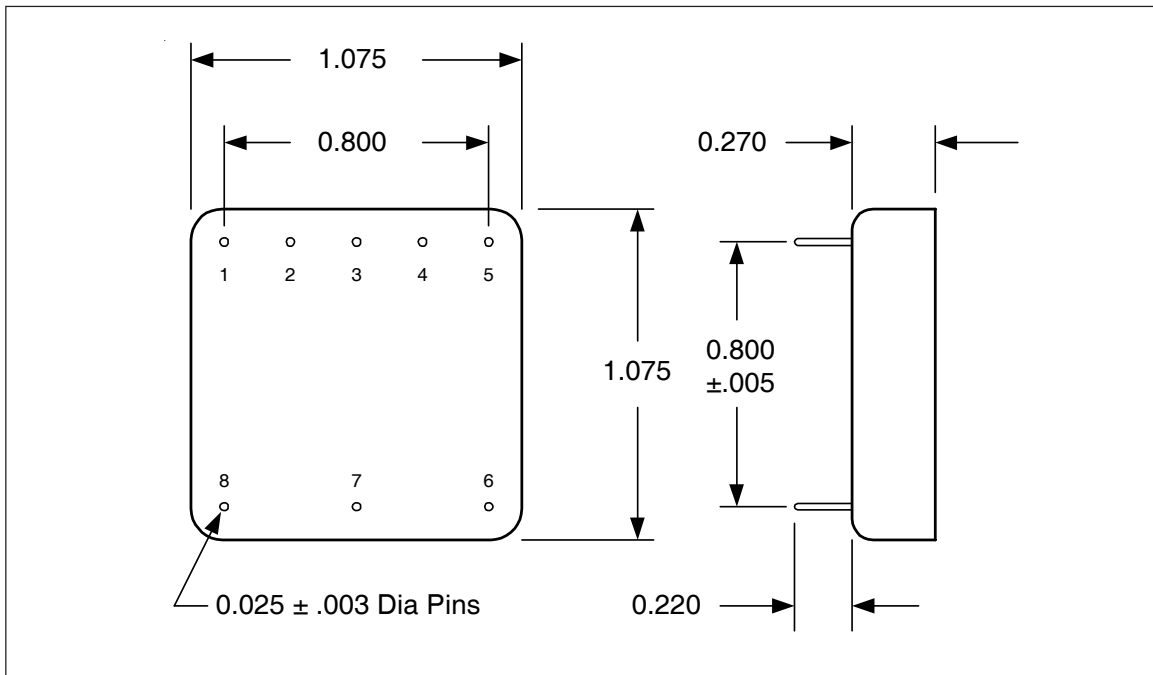
1. Parameter guaranteed and measured during line and load regulation tests.
2. Bandwidth guaranteed by design. Tested for 20KHz to 2MHz.
3. Capacitive load may be any value from 0 to the maximum limit without compromising dc performance. A capacitive load in excess of the maximum limit will not disturb loop stability but may interfere with the operation of the load fault detection circuitry, appearing as a short circuit during turn-on.
4. Parameter shall be tested as part of design characterization and after design or process changes.
5. An overload is that condition of load in excess of rated load but less than that necessary to trigger the short circuit protection and is the condition of maximum power dissipation.
6. Load step transition time between 2 μ s and 10 μ s.
7. Recovery time is measured from the initiation of the transient to where V_{OUT} has returned to within $\pm 1\%$ of V_{OUT} at 50% load.
8. Input step transition time between 2 μ s and 10 μ s.
9. Turn-on delay time measurement is for either a step application of power at the input or the removal of a ground signal from the inhibit pin (pin 2) while power is applied to the input.



Standard Microcircuit Drawing Equivalence Table

| Standard Microcircuit Drawing Number | IR Standard Part Number |
|--------------------------------------|-------------------------|
| 5962-94629 | ASA2805S |
| 5962-94630 | ASA2815S |
| 5962-94631 | ASA2812S |

Mechanical Outline



Pin Designation

| Pin # | Designation |
|-------|---------------|
| 1 | + Output |
| 2 | Output Return |
| 3 | NC |
| 4 | NC |
| 5 | Inhibit |
| 6 | + Input |
| 7 | Input Return |
| 8 | Case Ground |

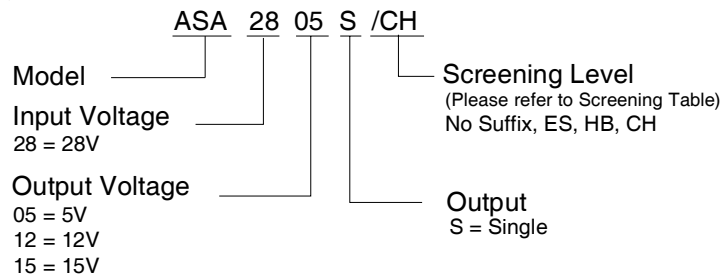
Device Screening

| Requirement | MIL-STD-883 Method | No Suffix | ES ② | HB | CH |
|------------------------------|-------------------------------|----------------|-------------------|----------------------|----------------------|
| Temperature Range | — | -20°C to +85°C | -55°C to +125°C ③ | -55°C to +125°C | -55°C to +125°C |
| Element Evaluation | MIL-PRF-38534 | N/A | N/A | N/A | Class H |
| Non-Destructive Bond Pull | 2023 | N/A | N/A | N/A | N/A |
| Internal Visual | 2017 | ① | Yes | Yes | Yes |
| Temperature Cycle | 1010 | N/A | Cond B | Cond C | Cond C |
| Constant Acceleration | 2001, Y1 Axis | N/A | 500 Gs | 3000 Gs | 3000 Gs |
| PIND | 2020 | N/A | N/A | N/A | N/A |
| Burn-In | 1015 | N/A | 48 hrs@hi temp | 160 hrs@125°C | 160 hrs@125°C |
| Final Electrical (Group A) | MIL-PRF-38534 & Specification | 25°C | 25°C ② | -55°C, +25°C, +125°C | -55°C, +25°C, +125°C |
| PDA | MIL-PRF-38534 | N/A | N/A | N/A | 10% |
| Seal, Fine and Gross | 1014 | Cond A | Cond A, C | Cond A, C | Cond A, C |
| Radiographic | 2012 | N/A | N/A | N/A | N/A |
| External Visual | 2009 | ① | Yes | Yes | Yes |

Notes:

- ① Best commercial practice
- ② Sample tests at low and high temperatures
- ③ -55°C to +105°C for AHE, ATO, ATW

Part Numbering



单击下面可查看定价，库存，交付和生命周期等信息

[>>Infineon Technologies\(英飞凌\)](#)