

# AUIPS7081(R)(S)

## INTELLIGENT POWER HIGH SIDE SWITCH

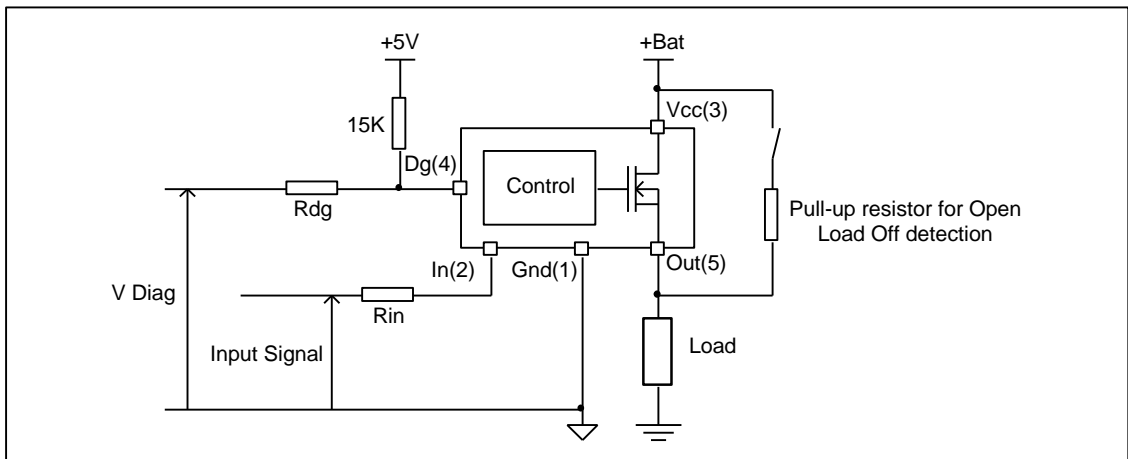
### Features

- Over temperature shutdown (with auto-restart)
- Short circuit protection (current limit)
- Active clamp
- Open load detection
- Logic ground isolated from power ground
- ESD protection
- Ground loss protection
- Status feedback

### Description

The AUIPS7081(R)(S) is a five terminal Intelligent Power Switch (IPS) with built in short circuit, over-temperature, ESD protection, inductive load capability and diagnostic feedback. The output current is limited at  $I_{lim}$  value. Current limitation is activated until the thermal protection acts. The over-temperature protection turns off the device if the junction temperature exceeds  $T_{shutdown}$ . It will automatically restart after the junction has cooled  $7^{\circ}\text{C}$  below  $T_{shutdown}$ . A diagnostic pin is provided for status feedback of short circuit, over-temperature and open load detection. The double level shifter circuitry allows large offsets between the logic ground and the load.

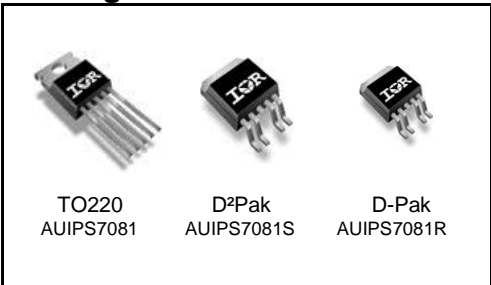
### Typical Connection



### Product Summary

|              |                   |
|--------------|-------------------|
| $R_{ds(on)}$ | 70m $\Omega$ max. |
| $V_{clamp}$  | 70V               |
| I Limit      | 5A (typ.)         |
| Open load    | 3V                |

### Package



## Qualification Information†

|                                   |                      |   |   |
|-----------------------------------|----------------------|---|---|
| <b>Qualification Level</b>        |                      | Automotive<br>(per AEC-Q100)  |   |
|                                   |                      | Comments: This family of ICs has passed an Automotive qualification. IR's Industrial and Consumer qualification level is granted by extension of the higher Automotive level. |   |
| <b>Moisture Sensitivity Level</b> |                      | D2PAK-5L  | MSL1, 260°C<br>(per IPC/JEDEC J-STD-020)            |
|                                   |                      | TO-220  | Not applicable<br>(non-surface mount package style) |
|                                   |                      | DPAK-5L   | MSL1, 260°C<br>(per IPC/JEDEC J-STD-020)            |
| <b>ESD</b>                        | Machine Model        | Class M2 (+/-200V)<br>(per AEC-Q100-003)  |   |
|                                   | Human Body Model     | Class H2 (+/-4000V)<br>(per AEC-Q100-002)   |   |
|                                   | Charged Device Model | Class C4 (+/-1000V)<br>(per AEC-Q100-011)   |   |
| <b>IC Latch-Up Test</b>           |                      | Class II, Level A<br>(per AEC-Q100-004)   |   |
| <b>RoHS Compliant</b>             |                      | Yes   |   |

† Qualification standards can be found at International Rectifier's web site <http://www.irf.com/>

## Absolute Maximum Ratings

Absolute maximum ratings indicate sustained limits beyond which damage to the device may occur. All voltage parameters are referenced to Ground lead.  $T_j = -40^{\circ}\text{C}..150^{\circ}\text{C}$ ,  $V_{cc}=6..35\text{V}$  (unless otherwise specified).

| Symbol                | Parameter   | Min.        | Max.         | Units |
|-----------------------|---|-------------|--------------|-------|
| Vout                  | Maximum output voltage  | $V_{cc}-63$ | $V_{cc}+0.3$ | V     |
| Voffset               | Maximum logic ground to load ground offset  | $V_{cc}-63$ | $V_{cc}+0.3$ |       |
| Vin                   | Maximum input voltage   | -0.3        | 5.5          |       |
| Vcc max.              | Maximum Vcc voltage   | —           | 60           |       |
| Vcc cont.             | Maximum continuous Vcc voltage  | —           | 35           |       |
| Vcc sc                | Maximum Vcc voltage with short circuit protection   | —           | 24           |       |
| Iin max.              | Maximum IN current  | -1          | 10           | mA    |
| I <sub>dg</sub> max.  | Maximum diagnostic output current   | -1          | 10           |       |
| V <sub>dg</sub>       | Maximum diagnostic output voltage   | -0.3        | 5.5          | V     |
| P <sub>d</sub>        | Maximum power dissipation (internally limited by thermal protection)<br>R <sub>th</sub> =50°C/W | —           | 2.5          | W     |
| I <sub>sd</sub> cont. | Maximum continuous diode current (R <sub>th</sub> =50°C/W)                                      | —           | 2.2          | A     |
| ESD1                  | Electrostatic discharge voltage (Human body) 100pF, 1500Ω                                       | —           | 4            | kV    |
| ESD2                  | Electrostatic discharge voltage (Machine Model) C=200pF,R=0Ω,L=10μH                             | —           | 0.5          |       |
| T <sub>j</sub> max.   | Max. storage & operating temperature junction temperature                                       | -40         | +150         | °C    |

## Thermal Characteristics

| Symbol           | Parameter  | Typ. | Max. | Units |
|------------------|--|------|------|-------|
| R <sub>th1</sub> | Thermal resistance junction to ambient D-Pak std. footprint            | 70   | —    | °C/W  |
| R <sub>th2</sub> | Thermal resistance junction to ambient D-Pak 1" sqrt. footprint        | 50   | —    |       |
| R <sub>th3</sub> | Thermal resistance junction to case D-Pak / TO220 / D <sup>2</sup> Pak | 3    | —    |       |
| R <sub>th1</sub> | Thermal resistance junction to ambient TO220 free air                  | 60   | —    |       |

## Recommended Operating Conditions

These values are given for a quick design. For operation outside these conditions, please consult the application notes.

| Symbol           | Parameter   | Min. | Max. | Units |
|------------------|---|------|------|-------|
| V <sub>IH</sub>  | High level input voltage  | 4    | 5.5  | V     |
| V <sub>IL</sub>  | Low level input voltage   | -0.3 | 0.9  |       |
| I <sub>out</sub> | Continuous drain current, T <sub>amb</sub> =85°C, T <sub>j</sub> =125°C, V <sub>in</sub> =5V, R <sub>th</sub> =50°C/W | —    | 2.3  | A     |
| R <sub>in</sub>  | Recommended resistor in series with IN pin  | 4    | 10   | kΩ    |
| R <sub>dg</sub>  | Recommended resistor in series with DG pin  | 10   | 20   |       |
| R <sub>ol</sub>  | Recommended pull-up resistor for open load detection  | 5    | 100  |       |

## Static Electrical Characteristics

$T_j = -40..150^{\circ}\text{C}$ ,  $V_{cc} = 6..35\text{V}$  (unless otherwise specified), typical values are given for  $V_{cc} = 14\text{V}$  and  $T_j = 25^{\circ}\text{C}$

| Symbol                  | Parameter   | Min. | Typ. | Max. | Units         | Test Conditions                              |
|-------------------------|---|------|------|------|---------------|--|
| Rds(on)                 | ON state resistance $T_j = 25^{\circ}\text{C}$                          | —    | 55   | 70   | m $\Omega$    | $V_{in} = 5\text{V}$ , $I_{out} = 2\text{A}$ |
|                         | ON state resistance $T_j = 150^{\circ}\text{C}$                         | —    | 100  | 130  |               | $V_{in} = 5\text{V}$ , $I_{out} = 2\text{A}$ |
|                         | ON state resistance $T_j = 25^{\circ}\text{C}$ , $V_{cc} = 6.5\text{V}$ | —    | 60   | 80   |               | $V_{in} = 5\text{V}$ , $I_{out} = 2\text{A}$ |
| Vcc op.                 | Operating voltage range   | 6    | —    | 35   | V             |  |
| V clamp                 | Vcc to Out clamp voltage  | 63   | 70   | —    |               | $I_{out} = 30\text{mA}$ (see Fig. 1)         |
| Vf                      | Body diode forward voltage  | —    | 1    | 1.4  |               | $I_{out} = 2.5\text{A}$                      |
| Icc Off                 | Supply current when Off $T_j = 25^{\circ}\text{C}$                      | —    | 2.5  | 10   | $\mu\text{A}$ | $V_{in} = 0\text{V}$ , $V_{out} = 0\text{V}$ |
| Icc On                  | Supply current when On  | —    | 2.5  | 4    | mA            | $V_{in} = 5\text{V}$ , $V_{cc} = 14\text{V}$ |
| Iout@0V                 | Output leakage current  | —    | 2.5  | 10   | $\mu\text{A}$ | $V_{out} = 0\text{V}$                        |
| Iout@6V                 | Output leakage current  | —    | 20   | —    |               | $V_{out} = 6\text{V}$                        |
| I <sub>dg</sub> leakage | Diagnostic output leakage current                                       | —    | —    | 10   |               | $V_{dg} = 5.5\text{V}$                       |
| V <sub>dgl</sub>        | Low level diagnostic output voltage                                     | —    | 0.1  | 0.3  | V             | $I_{dg} = 1.6\text{mA}$                      |
| V <sub>ih</sub>         | Input high threshold voltage  | —    | 2.5  | 3.5  |               |  |
| V <sub>il</sub>         | Input low threshold voltage   | 1    | 2    | —    |               |  |
| I <sub>n hys</sub>      | Input hysteresis  | 0.05 | 0.5  | 1    |               |  |
| UV high                 | Under voltage high threshold voltage                                    | —    | 5    | 6.2  |               |  |
| UV low                  | Under voltage low threshold voltage                                     | 3    | 4.5  | 5.9  |               |  |
| UV hys                  | Under voltage hysteresis  | 0.1  | 0.5  | 1.5  |               |  |
| I <sub>in</sub> On      | Input current when device is On   | —    | 40   | 80   |               | $\mu\text{A}$                                |

## Switching Electrical Characteristics

$V_{cc} = 14\text{V}$ , Resistive load =  $6\Omega$ ,  $V_{in} = 5\text{V}$ ,  $T_j = -40^{\circ}\text{C}..150^{\circ}\text{C}$ , typical values are given for  $T_j = 25^{\circ}\text{C}$

| Symbol            | Parameter   | Min. | Typ. | Max. | Units            | Test Conditions        |
|-------------------|---|------|------|------|------------------|------------------------|
| T <sub>don</sub>  | Turn-on delay time                                      | —    | 16   | 45   | $\mu\text{s}$    | See Fig. 3             |
| Tr1               | Rise time to $V_{out} = V_{cc} - 5\text{V}$             | —    | 10   | 50   |                  |                        |
| Tr2               | Rise time to $V_{out} = 0.9 \times V_{cc}$              | —    | 20   | 100  |                  |                        |
| dV/dt (On)        | Turn On dV/dt   | —    | 0.8  | 3    | V/ $\mu\text{s}$ |                        |
| E <sub>On</sub>   | Turn On energy  | —    | 100  | —    | $\mu\text{J}$    |                        |
| T <sub>doff</sub> | Turn-off delay time                                     | —    | 25   | 50   | $\mu\text{s}$    |                        |
| T <sub>f</sub>    | Fall time to $V_{out} = 0.1 \times V_{cc}$              | —    | 7.5  | 25   |                  |                        |
| dV/dt (Off)       | Turn Off dV/dt  | —    | 1.6  | 3.5  | V/ $\mu\text{s}$ |                        |
| E <sub>Off</sub>  | Turn Off energy   | —    | 25   | —    | $\mu\text{J}$    |                        |
| T <sub>diag</sub> | V <sub>out</sub> to V <sub>diag</sub> propagation delay | —    | 15   | —    | $\mu\text{s}$    | See Fig. 4 and Fig. 12 |

## Protection Characteristics

$T_j = -40..150^{\circ}\text{C}$ ,  $V_{cc} = 6..35\text{V}$  (unless otherwise specified), typical values are given for  $V_{cc} = 14\text{V}$  and  $T_j = 25^{\circ}\text{C}$

| Symbol     | Parameter                                      | Min.               | Typ. | Max. | Units | Test Conditions                                    |
|------------|--|--------------------|------|------|-------|--|
| Ilim       | Internal current limit                         | 2                  | 5    | 13.5 | A     | $V_{out} = 0\text{V}$ , $T_j = 25^{\circ}\text{C}$ |
| Tsd+       | Over temperature high threshold                | 150 <sup>(1)</sup> | 165  | —    | °C    | See Fig. 2   |
| Tsd-       | Over temperature low threshold                 | —                  | 158  | —    |       |  |
| Vsc        | Short-circuit detection voltage <sup>(2)</sup> | 2                  | 3    | 4    | V     |  |
| Vopen load | Open load detection threshold                  | 2                  | 3    | 4    |       |  |

<sup>(1)</sup> Guaranteed by design

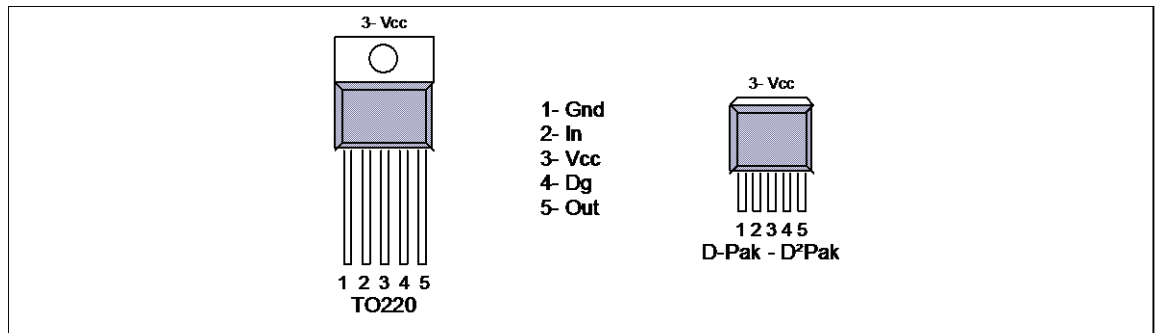
<sup>(2)</sup> Reference to  $V_{cc}$

## Truth Table

| Operating Conditions     | IN | OUT          | DG pin |
|--------------------------|----|--------------|--------|
| Normal                   | H  | H            | H      |
| Normal                   | L  | L            | L      |
| Open Load                | H  | H            | H      |
| Open Load <sup>(3)</sup> | L  | H            | H      |
| Short circuit to Gnd     | H  | L (limiting) | L      |
| Short circuit to Gnd     | L  | L            | L      |
| Over-temperature         | H  | L (cycling)  | L      |
| Over-temperature         | L  | L            | L      |

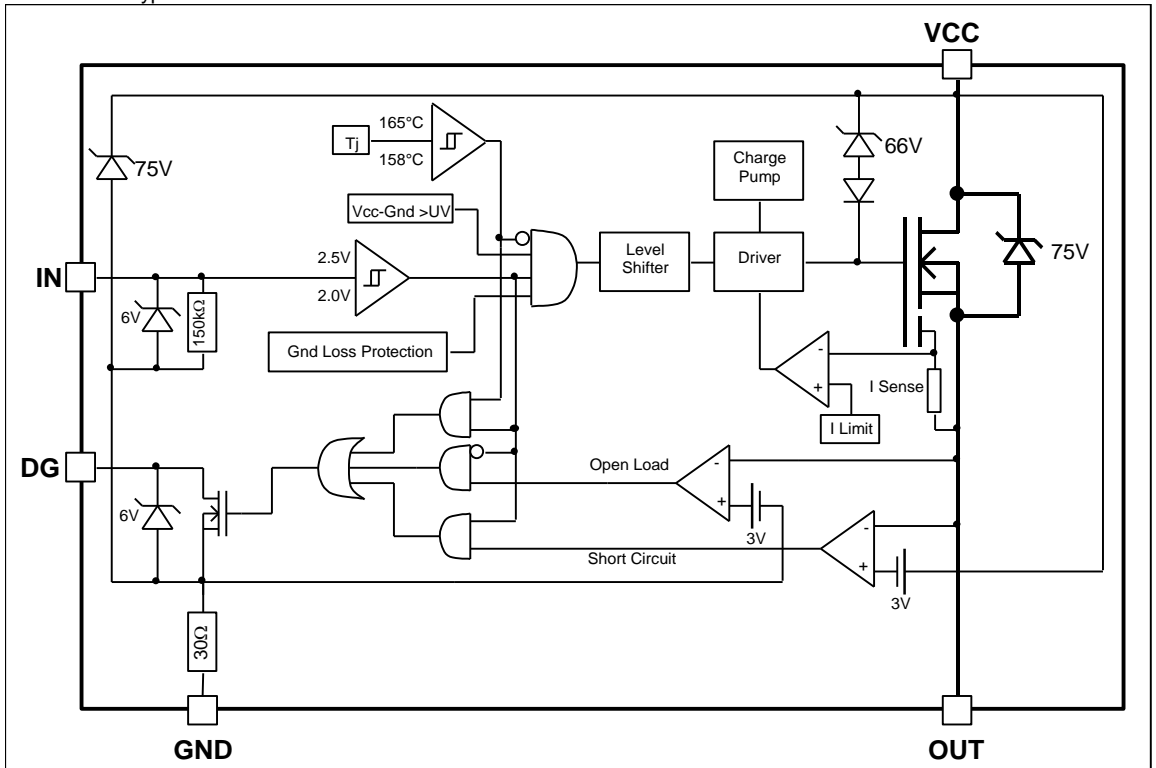
<sup>(3)</sup> With a pull-up resistor connected between the output and  $V_{cc}$ .

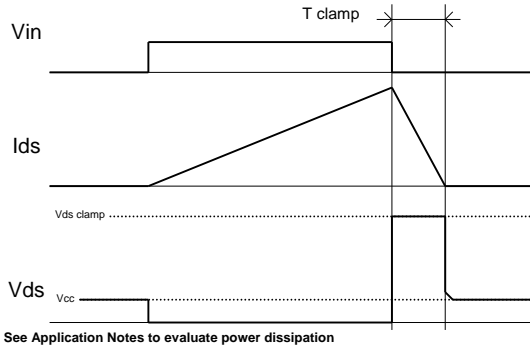
## Lead Assignments



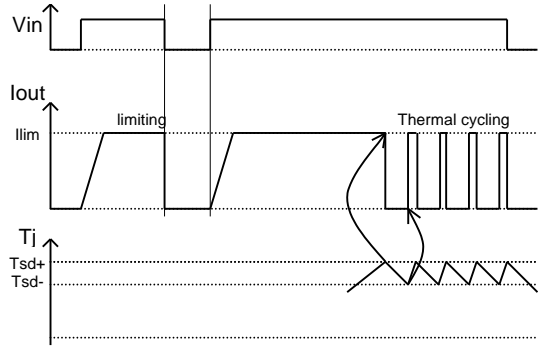
## Functional Block Diagram

All values are typical

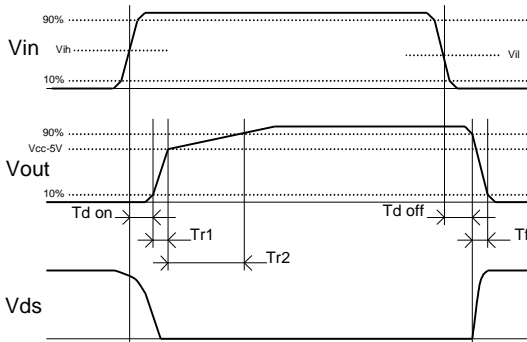




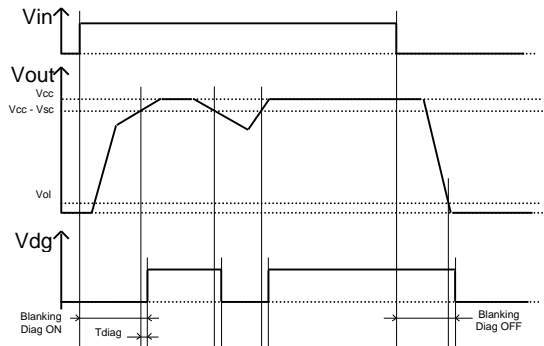
**Figure 1 – Active clamp waveforms**



**Figure 2 – Protection timing diagram**



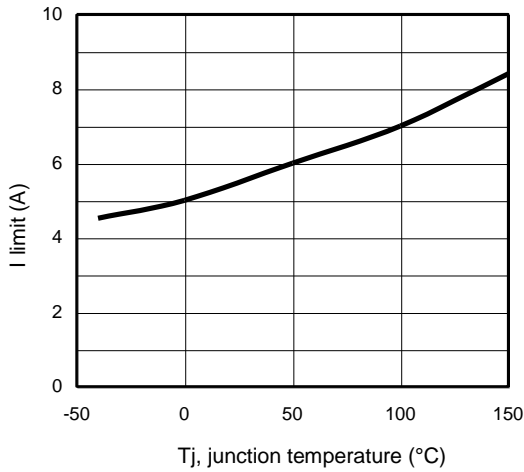
**Figure 3 – Switching times definition**



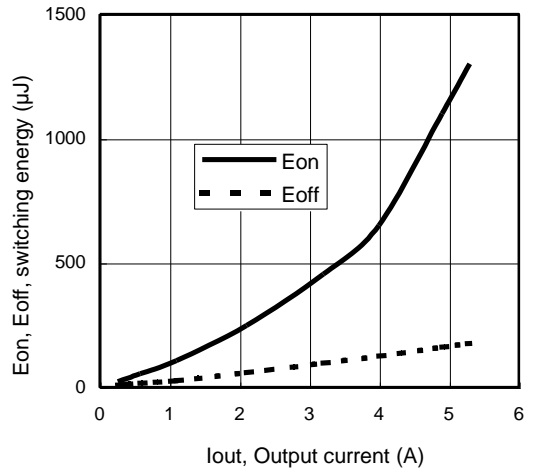
**Figure 4 – Diagnostic delay definition**



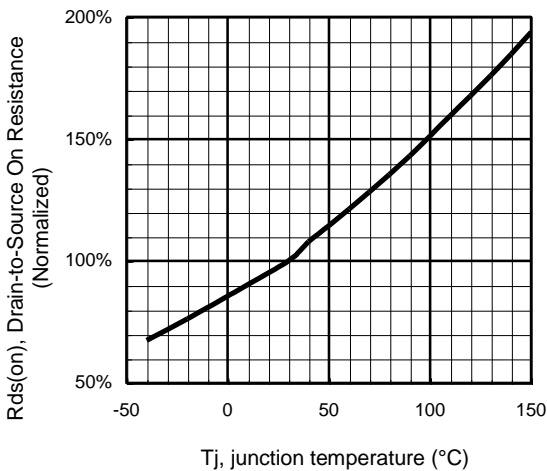




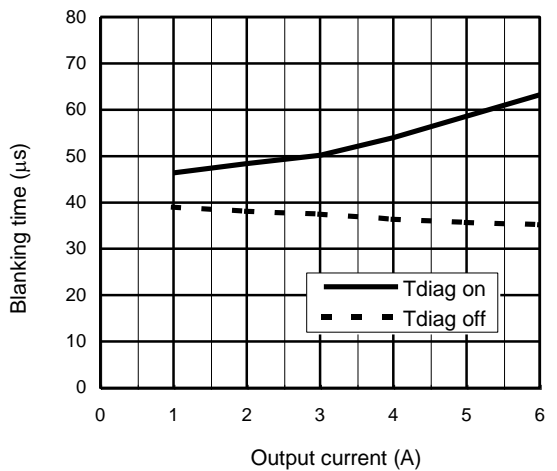
**Figure 9 – I limit (A)  
Vs junction temperature (°C)**



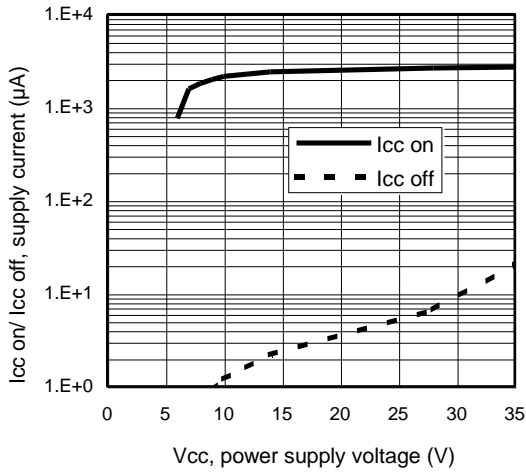
**Figure 10 – Switching energy (µJ) Vs Output current (A)**



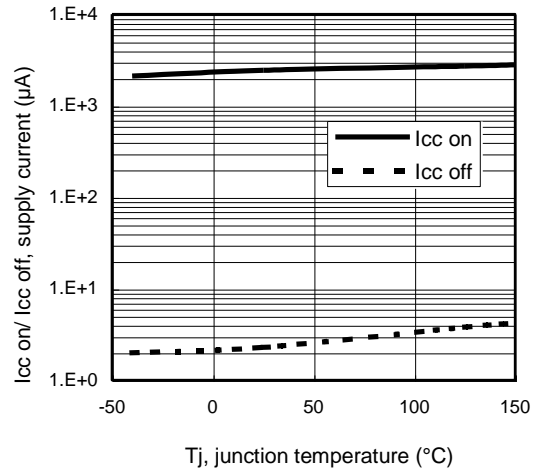
**Figure 11 - Normalized R<sub>ds(on)</sub> (%) Vs T<sub>j</sub> (°C)**



**Figure 12 – Diagnostic Blanking time (µs) Vs Output current (A)**

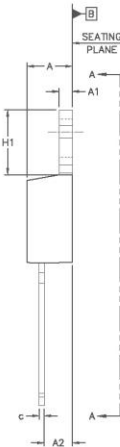
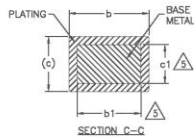
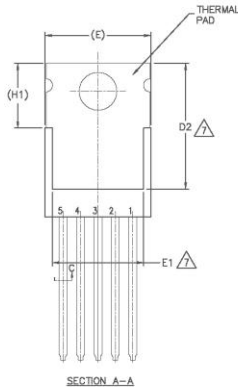
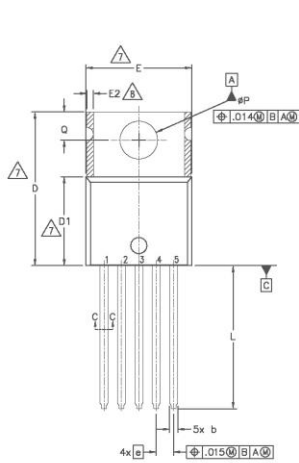


**Figure 13 – Icc on/ Icc off (µA) Vs Vcc (V)**



**Figure 14 – Icc on/ Icc off (µA) Vs Tj (°C)**

## Case outline – TO220 – 5 leads

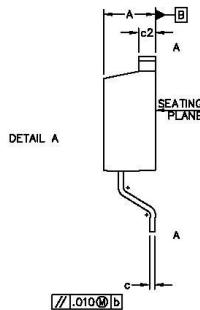
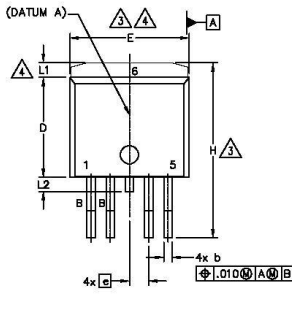
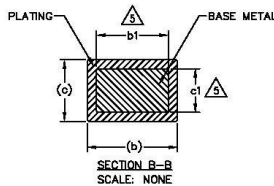
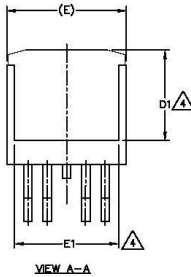
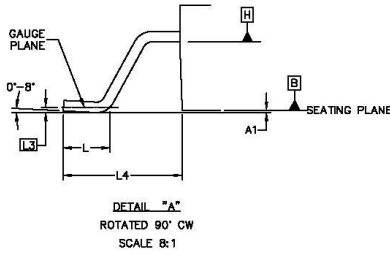


| SYMBOL | DIMENSIONS  |       |          |      | NOTES |   |
|--------|-------------|-------|----------|------|-------|---|
|        | MILLIMETERS |       | INCHES   |      |       |   |
|        | MIN.        | MAX.  | MIN.     | MAX. |       |   |
| A      | 3.56        | 4.83  | .140     | .190 | 5     |   |
| A1     | 0.51        | 1.40  | .020     | .055 |       |   |
| A2     | 2.03        | 2.92  | .080     | .115 |       |   |
| b      | 0.64        | 0.89  | .025     | .035 |       |   |
| b1     | 0.64        | 0.84  | .025     | .033 |       |   |
| c      | 0.36        | 0.61  | .014     | .024 |       |   |
| c1     | 0.36        | 0.56  | .014     | .022 |       | 5 |
| D      | 14.22       | 16.51 | .560     | .650 |       | 4 |
| D1     | 8.36        | 9.02  | .330     | .355 |       | 7 |
| D2     | 11.68       | 12.86 | .460     | .507 |       |   |
| E      | 9.65        | 10.67 | .380     | .420 | 4,7   |   |
| E1     | 6.86        | 8.89  | .270     | .350 | 7     |   |
| E2     | -           | 0.76  | -        | .030 | 8     |   |
| e      | 1.70 BSC    |       | .067 BSC |      | 7,8   |   |
| H1     | 5.84        | 6.86  | .230     | .270 |       |   |
| L      | 12.70       | 14.73 | .500     | .580 |       |   |
| φP     | 3.53        | 3.73  | .139     | .147 |       |   |
| D      | 2.54        | 3.05  | .100     | .120 |       |   |

**NOTES:**

- 1.- DIMENSIONING AND TOLERANCING AS PER ASME Y14.5 M-1994.
- 2.- DIMENSIONS ARE SHOWN IN INCHES [MILLIMETERS].
- 3.- LEAD DIMENSION AND FINISH UNCONTROLLED IN L1.
- 4.- DIMENSION D, D1 & E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED .005" (0.127) PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
- 5.- DIMENSION b1 & c1 APPLY TO BASE METAL ONLY.
- 6.- CONTROLLING DIMENSION - INCHES.
- 7.- THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS E1,D2 & E1
- 8.- DIMENSION E2 X H1 DEFINE A ZONE WHERE STAMPING AND SINGULATION IRREGULARITIES ARE ALLOWED.
- 9.- OUTLINE CONFORMS TO JEDEC TO-220, EXCEPT A2 (max.) AND D2 (min.) WHERE DIMENSIONS ARE DERIVED FROM THE ACTUAL PACKAGE OUTLINE.
- 10.- LEADS AND DRAIN ARE PLATED WITH 100% Sn

## Case Outline – D<sup>2</sup>pak – 5 leads

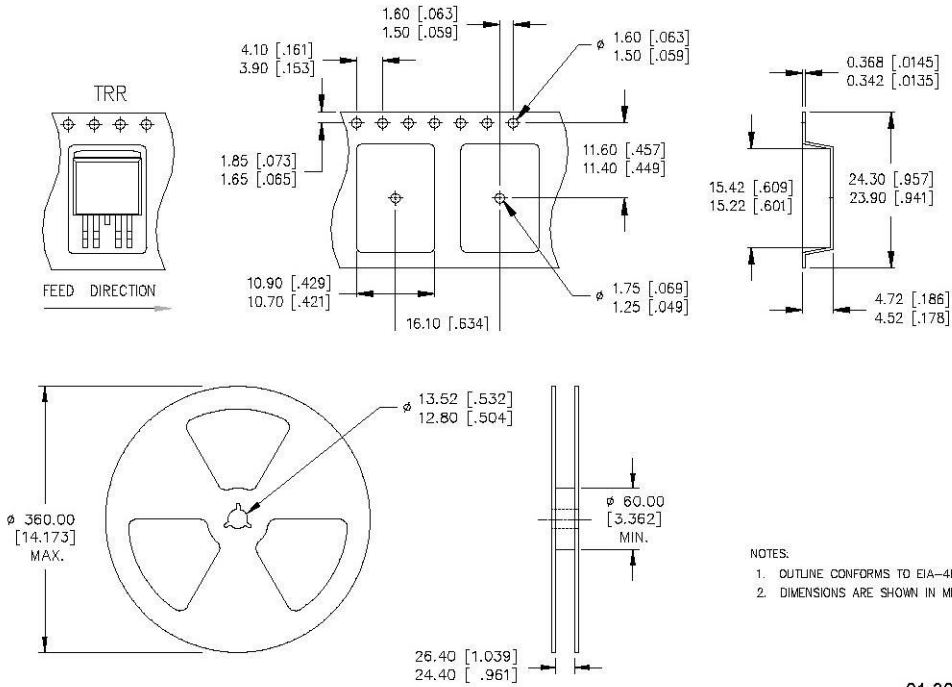


**NOTES:**

1. DIMENSIONING AND TOLERANCING AS PER ASME Y14.5M-1994
2. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
3. DIMENSION D & E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.127 [.005"] PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTMOST EXTREMES OF THE PLASTIC BODY AT DATUM H.
4. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSION E, L1, D1 & E1.
5. DIMENSION b1 AND c1 APPLY TO BASE METAL ONLY.
6. DATUM A & B TO BE DETERMINED AT DATUM PLANE H.
7. CONTROLLING DIMENSION: INCH.
8. OUTLINE CONFORMS TO JEDEC OUTLINE TO-263BA.
9. LEADS AND DRAIN ARE PLATED : 100% Sn

| SYM<br>BO<br>L | DIMENSIONS  |       |          |      | NO<br>TE<br>S |
|----------------|-------------|-------|----------|------|---------------|
|                | MILLIMETERS |       | INCHES   |      |               |
|                | MIN.        | MAX.  | MIN.     | MAX. |               |
| A              | 4.06        | 4.83  | .160     | .190 | 4             |
| A1             | -           | 0.254 | -        | .010 |               |
| b              | 0.51        | 0.99  | .020     | .039 |               |
| b1             | 0.51        | 0.89  | .020     | .035 |               |
| c              | 0.38        | 0.74  | .015     | .029 | 4             |
| c1             | 0.38        | 0.58  | .015     | .023 |               |
| c2             | 1.14        | 1.65  | .045     | .065 | 3             |
| D              | 8.38        | 9.65  | .330     | .380 |               |
| D1             | 6.86        | -     | .270     | -    | 3             |
| E              | 9.65        | 10.87 | .380     | .420 |               |
| E1             | 6.22        | -     | .245     | -    |               |
| e              | 1.70 BSC    |       | .067 BSC |      |               |
| H              | 14.61       | 15.88 | .575     | .625 |               |
| L              | 1.78        | 2.79  | .070     | .110 |               |
| L1             | -           | 1.68  | -        | .066 |               |
| L2             | -           | 1.78  | -        | .070 |               |
| L3             | 0.25 BSC    |       | .010 BSC |      |               |
| L4             | 4.78        | 5.28  | .188     | .208 |               |

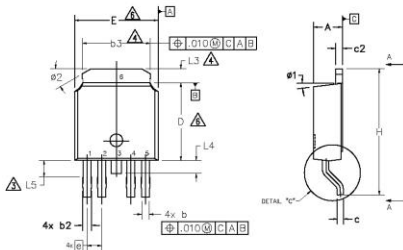
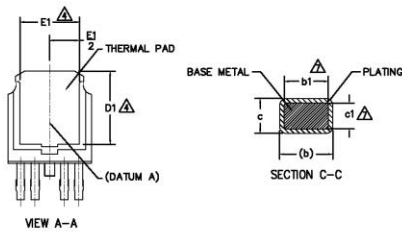
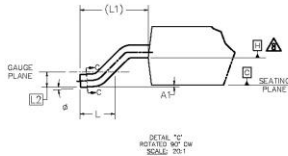
## Tape and Reel – D<sup>2</sup>Pak – 5 leads



- NOTES:
1. OUTLINE CONFORMS TO EIA-481 & EIA-541.
  2. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].

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## Case Outline – Dpak – 5 leads

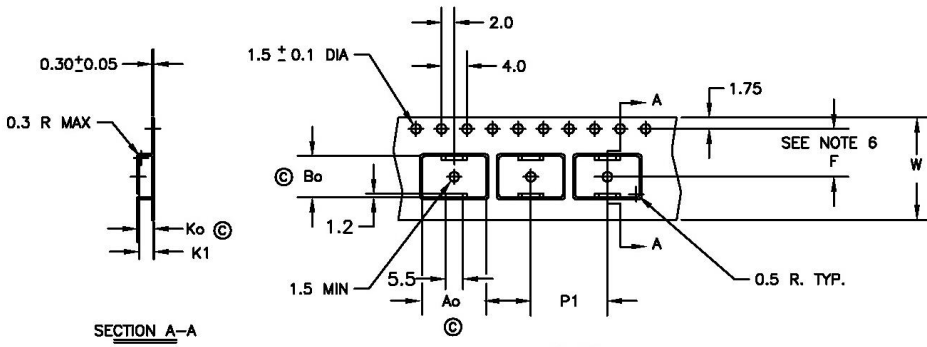


| SYMBOL | DIMENSIONS  |       |           |      | NOTES |
|--------|-------------|-------|-----------|------|-------|
|        | MILLIMETERS |       | INCHES    |      |       |
|        | MIN.        | MAX.  | MIN.      | MAX. |       |
| A      | 2.18        | 2.39  | .086      | .094 |       |
| A1     | —           | 0.13  | —         | .005 |       |
| b      | 0.51        | 0.89  | .020      | .035 | 2     |
| b1     | .051        | 0.84  | .020      | .033 | 2     |
| b3     | 4.95        | 5.46  | .195      | .215 |       |
| c      | 0.46        | 0.61  | .018      | .024 |       |
| c1     | 0.41        | 0.56  | .016      | .022 | 2     |
| c2     | 0.46        | 0.89  | .018      | .035 |       |
| D      | 5.97        | 6.22  | .235      | .245 | 3     |
| D1     | 5.21        | —     | .205      | —    |       |
| E      | 6.35        | 6.73  | .250      | .265 | 3     |
| E1     | 4.32        | —     | .170      | —    |       |
| e      | 1.14 BSC    |       | .045 BSC  |      |       |
| H      | 9.40        | 10.41 | .370      | .410 |       |
| L      | 1.40        | 1.78  | .055      | .070 |       |
| L1     | 2.74 BSC    |       | .108 REF. |      |       |
| L2     | 0.51 BSC    |       | .020 BSC  |      |       |
| L3     | 0.89        | 1.27  | .035      | .050 |       |
| L4     | —           | 1.02  | —         | .040 |       |
| L5     | 1.14        | 1.52  | .045      | .060 |       |
| ø      | 0"          | 10"   | 0"        | 10"  |       |
| ø1     | 0"          | 15"   | 0"        | 15"  |       |
| ø2     | 28"         | 32"   | 28"       | 32"  |       |

**NOTES:**

- 1.- DIMENSIONING AND TOLERANCING AS PER ASME Y14.5M-1994
- 2.- DIMENSIONS ARE SHOWN IN INCHES [MILLIMETERS].
- 3.- LEAD DIMENSION UNCONTROLLED IN L5.
- 4.- DIMENSION D1, E1, L3 & b3 ESTABLISH A MINIMUM MOUNTING SURFACE FOR THERMAL PAD.
- 5.- SECTION C-C DIMENSIONS APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN .005 AND 0.10 [0.13 AND 0.25] FROM THE LEAD TIP.
- 6.- DIMENSION D & E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED .005 [0.13] PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTMOST EXTREMES OF THE PLASTIC BODY.
- 7.- DIMENSION b1 & c1 APPLIED TO BASE METAL ONLY.
- 8.- DATUM A & B TO BE DETERMINED AT DATUM PLANE H.
- 9.- OUTLINE CONFORMS TO JEDEC OUTLINE TO-252.
10. LEADS AND DRAIN ARE PLATED WITH 100% Sn

**Tape & Reel – Dpak – 5 leads**



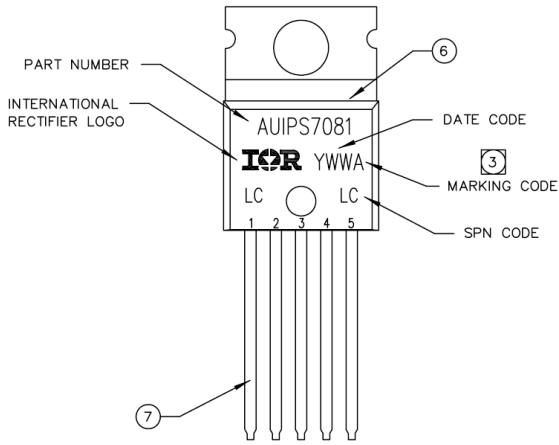
SECTION A-A

- Ao = 10.5 mm
- Bo = 7.0 mm
- Ko = 2.8 mm
- K1 = 2.4 mm
- F = 7.5 mm
- P1 = 12.0 mm
- W = 16.0 ± .3 mm

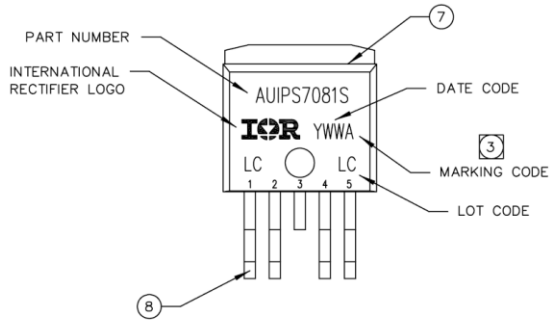
NOTES:

1. 10 SPROCKET HOLE PUNCH CUMULATIVE TOLERANCE ±.02
2. CAMBER NOT TO EXCEED 1mm IN 100mm
3. MATERIAL: CONDUCTIVE BLACK POLYSTYRENE
4. Ao AND Bo MEASURED ON A PLANE 0.3mm ABOVE THE BOTTOM OF THE POCKET
5. Ko MEASURED FROM A PLANE ON THE INSIDE BOTTOM OF THE POCKET TO THE TOP SURFACE OF THE CARRIER
6. POCKET POSITION RELATIVE TO THE SPROCKET HOLE MEASURED AS TRUE POSITION OF POCKET, NOT POCKET HOLE
7. VENDOR: (OPTIONAL)
8. MUST ALSO MEET REQUIREMENTS OF EIA STANDARD #EIA-481A, TAPING OF SURFACE-MOUNT COMPONENTS FOR AUTOMATIC PLACEMENT.
9. TOLERANCE TO BE MANUFACTURER STANDARD
10. SURFACE RESISTIVITY OF MOLDED MATL: MUST MEASURE LESS THAN OR EQUAL TO 10<sup>8</sup> OHMS PER SQUARE. MEASURED IN ACCORDANCE TO PROCEDURE GIVEN IN ASTM D-257 & ASTM D-991 (REF. C-9000 SPEC.)
11. TOTAL LENGTH PER REEL MUST BE 79 METERS
12. © CRITICAL DIMENSION

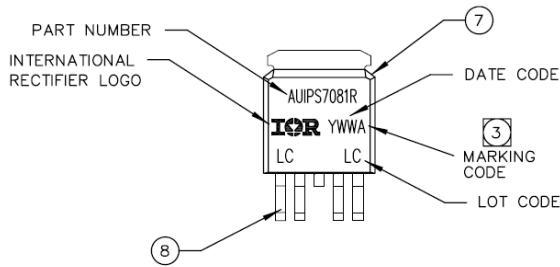
## Part Marking Information



TOP MARKING (LASER)



TOP MARKING (LASER)



TOP MARKING (LASER)



## Ordering Information

| Base Part Number | Package Type   | Standard Pack      |          | Complete Part Number |
|------------------|----------------|--------------------|----------|----------------------|
|                  |                | Form               | Quantity |                      |
| AUIPS7081        | TO220-5-Leads  | Tube               | 50       | AUIPS7081            |
| AUIPS7081S       | D2-Pak-5-Leads | Tube               | 50       | AUIPS7081S           |
|                  |                | Tape and reel left | 800      | AUIPS7081STRL        |
| AUIPS7081R       | D-Pak-5-Leads  | Tube               | 75       | AUIPS7081R           |
|                  |                | Tape and reel left | 3000     | AUIPS7081RTRL        |

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**Revision History**

| <b>Revision</b> | <b>Date</b>                 | <b>Notes/Changes</b>   |
|-----------------|-----------------------------|--|
| A1              | October 2011                | First release  |
| B               | March 2012                  | Remove the preliminary mention                                   |
| C               | October 18, 2012            | Remove the PbF mention   |
| D               | June, 16 <sup>th</sup> 2014 | Update minimum value of Ilim<br>Remove TRR and TR packing option |
| E               | July 17, 2014               | Remove Pbf suffix in the 1 <sup>st</sup> page                    |
|                 |                             |  |
|                 |                             |  |
|                 |                             |  |
|                 |                             |  |

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