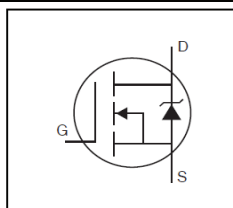


**Features**

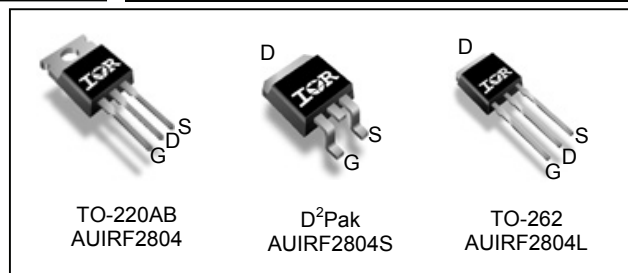
- Advanced Process Technology
- Ultra Low On-Resistance
- 175°C Operating Temperature
- Fast Switching
- Repetitive Avalanche Allowed up to Tjmax
- Lead-Free, RoHS Compliant
- Automotive Qualified \*



|                          |                          |
|--------------------------|--------------------------|
| $V_{DSS}$                | <b>40V</b>               |
| $R_{DS(on)}$ <b>typ.</b> | <b>1.5mΩ<sup>®</sup></b> |
| <b>max.</b>              | <b>2.0mΩ<sup>®</sup></b> |
| $I_D$ (Silicon Limited)  | <b>270A<sup>①</sup></b>  |
| $I_D$ (Package Limited)  | <b>195A</b>              |

**Description**

Specifically designed for Automotive applications, this HEXFET® Power MOSFET utilizes the latest processing techniques to achieve extremely low on-resistance per silicon area. Additional features of this design are a 175°C junction operating temperature, fast switching speed and improved repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in Automotive applications and wide variety of other applications.



|          |          |          |
|----------|----------|----------|
| <b>G</b> | <b>D</b> | <b>S</b> |
| Gate     | Drain    | Source   |

| Base part number | Package Type | Standard Pack      |          | Orderable Part Number |
|------------------|--------------|--------------------|----------|-----------------------|
|                  |              | Form               | Quantity |                       |
| AUIRF2804        | TO-220       | Tube               | 50       | AUIRF2804             |
| AUIRF2804L       | TO-262       | Tube               | 50       | AUIRF2804L            |
| AUIRF2804S       | D²-Pak       | Tube               | 50       | AUIRF2804S            |
|                  |              | Tape and Reel Left | 800      | AUIRF2804STRL         |

**Absolute Maximum Ratings**

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only; and functional operation of the device at these or any other condition beyond those indicated in the specifications is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability. The thermal resistance and power dissipation ratings are measured under board mounted and still air conditions. Ambient temperature (TA) is 25°C, unless otherwise specified.

| Symbol                            | Parameter                                                      | Max.                    | Units |
|-----------------------------------|----------------------------------------------------------------|-------------------------|-------|
| $I_D$ @ $T_C = 25^\circ\text{C}$  | Continuous Drain Current, $V_{GS}$ @ 10V (Silicon Limited)     | 270 <sup>①</sup>        | A     |
| $I_D$ @ $T_C = 100^\circ\text{C}$ | Continuous Drain Current, $V_{GS}$ @ 10V (Silicon Limited)     | 190                     |       |
| $I_D$ @ $T_C = 25^\circ\text{C}$  | Continuous Drain Current, $V_{GS}$ @ 10V (Package Limited)     | 195                     |       |
| $I_{DM}$                          | Pulsed Drain Current <sup>②</sup>                              | 1080                    |       |
| $P_D$ @ $T_C = 25^\circ\text{C}$  | Maximum Power Dissipation                                      | 300                     | W     |
|                                   | Linear Derating Factor                                         | 2.0                     | W/°C  |
| $V_{GS}$                          | Gate-to-Source Voltage                                         | ± 20                    | V     |
| $E_{AS}$                          | Single Pulse Avalanche Energy (Thermally Limited) <sup>③</sup> | 540                     | mJ    |
| $E_{AS}$ (tested)                 | Single Pulse Avalanche Energy Tested Value <sup>⑥</sup>        | 1160                    |       |
| $I_{AR}$                          | Avalanche Current <sup>②</sup>                                 | See Fig.15,16, 12a, 12b | A     |
| $E_{AR}$                          | Repetitive Avalanche Energy <sup>②</sup>                       |                         | mJ    |
| $T_J$                             | Operating Junction and                                         | -55 to + 175            | °C    |
| $T_{STG}$                         | Storage Temperature Range                                      |                         |       |
|                                   | Soldering Temperature, for 10 seconds (1.6mm from case)        | 300                     |       |
|                                   | Mounting torque, 6-32 or M3 screw                              | 10 lbf•in (1.1N•m)      |       |

**Thermal Resistance**

| Symbol          | Parameter                                                   | Typ. | Max. | Units |
|-----------------|-------------------------------------------------------------|------|------|-------|
| $R_{\theta JC}$ | Junction-to-Case <sup>④</sup>                               | —    | 0.50 | °C/W  |
| $R_{\theta CS}$ | Case-to-Sink, Flat, Greased Surface                         | 0.50 | —    |       |
| $R_{\theta JA}$ | Junction-to-Ambient                                         | —    | 62   |       |
| $R_{\theta JA}$ | Junction-to-Ambient ( PCB Mount, steady state) <sup>⑦</sup> | —    | 40   |       |

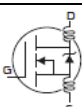
HEXFET® is a registered trademark of Infineon.

\*Qualification standards can be found at [www.infineon.com](http://www.infineon.com)

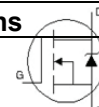
**Static @  $T_J = 25^\circ\text{C}$  (unless otherwise specified)**

|                                 | Parameter                            | Min. | Typ.  | Max. | Units               | Conditions                                           |
|---------------------------------|--------------------------------------|------|-------|------|---------------------|------------------------------------------------------|
| $V_{(BR)DSS}$                   | Drain-to-Source Breakdown Voltage    | 40   | —     | —    | V                   | $V_{GS} = 0V, I_D = 250\mu A$                        |
| $\Delta V_{(BR)DSS}/\Delta T_J$ | Breakdown Voltage Temp. Coefficient  | —    | 0.031 | —    | V/ $^\circ\text{C}$ | Reference to $25^\circ\text{C}$ , $I_D = 1mA$        |
| $R_{DS(on)}$ SMD                | Static Drain-to-Source On-Resistance | —    | 1.5   | 2.0  | $m\Omega$           | $V_{GS} = 10V, I_D = 75A$ ④ ⑩                        |
| $R_{DS(on)}$ TO-220             | Static Drain-to-Source On-Resistance | —    | 1.8   | 2.3  | $m\Omega$           | $V_{GS} = 10V, I_D = 75A$ ④ ⑩                        |
| $V_{GS(th)}$                    | Gate Threshold Voltage               | 2.0  | —     | 4.0  | V                   | $V_{DS} = V_{GS}, I_D = 250\mu A$                    |
| $g_{fs}$                        | Forward Trans conductance            | 130  | —     | —    | S                   | $V_{DS} = 10V, I_D = 75A$ ⑩                          |
| $I_{DSS}$                       | Drain-to-Source Leakage Current      | —    | —     | 20   | $\mu A$             | $V_{DS} = 40V, V_{GS} = 0V$                          |
|                                 |                                      | —    | —     | 250  |                     | $V_{DS} = 40V, V_{GS} = 0V, T_J = 125^\circ\text{C}$ |
| $I_{GSS}$                       | Gate-to-Source Forward Leakage       | —    | —     | 200  | nA                  | $V_{GS} = 20V$                                       |
|                                 | Gate-to-Source Reverse Leakage       | —    | —     | -200 |                     | $V_{GS} = -20V$                                      |

**Dynamic Electrical Characteristics @  $T_J = 25^\circ\text{C}$  (unless otherwise specified)**

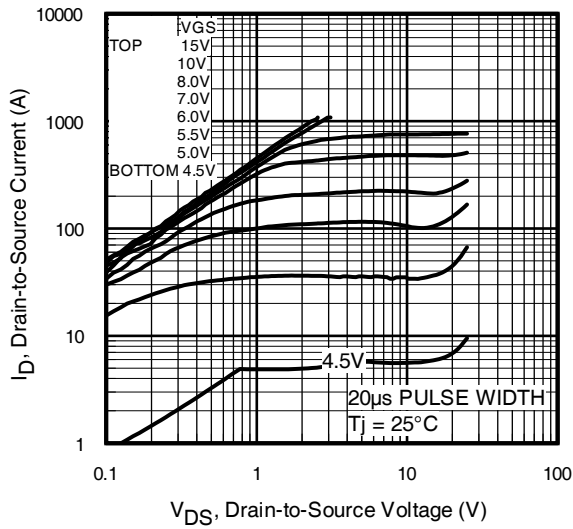
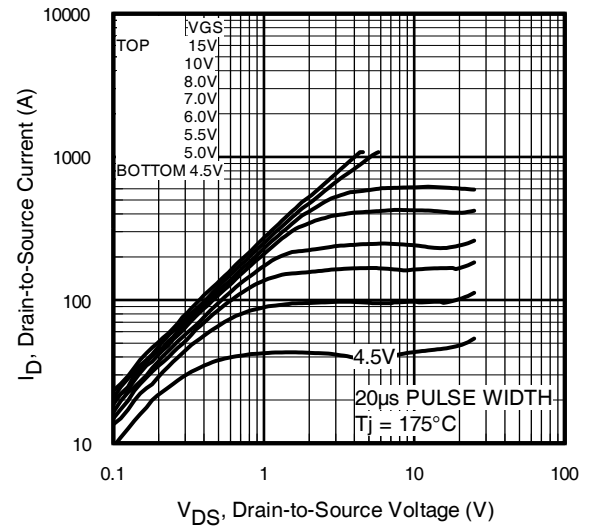
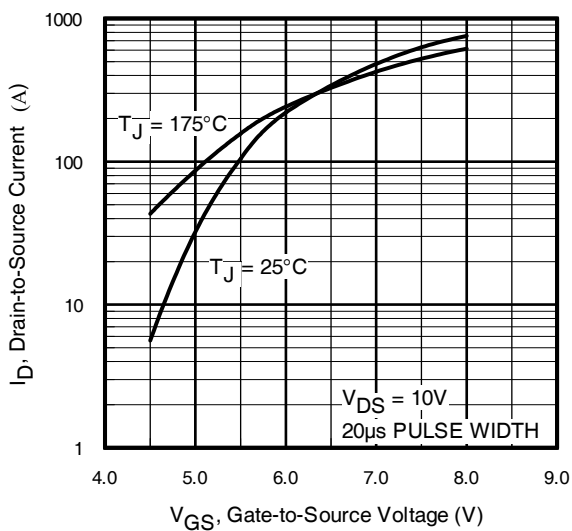
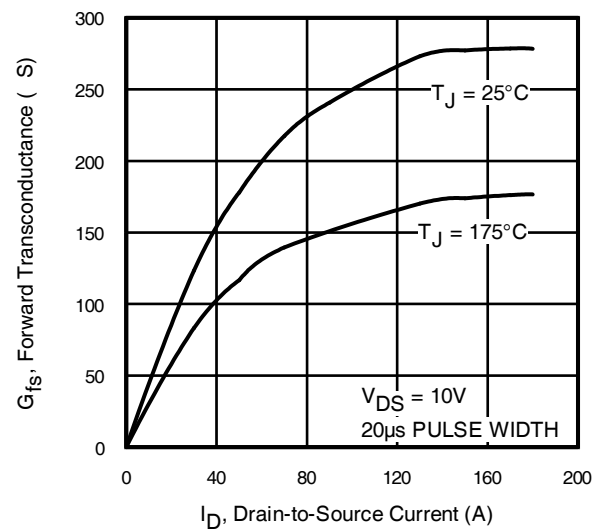
|                 |                              |   |      |     |    |                                                                                                                                                        |
|-----------------|------------------------------|---|------|-----|----|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| $Q_g$           | Total Gate Charge            | — | 160  | 240 | nC | $I_D = 75A$ ⑩                                                                                                                                          |
| $Q_{gs}$        | Gate-to-Source Charge        | — | 41   | 62  |    | $V_{DS} = 32V$                                                                                                                                         |
| $Q_{gd}$        | Gate-to-Drain Charge         | — | 66   | 99  |    | $V_{GS} = 10V$ ④                                                                                                                                       |
| $t_{d(on)}$     | Turn-On Delay Time           | — | 13   | —   | ns | $V_{DD} = 20V$                                                                                                                                         |
| $t_r$           | Rise Time                    | — | 120  | —   |    | $I_D = 75A$ ⑩                                                                                                                                          |
| $t_{d(off)}$    | Turn-Off Delay Time          | — | 130  | —   |    | $R_G = 2.5\Omega$                                                                                                                                      |
| $t_f$           | Fall Time                    | — | 130  | —   |    | $V_{GS} = 10V$ ④                                                                                                                                       |
| $L_D$           | Internal Drain Inductance    | — | 4.5  | —   | nH | Between lead, 6mm (0.25in.) from package and center of die contact  |
| $L_S$           | Internal Source Inductance   | — | 7.5  | —   |    |                                                                                                                                                        |
| $C_{iss}$       | Input Capacitance            | — | 6450 | —   | pF | $V_{GS} = 0V$                                                                                                                                          |
| $C_{oss}$       | Output Capacitance           | — | 1690 | —   |    | $V_{DS} = 25V$                                                                                                                                         |
| $C_{rss}$       | Reverse Transfer Capacitance | — | 840  | —   |    | $f = 1.0MHz$ , See Fig. 5                                                                                                                              |
| $C_{oss}$       | Output Capacitance           | — | 5350 | —   |    | $V_{GS} = 0V, V_{DS} = 1.0V, f = 1.0MHz$                                                                                                               |
| $C_{oss}$       | Output Capacitance           | — | 1520 | —   |    | $V_{GS} = 0V, V_{DS} = 32V, f = 1.0MHz$                                                                                                                |
| $C_{oss\ eff.}$ | Effective Output Capacitance | — | 2210 | —   |    | $V_{GS} = 0V, V_{DS} = 0V \text{ to } 32V$ ⑤                                                                                                           |

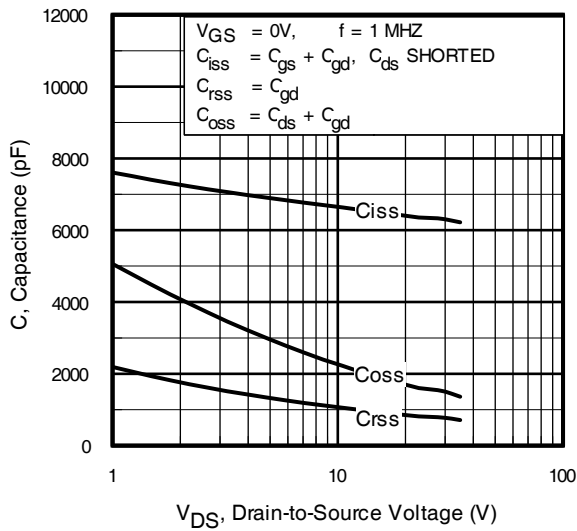
**Diode Characteristics**

|          | Parameter                              | Min.                                                                        | Typ. | Max. | Units | Conditions                                                                                                                                           |
|----------|----------------------------------------|-----------------------------------------------------------------------------|------|------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| $I_S$    | Continuous Source Current (Body Diode) | —                                                                           | —    | 270  | A     | MOSFET symbol showing the integral reverse p-n junction diode.  |
| $I_{SM}$ | Pulsed Source Current (Body Diode) ①   | —                                                                           | —    | 1080 |       |                                                                                                                                                      |
| $V_{SD}$ | Diode Forward Voltage                  | —                                                                           | —    | 1.3  | V     | $T_J = 25^\circ\text{C}, I_S = 75A, V_{GS} = 0V$ ④                                                                                                   |
| $t_{rr}$ | Reverse Recovery Time                  | —                                                                           | 56   | 84   | ns    | $T_J = 25^\circ\text{C}, I_F = 75A, V_{DD} = 20V$                                                                                                    |
| $Q_{rr}$ | Reverse Recovery Charge                | —                                                                           | 67   | 100  | nC    | $di/dt = 100A/\mu s$ ④                                                                                                                               |
| $t_{on}$ | Forward Turn-On Time                   | Intrinsic turn-on time is negligible (turn-on is dominated by $L_S + L_D$ ) |      |      |       |                                                                                                                                                      |

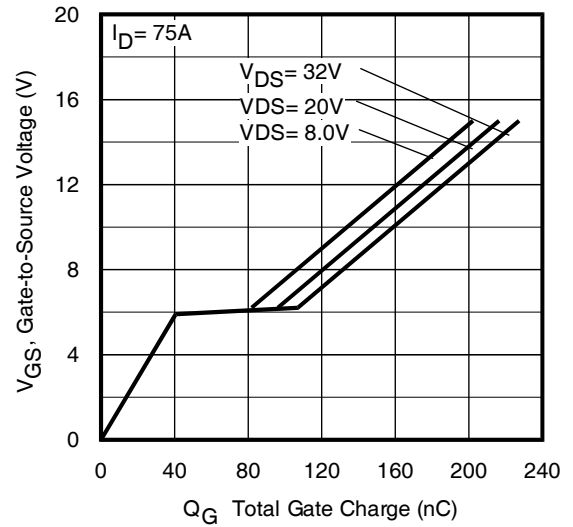
**Notes:**

- ① Calculated continuous current based on maximum allowable junction temperature. Bond wire current limit is 195A. Note that current limitations arising from heating of the device leads may occur with some lead mounting arrangements. (Refer to AN-1140)
- ② Repetitive rating; pulse width limited by max. junction temperature. (See fig. 11)
- ③ Limited by  $T_{Jmax}$ , starting  $T_J = 25^\circ\text{C}$ ,  $L = 0.24mH$ ,  $R_G = 25\Omega$ ,  $I_{AS} = 75A$ ,  $V_{GS} = 10V$ . Part not recommended for use above this value.
- ④ Pulse width  $\leq 1.0ms$ ; duty cycle  $\leq 2\%$ .
- ⑤  $C_{oss\ eff.}$  is a fixed capacitance that gives the same charging time as  $C_{oss}$  while  $V_{DS}$  is rising from 0 to 80%  $V_{DSS}$ .
- ⑥ This value determined from sample failure population, starting  $T_J = 25^\circ\text{C}$ ,  $L = 0.24mH$ ,  $R_G = 25\Omega$ ,  $I_{AS} = 75A$ ,  $V_{GS} = 10V$ .
- ⑦ This is applied to D<sup>2</sup>Pak When mounted on 1" square PCB (FR-4 or G-10 Material). For recommended footprint and soldering techniques refer to application note #AN-994
- ⑧ Max  $R_{DS(on)}$  for D<sup>2</sup>Pak and TO-262 (SMD) devices.
- ⑨ TO-220 device will have an  $R_{th}$  value of  $0.45^\circ\text{C/W}$ .
- ⑩ All AC and DC test condition based on old Package limitation current = 75A.

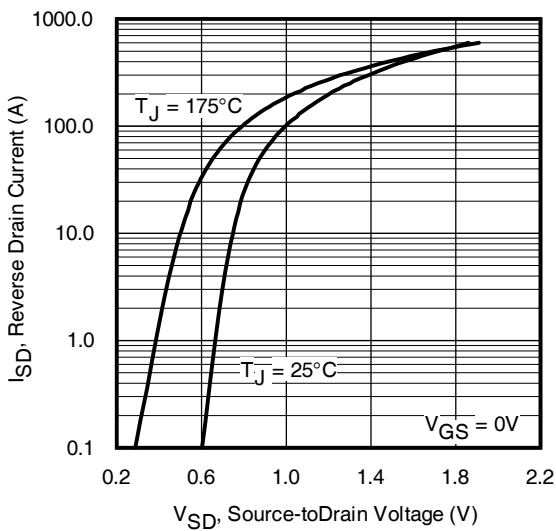

**Fig. 1** Typical Output Characteristics

**Fig. 2** Typical Output Characteristics

**Fig. 3** Typical Transfer Characteristics

**Fig. 4** Typical Forward Transconductance vs. Drain Current



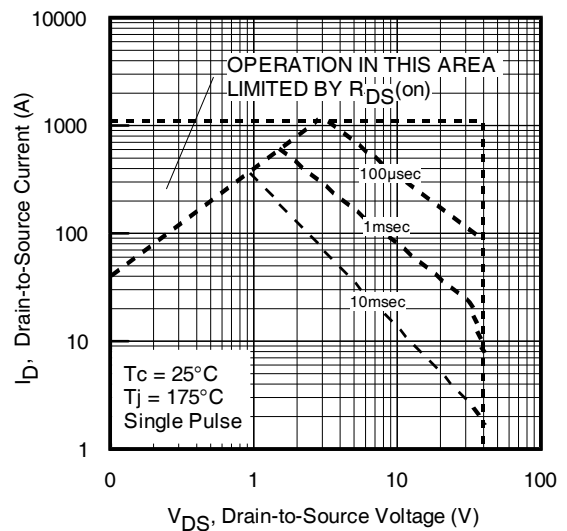
**Fig 5.** Typical Capacitance vs.  
Drain-to-Source Voltage



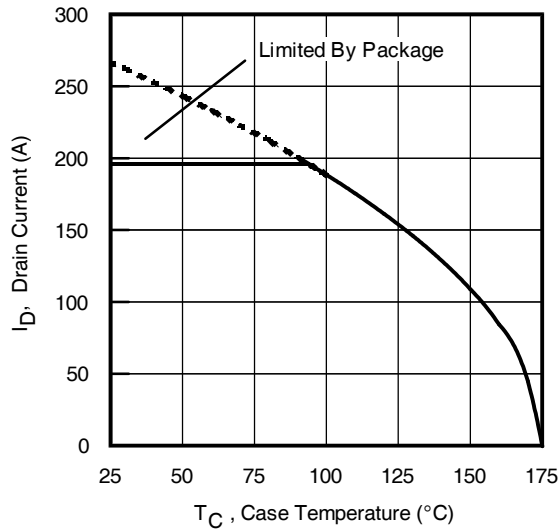
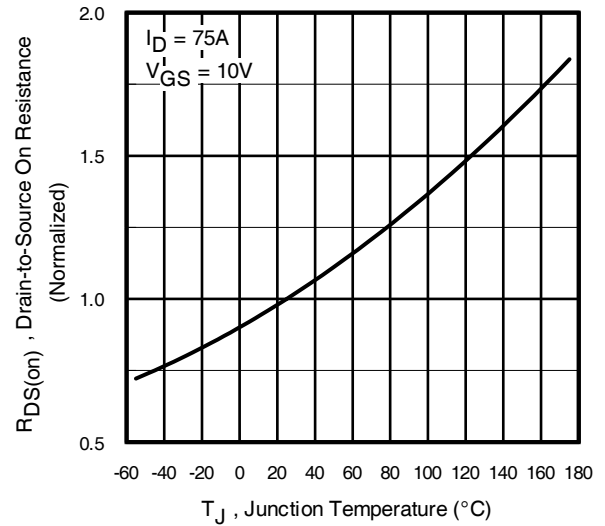
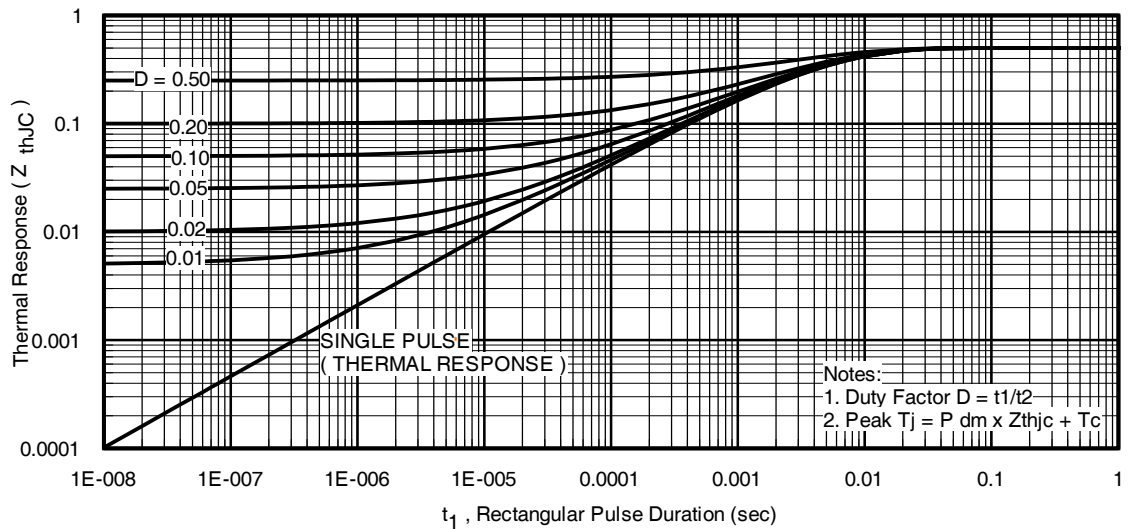
**Fig 6.** Typical Gate Charge vs.  
Gate-to-Source Voltage

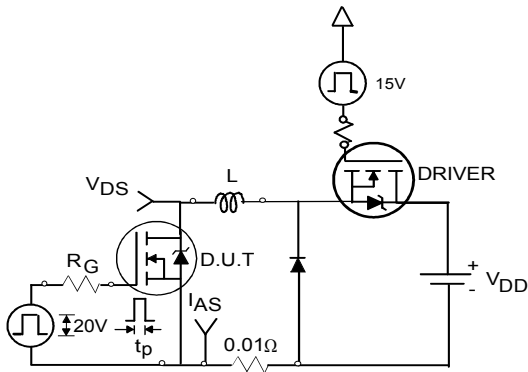
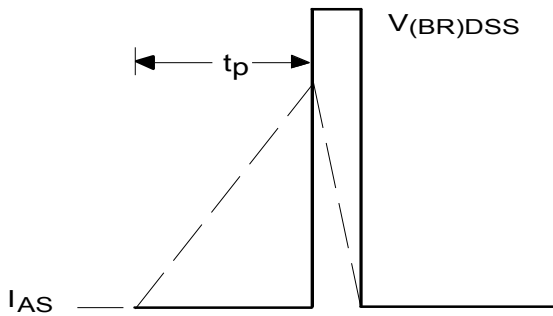
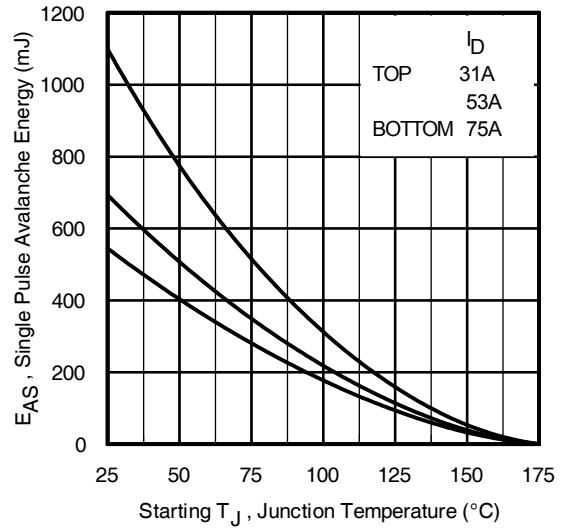
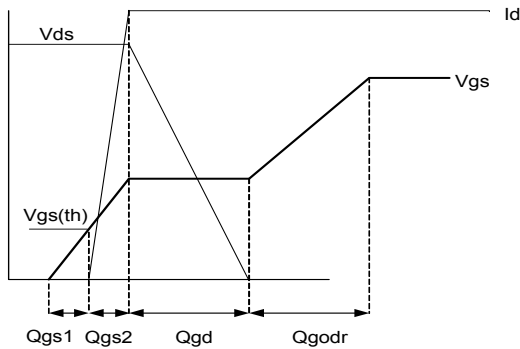
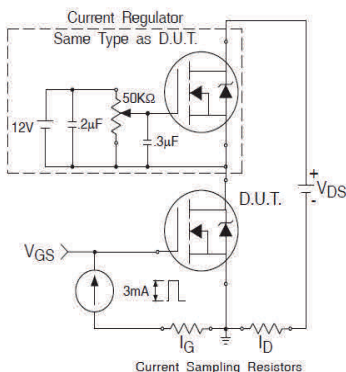
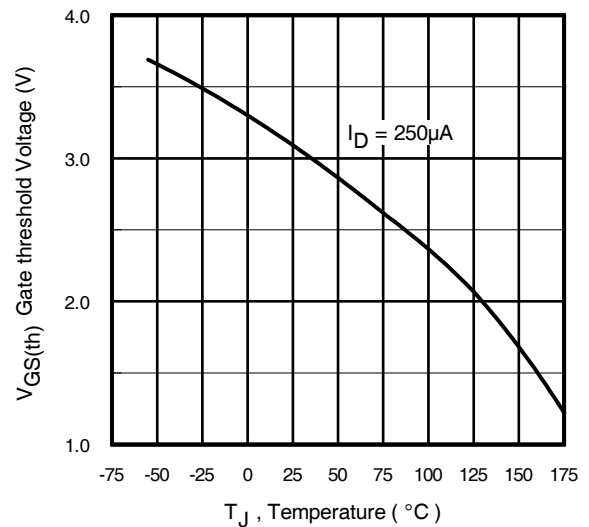


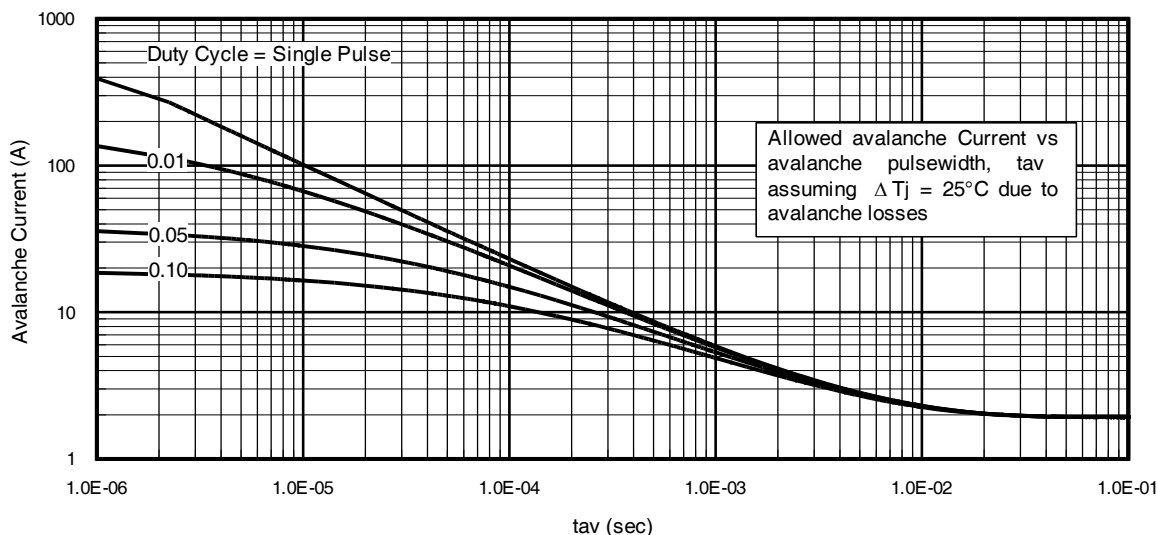
**Fig. 7** Typical Source-to-Drain Diode  
Forward Voltage



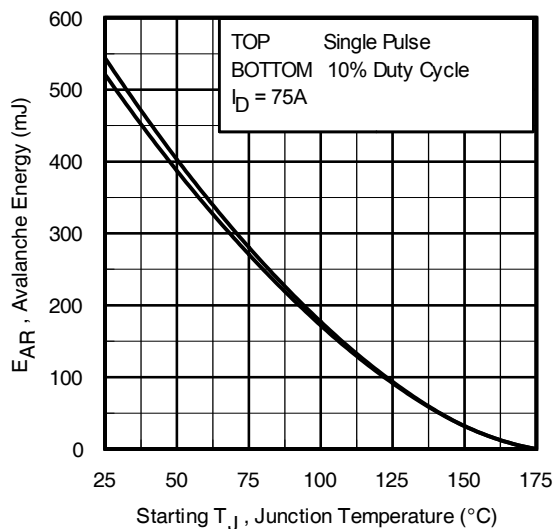
**Fig 8.** Maximum Safe Operating Area


**Fig 9.** Maximum Drain Current vs. Case Temperature

**Fig 10.** Normalized On-Resistance vs. Temperature

**Fig 11.** Maximum Effective Transient Thermal Impedance, Junction-to-Case


**Fig 12a. Unclamped Inductive Test Circuit**

**Fig 12b. Unclamped Inductive Waveforms**

**Fig 12c. Maximum Avalanche Energy vs. Drain Current**

**Fig 13a. Gate Charge Waveform**

**Fig 13b. Gate Charge Test Circuit**

**Fig 14. Threshold Voltage vs. Temperature**



**Fig 15.** Typical Avalanche Current vs. Pulse width



**Fig 16.** Maximum Avalanche Energy vs. Temperature

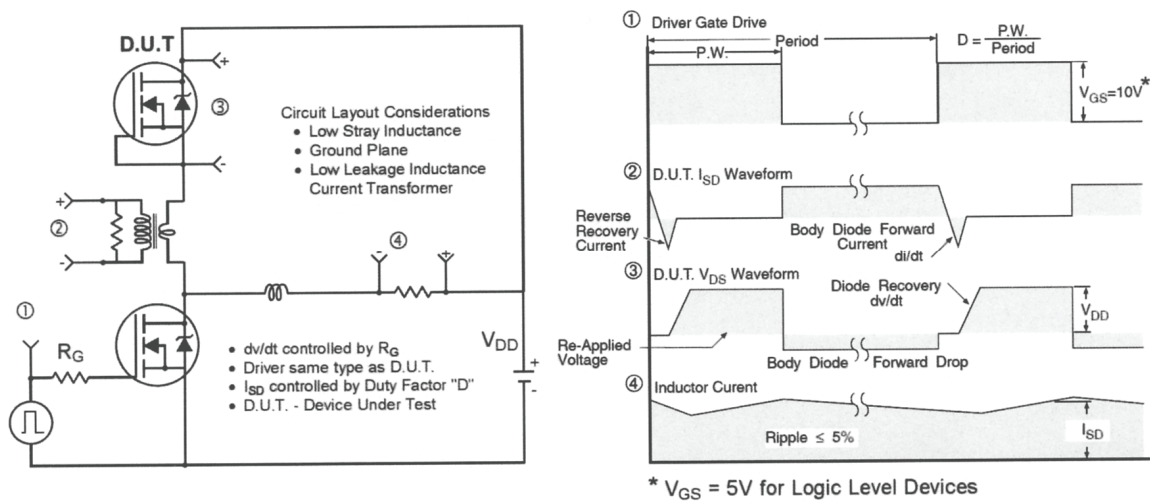
**Notes on Repetitive Avalanche Curves , Figures 15, 16:**  
(For further info, see AN-1005 at [www.infineon.com](http://www.infineon.com))

1. Avalanche failures assumption:  
Purely a thermal phenomenon and failure occurs at a temperature far in excess of  $T_{jmax}$ . This is validated for every part type.
2. Safe operation in Avalanche is allowed as long as  $T_{jmax}$  is not exceeded.
3. Equation below based on circuit and waveforms shown in Figures 12a, 12b.
4.  $P_{D(ave)}$  = Average power dissipation per single avalanche pulse.
5.  $BV$  = Rated breakdown voltage (1.3 factor accounts for voltage increase during avalanche).
6.  $I_{av}$  = Allowable avalanche current.
7.  $\Delta T$  = Allowable rise in junction temperature, not to exceed  $T_{jmax}$  (assumed as 25°C in Figure 15, 16).  
 $t_{av}$  = Average time in avalanche.  
 $D$  = Duty cycle in avalanche =  $t_{av} \cdot f$   
 $Z_{thJC}(D, t_{av})$  = Transient thermal resistance, see Figures 13)

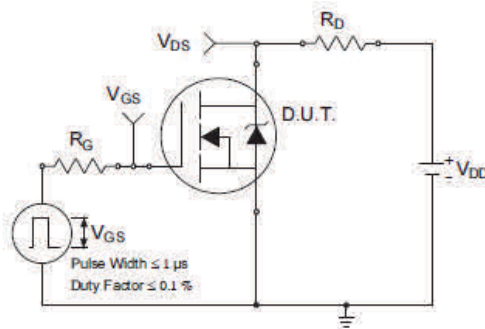
$$P_{D(ave)} = 1/2 (1.3 \cdot BV \cdot I_{av}) = \Delta T / Z_{thJC}$$

$$I_{av} = 2\Delta T / [1.3 \cdot BV \cdot Z_{thJC}]$$

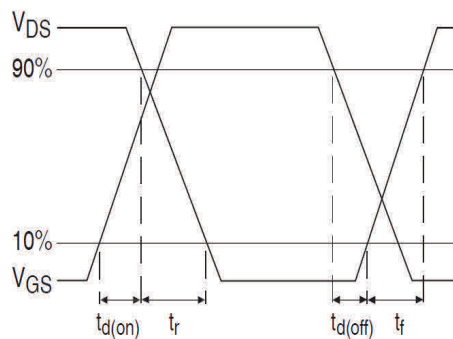
$$E_{AS(AR)} = P_{D(ave)} \cdot t_{av}$$



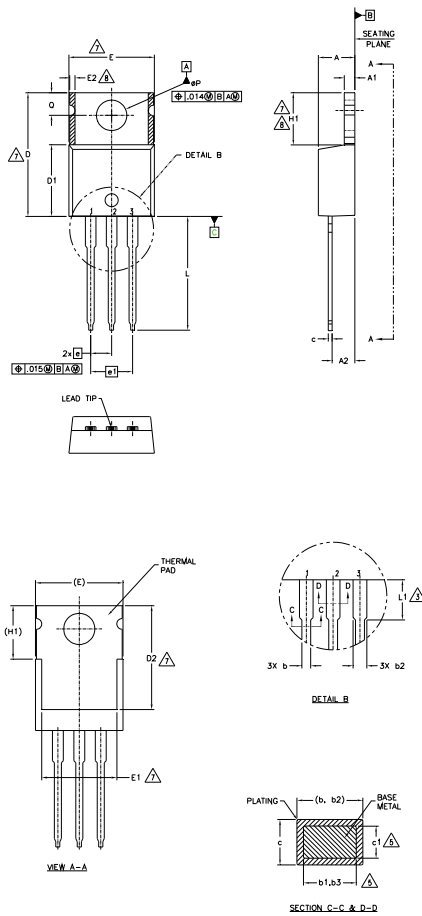
**Fig 17.** Peak Diode Recovery  $dv/dt$  Test Circuit for N-Channel HEXFET® Power MOSFETs



**Fig 18a.** Switching Time Test Circuit



**Fig 18b.** Switching Time Waveforms

**TO-220AB Package Outline (Dimensions are shown in millimeters (inches))**

**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, b3 & c1 APPLY TO BASE METAL ONLY.
- 6.- CONTROLLING DIMENSION : INCHES.
- 7.- THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS E,H1,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.

| SYMBOL | DIMENSIONS  |       |          |      | NOTES |
|--------|-------------|-------|----------|------|-------|
|        | MILLIMETERS |       | INCHES   |      |       |
|        | MIN.        | MAX.  | MIN.     | MAX. |       |
| A      | 3.56        | 4.83  | .140     | .190 | 5     |
| A1     | 1.14        | 1.40  | .045     | .055 |       |
| A2     | 2.03        | 2.92  | .080     | .115 |       |
| b      | 0.38        | 1.01  | .015     | .040 |       |
| b1     | 0.38        | 0.97  | .015     | .038 |       |
| b2     | 1.14        | 1.78  | .045     | .070 | 5     |
| b3     | 1.14        | 1.73  | .045     | .068 |       |
| c      | 0.36        | 0.61  | .014     | .024 |       |
| c1     | 0.36        | 0.56  | .014     | .022 | 5     |
| D      | 14.22       | 16.51 | .560     | .650 | 4     |
| D1     | 8.38        | 9.02  | .330     | .355 | 7     |
| D2     | 11.68       | 12.88 | .460     | .507 |       |
| E      | 9.65        | 10.67 | .380     | .420 |       |
| E1     | 6.86        | 8.89  | .270     | .350 | 4,7   |
| E2     | —           | 0.76  | —        | .030 | 7     |
| e      | 2.54 BSC    |       | .100 BSC |      | 8     |
| e1     | 5.08 BSC    |       | .200 BSC |      |       |
| H1     | 5.84        | 6.86  | .230     | .270 |       |
| L      | 12.70       | 14.73 | .500     | .580 | 7,8   |
| L1     | 3.56        | 4.06  | .140     | .160 | 3     |
| øP     | 3.54        | 4.08  | .139     | .161 |       |
| Q      | 2.54        | 3.42  | .100     | .135 |       |

**LEAD ASSIGNMENTS**
**HEXFET**

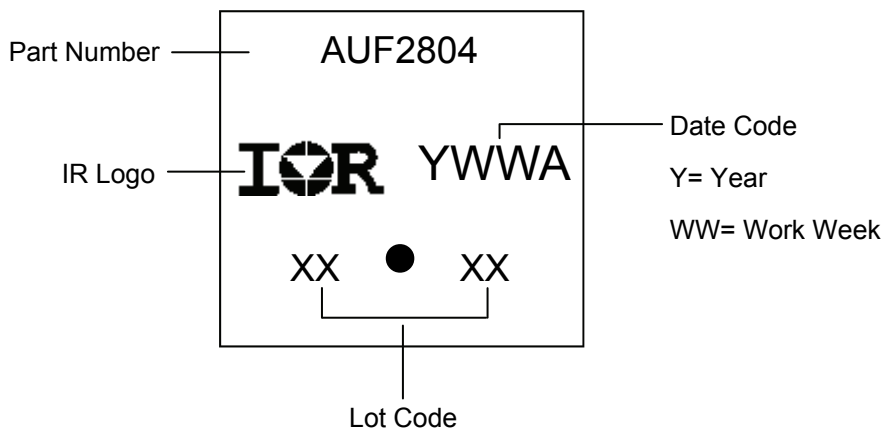
- 1.- GATE
- 2.- DRAIN
- 3.- SOURCE

**IGBTs, CoPACK**

- 1.- GATE
- 2.- COLLECTOR
- 3.- EMITTER

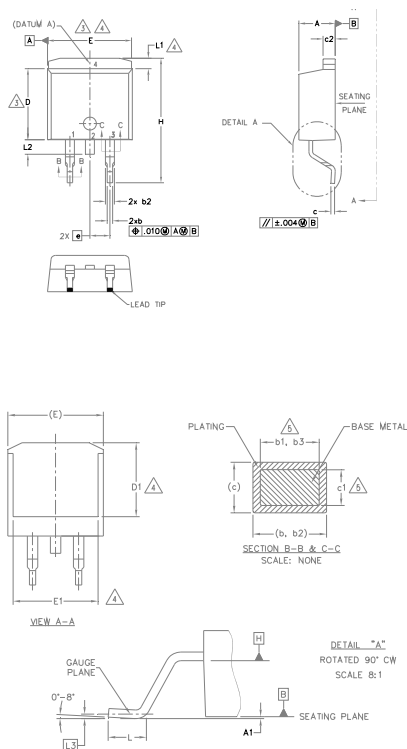
**DIODES**

- 1.- ANODE
- 2.- CATHODE
- 3.- ANODE

**TO-220AB Part Marking Information**


TO-220AB package is not recommended for Surface Mount Application.

## D<sup>2</sup>Pak (TO-263AB) Package Outline (Dimensions are shown in millimeters (inches))



### NOTES:

1. DIMENSIONING AND TOLERANCING 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 [0.005"] 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, b3 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-263AB.

| SYMBOL | DIMENSIONS  |       |          |      | NOTES |   |
|--------|-------------|-------|----------|------|-------|---|
|        | MILLIMETERS |       | INCHES   |      |       |   |
|        | MIN.        | MAX.  | MIN.     | MAX. |       |   |
| A      | 4.06        | 4.83  | .160     | .190 |       |   |
| A1     | 0.00        | 0.254 | .000     | .010 |       |   |
| b      | 0.51        | 0.99  | .020     | .039 |       |   |
| b1     | 0.51        | 0.89  | .020     | .035 |       | 5 |
| b2     | 1.14        | 1.78  | .045     | .070 |       |   |
| b3     | 1.14        | 1.73  | .045     | .068 | 5     |   |
| c      | 0.38        | 0.74  | .015     | .029 |       |   |
| c1     | 0.38        | 0.58  | .015     | .023 |       | 5 |
| c2     | 1.14        | 1.65  | .045     | .065 |       |   |
| D      | 8.38        | 9.65  | .330     | .380 | 3     |   |
| D1     | 6.86        | —     | .270     | —    | 4     |   |
| E      | 9.65        | 10.67 | .380     | .420 | 3,4   |   |
| E1     | 6.22        | —     | .245     | —    | 4     |   |
| e      | 2.54 BSC    |       | .100 BSC |      | 4     |   |
| 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 |      |       |   |

### LEAD ASSIGNMENTS

#### DIODES

- 1.- ANODE (TWO DIE) / OPEN (ONE DIE)
- 2.- CATHODE
- 3.- ANODE

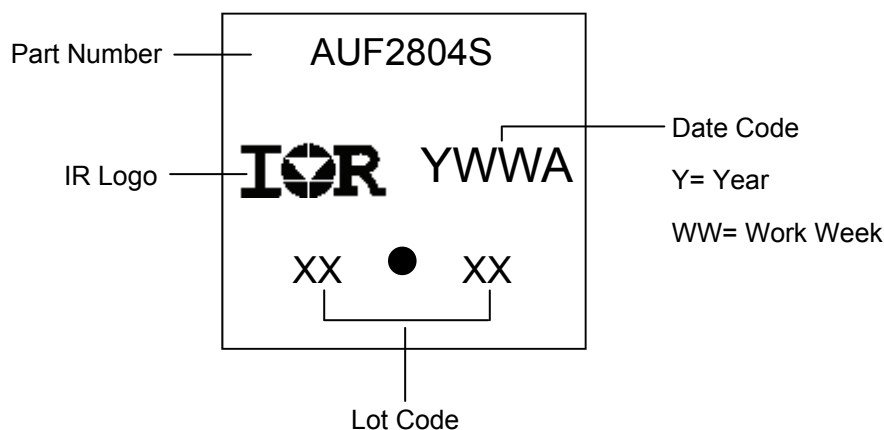
#### HEXFET

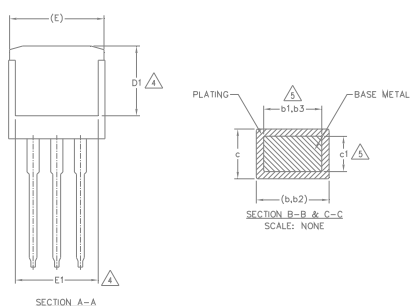
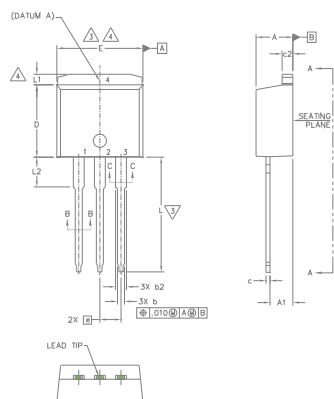
- 1.- GATE
- 2.- DRAIN
- 3.- SOURCE

#### IGBTs, CoPACK

- 1.- GATE
- 2, 4.- COLLECTOR
- 3.- EMITTER

## D<sup>2</sup>Pak (TO-263AB) Part Marking Information



**TO-262 Package Outline (Dimensions are shown in millimeters (inches))**

**NOTES:**

1. DIMENSIONING AND TOLERANCING 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 [0.005"] PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTMOST EXTREMES OF THE PLASTIC BODY.
4. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSION E, L1, D1 & E1.
5. DIMENSION b1 AND c1 APPLY TO BASE METAL ONLY.
6. CONTROLLING DIMENSION: INCH.
7. OUTLINE CONFORM TO JEDEC TO-262 EXCEPT A1(max.), b(min.) AND D1(min.) WHERE DIMENSIONS DERIVED THE ACTUAL PACKAGE OUTLINE.

**LEAD ASSIGNMENTS**
**IGBTs, CoPACK**

- 1.- GATE
- 2.- COLLECTOR
- 3.- EMITTER
- 4.- COLLECTOR

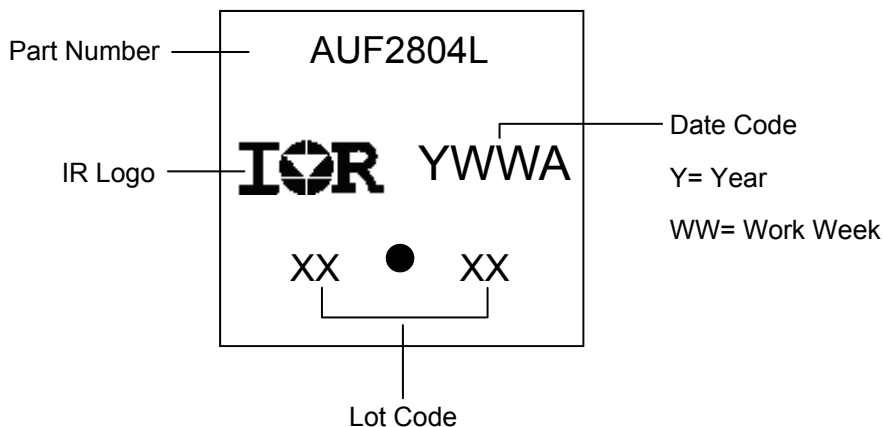
**HEXFET**

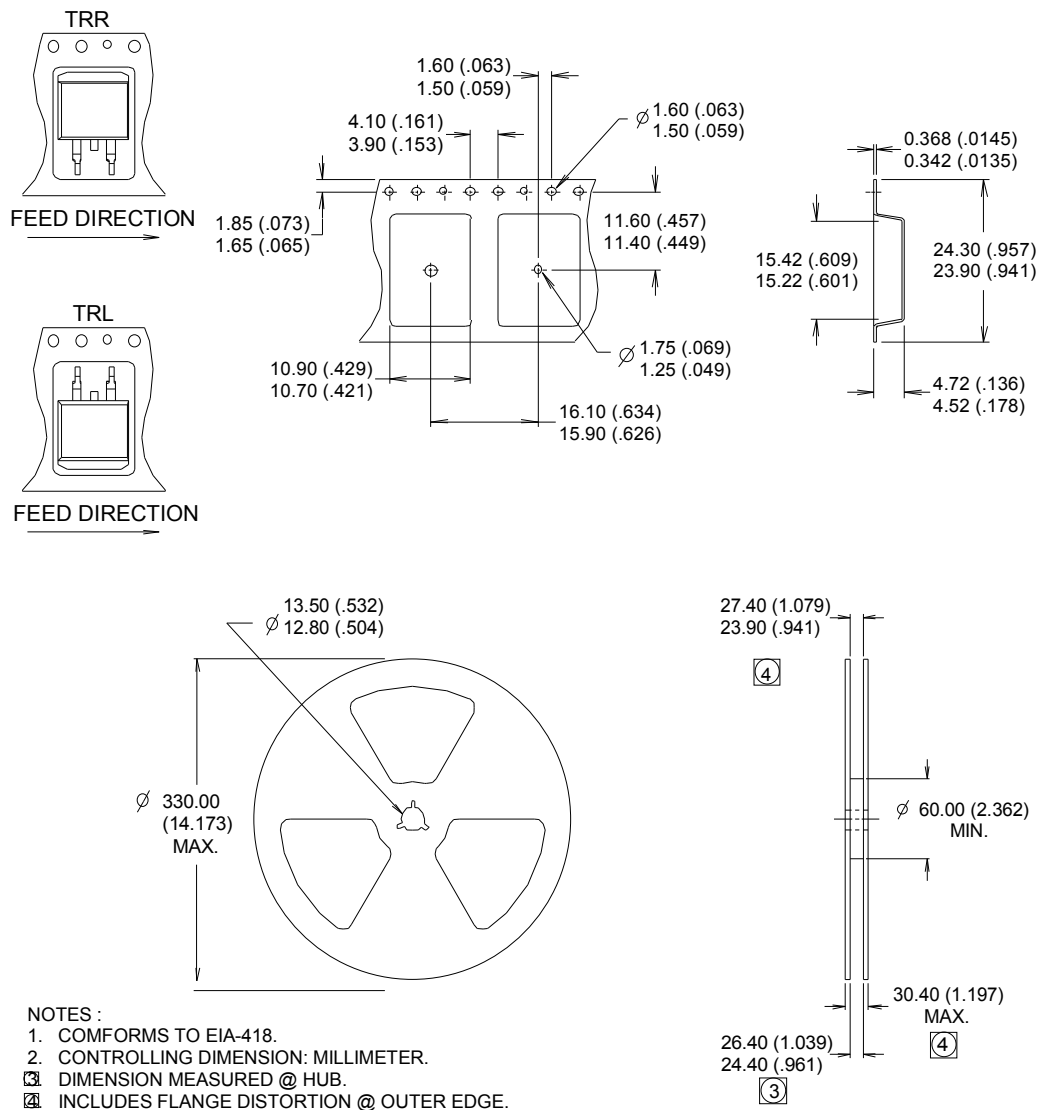
- 1.- GATE
- 2.- DRAIN
- 3.- SOURCE
- 4.- DRAIN

**DIODES**

- 1.- ANODE (TWO DIE) / OPEN (ONE DIE)
- 2, 4.- CATHODE
- 3.- ANODE

| SYM<br>BOL | DIMENSIONS  |       |          |      | NOTES |
|------------|-------------|-------|----------|------|-------|
|            | MILLIMETERS |       | INCHES   |      |       |
|            | MIN.        | MAX.  | MIN.     | MAX. |       |
| A          | 4.06        | 4.83  | .160     | .190 | 5     |
| A1         | 2.03        | 3.02  | .080     | .119 |       |
| b          | 0.51        | 0.99  | .020     | .039 |       |
| b1         | 0.51        | 0.89  | .020     | .035 |       |
| b2         | 1.14        | 1.78  | .045     | .070 | 5     |
| b3         | 1.14        | 1.73  | .045     | .068 |       |
| c          | 0.38        | 0.74  | .015     | .029 |       |
| c1         | 0.38        | 0.58  | .015     | .023 | 5     |
| c2         | 1.14        | 1.65  | .045     | .065 |       |
| D          | 8.38        | 9.65  | .330     | .380 | 3     |
| D1         | 6.86        | —     | .270     | —    | 4     |
| E          | 9.65        | 10.67 | .380     | .420 | 3,4   |
| E1         | 6.22        | —     | .245     |      | 4     |
| e          | 2.54 BSC    |       | .100 BSC |      |       |
| L          | 13.46       | 14.10 | .530     | .555 | 4     |
| L1         | —           | 1.65  | —        | .065 |       |
| L2         | 3.56        | 3.71  | .140     | .146 |       |

**TO-262 Part Marking Information**


**D<sup>2</sup>Pak (TO-263AB) Tape & Reel Information (Dimensions are shown in millimeters (inches))**


**Qualification Information**

|                            |                      |                                                                                                                                                                               |      |
|----------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Qualification Level        |                      | Automotive<br>(per AEC-Q101)                                                                                                                                                  |      |
|                            |                      | Comments: This part number(s) passed Automotive qualification. Infineon's Industrial and Consumer qualification level is granted by extension of the higher Automotive level. |      |
| Moisture Sensitivity Level |                      | TO-220AB                                                                                                                                                                      | N/A  |
|                            |                      | TO-262                                                                                                                                                                        | MSL1 |
|                            |                      | D <sup>2</sup> -Pak                                                                                                                                                           |      |
| ESD                        | Machine Model        | Class M4 <sup>†</sup><br>AEC-Q101-002                                                                                                                                         |      |
|                            | Human Body Model     | Class H3A <sup>†</sup><br>AEC-Q101-001                                                                                                                                        |      |
|                            | Charged Device Model | Class C5 <sup>†</sup><br>AEC-Q101-005                                                                                                                                         |      |
| RoHS Compliant             |                      | Yes                                                                                                                                                                           |      |

† Highest passing voltage.

**Revision History**

| Date      | Comments                                                                                                                                 |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------|
| 9/30/2015 | <ul style="list-style-type: none"> <li>Updated datasheet with corporate template</li> <li>Corrected ordering table on page 1.</li> </ul> |

**Published by**  
**Infineon Technologies AG**  
**81726 München, Germany**  
 © Infineon Technologies AG 2015  
**All Rights Reserved.**

**IMPORTANT NOTICE**

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenheitsgarantie"). With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

In addition, any information given in this document is subject to customer's compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer's products and any use of the product of Infineon Technologies in customer's applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer's technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

For further information on the product, technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies office ([www.infineon.com](http://www.infineon.com)).

**WARNINGS**

Due to technical requirements products may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by Infineon Technologies in a written document signed by authorized representatives of Infineon Technologies, Infineon Technologies' products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.