

AUTOMOTIVE GRADE

AUIRFR8401 AUIRFU8401

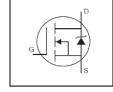
HEXFET® Power MOSFET

S

Source

Features

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



$V_{ extsf{DSS}}$		40V
R _{DS(on)}	typ.	$3.2 \mathrm{m}\Omega$
	max.	4.25m $Ω$
D (Silicon Lim	nited)	100A①
D (Package Li		100A

D-Pak I-Pak AUIRFR8401 AUIRFU8401

D

Drain

G

Gate

that HEXFET power MOSFETs are well known for, provides the designer with an extremely efficient and reliable device for use in Automotive and a wide variety of other applications. **Applications**

Specifically designed for Automotive applications, this HEXFET® Power MOSFETs utilizes the latest processing techniques to achieve low on-resistance per silicon area. This benefit combined with the fast switching speed and ruggedized device design

Description

- Electric Power Steering (EPS)
- **Battery Switch**
- Start/Stop Micro Hybrid
- Heavy Loads
- DC-DC Converter

Bass nort number	Pookogo Typo	Standard Pack		Orderable Part Number
Base part number	Package Type	Form	Quantity	Orderable Part Number
AUIRFU8401	I-Pak	Tube	75	AUIRFU8401
ALUDED0404	D. Dok	Tube	75	AUIRFR8401
AUIRFR8401	D-Pak	Tape and Reel Left	3000	AUIRFR8401TRL

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°C	Continuous Drain Current, V _{GS} @ 10V (Silicon Limited)	100①	
I _D @ T _C = 100°C	Continuous Drain Current, V _{GS} @ 10V (Silicon Limited)	71	\neg
I _D @ T _C = 25°C	Continuous Drain Current, V _{GS} @ 10V (Package Limited)	100	A
I _{DM}	Pulsed Drain Current ②	400	
P _D @T _C = 25°C	Maximum Power Dissipation	79	W
	Linear Derating Factor	0.53	W/°C
V_{GS}	Gate-to-Source Voltage	± 20	V
TJ	Operating Junction and	-55 to + 175	
T _{STG}	Storage Temperature Range		°C
	Soldering Temperature, for 10 seconds (1.6mm from case)	300	

Avalanche Characteristics

/ traiailoilo Ollaia	510.101.00		
E _{AS}	Single Pulse Avalanche Energy (Thermally Limited) ③	67	m l
E _{AS} (tested)	Single Pulse Avalanche Energy (Tested Limited) ®	94	mJ
I _{AR}	Avalanche Current ②	See Fig. 14, 15, 24a, 24b	Α
E _{AR}	Repetitive Avalanche Energy ②		mJ

Thermal Resistance

	~			
Symbol	Parameter	Тур.	Max.	Units
$R_{ heta JC}$	Junction-to-Case		1.9	
$R_{ heta JA}$	Junction-to-Ambient (PCB Mount) ®		50	°C/W
$R_{ heta JA}$	Junction-to-Ambient		110	

HEXFET® is a registered trademark of Infineon.

2017-10-03

^{*}Qualification standards can be found at www.infineon.com



Static @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Тур.	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		0.035		V/°C	Reference to 25°C, I_D = 1.0mA ③
R _{DS(on)}	Static Drain-to-Source On-Resistance		3.2	4.25	mΩ	V _{GS} = 10V, I _D = 60A ⑤
$V_{GS(th)}$	Gate Threshold Voltage	2.2		3.9	V	$V_{DS} = V_{GS}$, $I_D = 50\mu A$
ı	Drain-to-Source Leakage Current			1.0	μA	$V_{DS} = 40V, V_{GS} = 0V$
I _{DSS}	Diam-to-Source Leakage Current			150	μΑ	$V_{DS} = 40V, V_{GS} = 0V, T_{J} = 125^{\circ}C$
	Gate-to-Source Forward Leakage			100	n ^	$V_{GS} = 20V$
I _{GSS}	Gate-to-Source Reverse Leakage			-100	nA	$V_{GS} = -20V$
R_G	Internal Gate Resistance		2.0		Ω	

Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

Forward Trans conductance	198			S	$V_{DS} = 10V, I_{D} = 60A$
Total Gate Charge		42	63		I _D = 60A
Gate-to-Source Charge		12		20	$V_{DS} = 20V$
Gate-to-Drain Charge		14		110	V _{GS} = 10V⑤
Total Gate Charge Sync. (Q _g - Q _{gd})		28			
Turn-On Delay Time		7.9			$V_{DD} = 20V$
Rise Time		34		no	I _D = 30A
Turn-Off Delay Time		25		115	$R_G = 2.7\Omega$
Fall Time		24			V _{GS} = 10V⑤
Input Capacitance		2200			$V_{GS} = 0V$
Output Capacitance		340			$V_{DS} = 25V$
Reverse Transfer Capacitance		205		pF	f = 1.0MHz, See Fig. 5
Effective Output Capacitance (Energy Related)		410			V_{GS} = 0V, V_{DS} = 0V to 32V ⑦
Effective Output Capacitance (Time Related)		495			$V_{GS} = 0V, V_{DS} = 0V \text{ to } 32V $
	Total Gate Charge Gate-to-Source Charge Gate-to-Drain Charge Total Gate Charge Sync. (Q _q - Q _{qd}) Turn-On Delay Time Rise Time Turn-Off Delay Time Fall Time Input Capacitance Output Capacitance Reverse Transfer Capacitance Effective Output Capacitance (Energy Related)	Total Gate Charge Gate-to-Source Charge Gate-to-Drain Charge Total Gate Charge Sync. (Qq - Qqd) Turn-On Delay Time Rise Time Turn-Off Delay Time Fall Time Input Capacitance Output Capacitance Reverse Transfer Capacitance Effective Output Capacitance (Energy Related)	Total Gate Charge — 42 Gate-to-Source Charge — 12 Gate-to-Drain Charge — 14 Total Gate Charge Sync. (Qq - Qqd) — 28 Turn-On Delay Time — 7.9 Rise Time — 34 Turn-Off Delay Time — 25 Fall Time — 24 nput Capacitance — 2200 Output Capacitance — 340 Reverse Transfer Capacitance — 205 Effective Output Capacitance (Energy Related) — 410	Total Gate Charge — 42 63 Gate-to-Source Charge — 12 — Gate-to-Drain Charge — 14 — Total Gate Charge Sync. (Qq - Qqd) — 28 — Turn-On Delay Time — 7.9 — Rise Time — 34 — Turn-Off Delay Time — 25 — Fall Time — 24 — nput Capacitance — 2200 — Output Capacitance — 340 — Reverse Transfer Capacitance — 205 — Effective Output Capacitance (Energy Related) — 410 —	Total Gate Charge — 42 63 Gate-to-Source Charge — 12 — Gate-to-Drain Charge — 14 — Total Gate Charge Sync. (Qq - Qqd) — 28 — Turn-On Delay Time — 7.9 — Rise Time — 34 — Turn-Off Delay Time — 25 — Fall Time — 24 — Input Capacitance — 200 — Output Capacitance — 340 — Reverse Transfer Capacitance — 205 — Effective Output Capacitance (Energy Related) — 410 —

Diode Characteristics

						1
	Parameter	Min.	Тур.	Max.	Units	Conditions
Is	Continuous Source Current (Body Diode)			100①		MOSFET symbol showing the
I _{SM}	Pulsed Source Current (Body Diode) ①			400	Α	integral reverse p-n junction diode.
V_{SD}	Diode Forward Voltage			1.3	V	$T_J = 25^{\circ}C, I_S = 60A, V_{GS} = 0V$ (§
dv/dt	Peak Diode Recovery dv/dt®		3.2		V/ns	
t _{rr}	Reverse Recovery Time		28		no	$T_J = 25^{\circ}C$ $V_R = 34V$,
			29		ns	$V_R = 34V$, $V_R = 34V$, $V_R = 34V$, $V_R = 34V$,
Q_{rr}	Reverse Recovery Charge		28		nC	$II_J = 20 C$ di/dt = 1000/us ©
			31		110	$T_J = 125^{\circ}C$
I _{RRM}	Reverse Recovery Current		1.6		Α	T _J = 25°C

Notes:

- ① Calculated continuous current based on maximum allowable junction temperature. Bond wire current limit is 100A by source bonding technology. 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 $T_J = 25$ °C, L = 0.037mH, $R_G = 50\Omega$, $I_{AS} = 60$ A, $V_{GS} = 10$ V.
- ⑤ Pulse width $\leq 400 \mu s$; duty cycle $\leq 2\%$.
- \odot Coss eff. (TR) is a fixed capacitance that gives the same charging time as C_{oss} while V_{DS} is rising from 0 to 80% V_{DSS} .
- © C_{oss eff}. (ER) is a fixed capacitance that gives the same energy as C_{oss} while V_{DS} is rising from 0 to 80% V_{DSS}.
- When mounted on 1" square PCB (FR-4 or G-10 Material). For recommended footprint and soldering techniques refer to application note #AN-994
- \mathfrak{G} R_θ is measured at T_J approximately 90°C.
- \odot This value determined from sample failure population, starting T_J = 25°C, L=0.037mH, R_G = 25Ω, I_{AS} = 60A, V_{GS} =10V



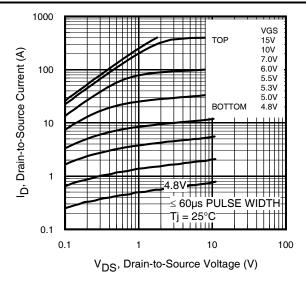


Fig. 1 Typical Output Characteristics

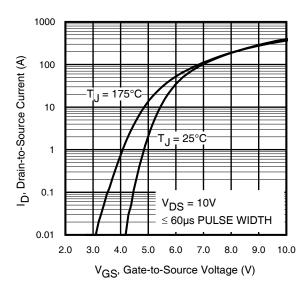


Fig. 3 Typical Transfer Characteristics

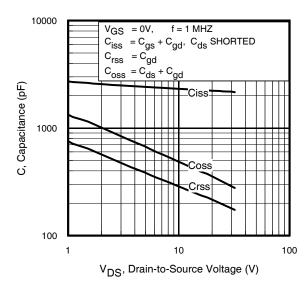


Fig 5. Typical Capacitance vs. Drain-to-Source Voltage

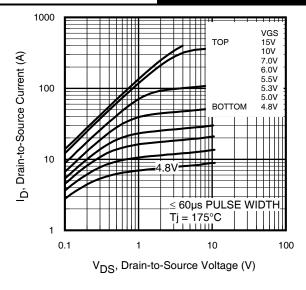


Fig. 2 Typical Output Characteristics

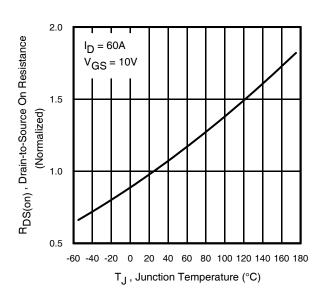


Fig. 4 Normalized On-Resistance vs. Temperature

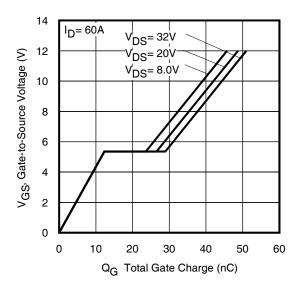


Fig 6. Typical Gate Charge vs. Gate-to-Source Voltage



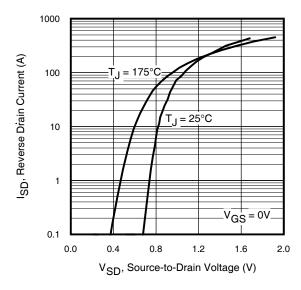


Fig. 7 Typical Source-to-Drain Diode Forward Voltage

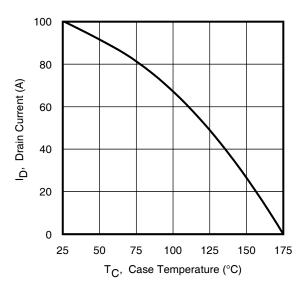


Fig. 9 Maximum Drain Current vs. Case Temperature

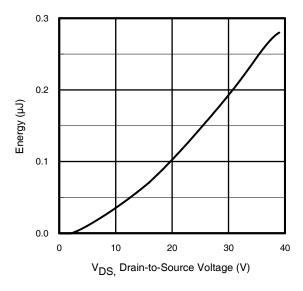


Fig. 11 Typical Coss Stored Energy

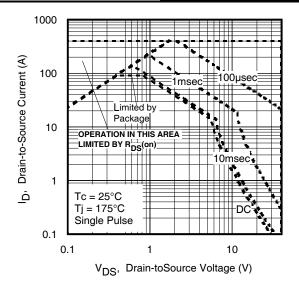


Fig 8. Maximum Safe Operating Area

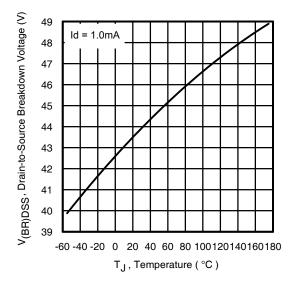


Fig 10. Drain-to-Source Breakdown Voltage

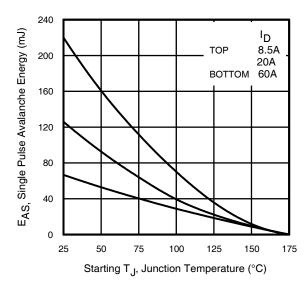


Fig 12. Maximum Avalanche Energy vs. Drain Current



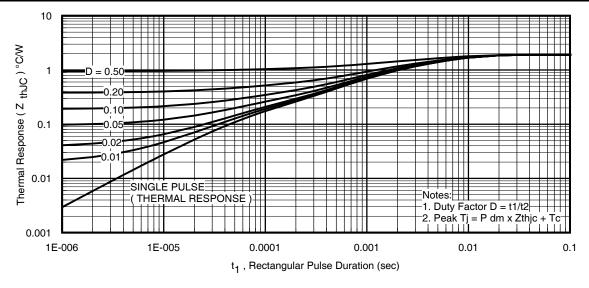


Fig 13. Maximum Effective Transient Thermal Impedance, Junction-to-Case

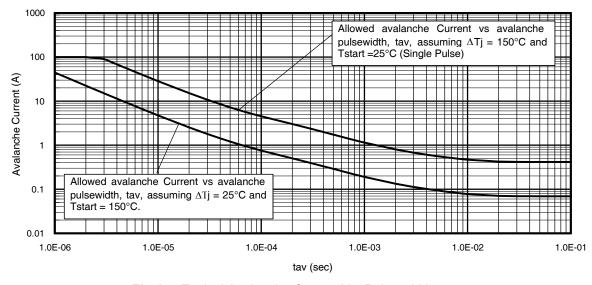


Fig 14. Typical Avalanche Current Vs. Pulse width

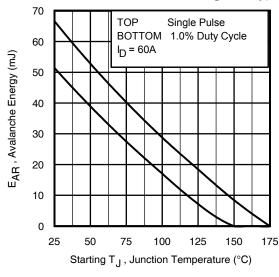


Fig 15. Maximum Avalanche Energy Vs. Temperature

Notes on Repetitive Avalanche Curves , Figures 14, 15: (For further info, see AN-1005 at www.infineon.com)

- (For further info, see AN-1005 at 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 22a, 22b.
- 4. PD (ave) = Average power dissipation per single avalanche pulse.
- BV = Rated breakdown voltage (1.3 factor accounts for voltage increase during avalanche).
- 6. lav = Allowable avalanche current.
- 7. ΔT = Allowable rise in junction temperature, not to exceed T_{jmax} (assumed as 25°C in Figure 13, 14).

tav = Average time in avalanche.

D = Duty cycle in avalanche = tav ·f

ZthJC(D, tav) = Transient thermal resistance, see Figures 13)

$$\begin{split} P_{D \text{ (ave)}} &= 1/2 \text{ (} 1.3 \cdot \text{BV} \cdot \text{I}_{av} \text{)} = \Delta \text{T} / \text{Z}_{thJC} \\ I_{av} &= 2\Delta \text{T} / \text{ [} 1.3 \cdot \text{BV} \cdot \text{Z}_{th} \text{]} \\ E_{AS \text{ (AR)}} &= P_{D \text{ (ave)}} \cdot t_{av} \end{split}$$



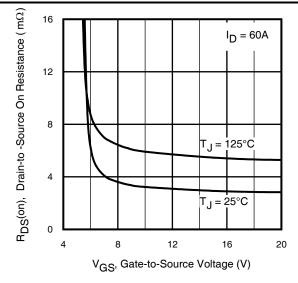


Fig 16. On-Resistance vs. Gate Voltage

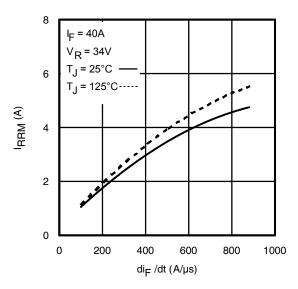


Fig. 18 - Typical Recovery Current vs. dif/dt

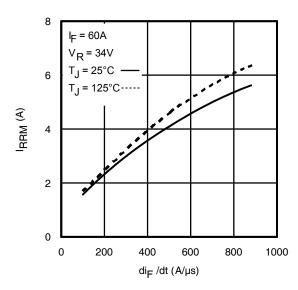


Fig. 20 - Typical Recovery Current vs. dif/dt

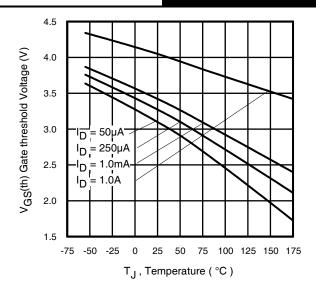


Fig. 17 - Threshold Voltage vs. Temperature

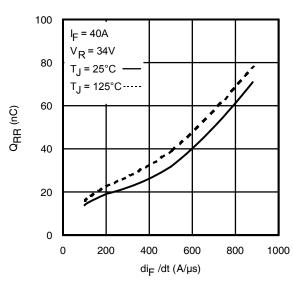


Fig. 19 - Typical Stored Charge vs. dif/dt

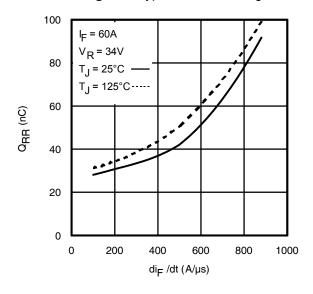


Fig. 21 - Typical Stored Charge vs. dif/dt

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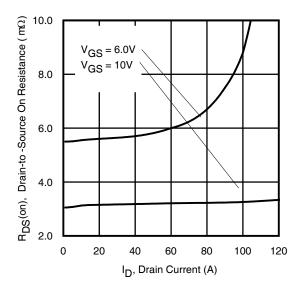


Fig 22. Typical On-Resistance vs. Drain Current



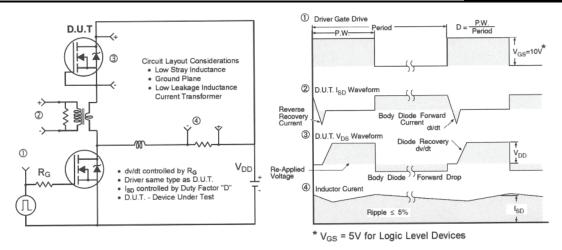


Fig 23. Peak Diode Recovery dv/dt Test Circuit for N-Channel HEXFET® Power MOSFETs

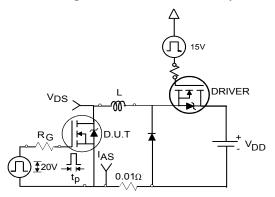


Fig 24a. Unclamped Inductive Test Circuit

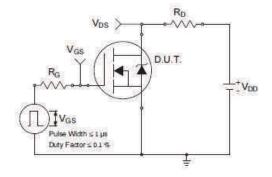


Fig 25a. Switching Time Test Circuit

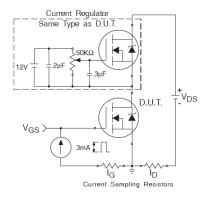


Fig 26a. Gate Charge Test Circuit

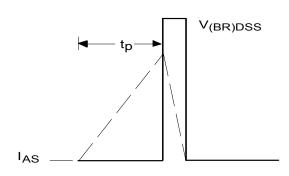


Fig 24b. Unclamped Inductive Waveforms

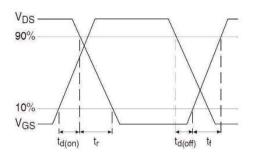


Fig 25b. Switching Time Waveforms

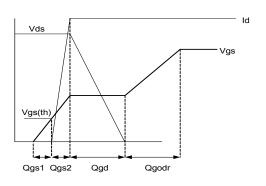
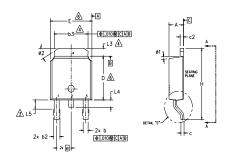


Fig 26b. Gate Charge Waveform

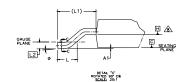
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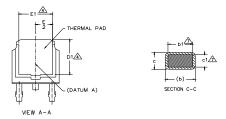


D-Pak (TO-252AA) Package Outline (Dimensions are shown in millimeters (inches))









NOTES:

- 1.- DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994
- 2.- DIMENSION ARE SHOWN IN INCHES [MILLIMETERS].
- 3- LEAD DIMENSION UNCONTROLLED IN L5.
- A- 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.
- bildension 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.
- A- DIMENSION b1 & c1 APPLIED TO BASE METAL ONLY.
- 9.- OUTLINE CONFORMS TO JEDEC OUTLINE TO-252AA.

S Y M B DIMENSIONS N O T E M B B B B B B B B B B B B B B B B B B B						
B O L MINLIMETERS INCHES T E S E S E S E S E S E S E S E S E S E			DIMEN	SIONS		Ŋ
A 2.18 2.39 .086 .094 A1 - 0.13005 b 0.64 0.89 .025 .035 b1 0.65 0.79 .025 .031 7 b2 0.76 1.14 .030 .045 b3 4.95 5.46 .195 .215 4 c 0.46 0.61 .018 .022 7 c2 0.46 0.89 .018 .035 D 5.97 6.22 .235 .245 6 D1 5.21205 - 4 E 6.35 6.73 .250 .265 6 E1 4.32170 - 4 E 6.35 6.73 .250 .265 6 E1 4.32170 - 4 E 2.29 BSC .090 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 4 L4102040 L5 1.14 1.52 .045 .060 3 Ø 0° 10° 0° 10° Ø1 0° 15° 0° 15°	В	MILLIMETERS INCHES			HES	Ť
A1 - 0.13 - .005 b 0.64 0.89 .025 .035 b1 0.65 0.79 .025 .031 7 b2 0.76 1.14 .030 .045 b3 4.95 5.46 .195 .215 4 c 0.46 0.61 .018 .024 7 c2 0.46 0.89 .018 .035 6 D 5.97 6.22 .235 .245 6 D1 5.21 - .205 - 4 E 6.35 6.73 .250 .265 6 E1 4.32 - .170 - 4 e 2.29 BSC .090 BSC H 9.40 10.41 .370 .410 L 1.40 1.78 .055 .070 L1 2.74 BSC .108 REF.		MIN.	MAX.	MIN.	MAX.	E S
b 0.64 0.89 .025 .035 b1 0.65 0.79 .025 .031 7 b2 0.76 1.14 .030 .045 b3 4.95 5.46 .195 .215 4 c 0.46 0.61 .018 .024 7 c1 0.41 0.56 .016 .022 7 c2 0.46 0.89 .018 .035 D 5.97 6.22 .235 .245 6 D1 5.21 - .205 - 4 E 6.35 6.73 .250 .265 6 E1 4.32 - .170 - 4 e 2.29 BSC .090 BSC H 9.40 10.41 .370 .410 L 1.140 1.78 .055 .070 L1 2.74 BSC .108 REF. <tr< td=""><td>Α</td><td>2.18</td><td>2.39</td><td>.086</td><td>.094</td><td></td></tr<>	Α	2.18	2.39	.086	.094	
b1 0.65 0.79 .025 .031 7 b2 0.76 1.14 .030 .045 b3 4.95 5.46 .195 .215 4 c 0.46 0.61 .018 .024 7 c2 0.46 0.89 .018 .035 6 D 5.97 6.22 .235 .245 6 D1 5.21 — .205 — 4 E 6.35 6.73 .250 .265 6 E1 4.32 — .170 — 4 e 2.29 BSC .090 BSC H 9.40 10.41 .370 .410 L 1.140 1.78 .055 .070 L1 2.74 BSC .108 REF. L2 0.51 BSC .020 BSC L3 0.89 1.27 .035 .050 4 <td>A1</td> <td>_</td> <td>0.13</td> <td>-</td> <td>.005</td> <td></td>	A1	_	0.13	-	.005	
b2 0.76 1.14 0.30 0.045 b3 4.95 5.46 .195 .215 4 c 0.46 0.61 .018 .024 7 c1 0.41 0.56 .016 .022 7 c2 0.46 0.89 .018 .035 D 5.97 6.22 .235 .245 6 D1 5.21 - .205 - 4 E 6.35 6.73 .250 .265 6 E1 4.32 - .170 - 4 e 2.29 BSC .090 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 4	b	0.64	0.89	.025	.035	
b3	ь1	0.65	0.79	.025	.031	7
c 0.46 0.61 .018 .024 c1 0.41 0.56 .016 .022 7 c2 0.46 0.89 .018 .035 6 D 5.97 6.22 .235 .245 6 D1 5.21 - .205 - 4 E 6.35 6.73 .250 .265 6 E1 4.32 - .170 - 4 e 2.29 BSC .090 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 4 L4 - 1.02 - .040 L5 1.14 1.52 .045 .060 3	b2	0.76	1.14	.030	.045	
c1 0.41 0.56 .016 .022 7 c2 0.46 0.89 .018 .035 6 D 5.97 6.22 .235 .245 6 D1 5.21 - .205 - 4 E 6.35 .250 .265 6 E1 4.32 - .170 - 4 e 2.29 BSC .090 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 4 L4 - 1.02 - .040 L5 1.14 1.52 .045 .060 3 Ø 0° 10° 0° 10° 10° Ø	b3	4.95	5.46	.195	.215	4
c2 0.46 0.89 .018 .035 D 5.97 6.22 .235 .245 6 D1 5.21 - .205 - 4 E 6.35 6.73 .250 .265 6 E1 4.32 - .170 - 4 e 2.29 BSC .090 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 4 L4 - 1.02 - .040 L5 1.14 1.52 .045 .060 3 Ø 0° 10° 0° 10° Ø 0° 10° 0° 15°	С	0.46	0.61	.018	.024	
D 5.97 6.22 .235 .245 6	c1	0.41	0.56	.016	.022	7
D1	c2	0.46	0.89	.018	.035	
E 6.35 6.73 .250 .265 6 E1 4.32170 - 4 e 2.29 BSC .090 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 4 L4 - 1.02040 L5 1.14 1.52 .045 .060 3 ø 0° 10° 0° 10° 0° 10° ø1 0° 15° 0° 15°	D	5.97	6.22	.235	.245	6
E1 4.32 - .170 - 4 e 2.29 BSC .090 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 4 L4 - 1.02 - .040 L5 1.14 1.52 .045 .060 3 Ø 0° 10° 0° 10° Ø1 0° 15° 0° 15°	D1	5.21	-	.205	-	4
e 2.29 BSC .090 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 4 L4 - 1.02 - .040 L5 1.14 1.52 .045 .060 3 Ø 0° 10° 0° 10° 0° 15° Ø1 0° 15° 0° 15° 0° 15°	Ε	6.35	6.73	.250	.265	6
H 9.40 10.41 .370 .410	E1	4.32	-	.170	-	4
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 4 L4 - 1.02040 L5 1.14 1.52 .045 .060 3 Ø 0° 10° 0° 10° 0° 10° Ø1 0° 15° 0° 15°	е	2.29	BSC	.090	BSC	
L1	Н	9.40	10.41	.370	.410	
L2 0.51 BSC .020 BSC L3 0.89 1.27 .035 .050 4 L4 - 1.02 - .040 .045 .060 3 Ø 0° 10° 0° 10° 9 15° 15° 15°	L	1.40	1.78	.055	.070	
L3 0.89 1.27 .035 .050 4 L4 - 1.02040 L5 1.14 1.52 .045 .060 3 Ø 0° 10° 0° 10° Ø1 0° 15° 0° 15°	L1	2.74	BSC	.108	REF.	
L4 - 1.02 - .040 L5 1.14 1.52 .045 .060 3 Ø 0° 10° 0° 10° Ø1 0° 15° 0° 15°	L2	0.51	BSC	.020	BSC	
L5 1.14 1.52 .045 .060 3 ø 0° 10° 0° 10° ø1 0° 15° 0° 15°	L3	0.89	1.27	.035	.050	4
ø 0° 10° 0° 10° ø 0° 15° 0° 15°	L4	-	1.02	-	.040	
ø1 0° 15° 0° 15°	L5	1.14	1.52	.045	.060	3
	ø	0.	10°	0,	10°	
ø2 25° 35° 25° 35°	ø1	0,	15*	0,	15*	
	ø2	25*	35°	25*	35*	

LEAD ASSIGNMENTS

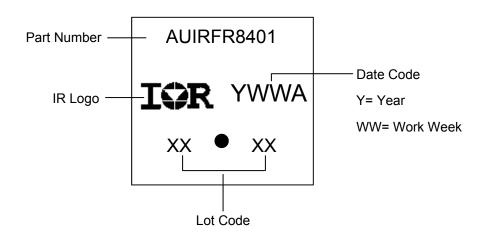
HEXFET

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

IGBT & CoPAK

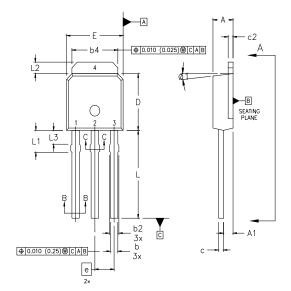
- 1.- GATE
- 2.- COLLECTOR
- 3.- EMITTER
- 4.- COLLECTOR

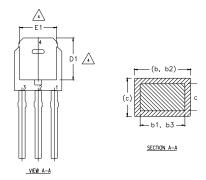
D-Pak (TO-252AA) Part Marking Information





I-Pak (TO-251AA) Package Outline (Dimensions are shown in millimeters (inches)





NOTES:

SYMBOL

A1

b

ь1

b2

b4

c1

c2

D

D1

E1

e L

L1

L2

L3

- 1 DIMENSIONING AND TOLERANCING PER ASME Y14.5 M- 1994.
- 2 DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
- JIMENSION D & E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.005" (0.127) PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
- 4 THERMAL PAD CONTOUR OPTION WITHIN DIMENSION 64, L2, E1 & D1.

INCHES

.094

0.045

0.035

0.031

0.045

0.041

0.215

0.024

0.022

0.035

0.245

0.265

0.380

0.090

0.050

0.060

15*

0.086

0.035

0.025

0.025

0.030

0.030

0.195

0.018

0.016

0.018

0.235

0.205

0.250

0.170

0.350

0.075

0.035

0.045

0.090 BSC

NOTES

LEAD DIMENSION UNCONTROLLED IN L3.

2.39

1.14

0.89

0.79

1.14

1.04

5.46

0.61

0.56

0.86

6.22

6.73

9.60

2.29

1.27

1.52

- 6 DIMENSION 61, 63 APPLY TO BASE METAL ONLY.
 - OUTLINE CONFORMS TO JEDEC OUTLINE TO-251AA.

DIMENSIONS

8 CONTROLLING DIMENSION : INCHES.

MILLIMETERS

MIN.

2.18

0.89

0.64

0.64

0.76

0.76

5.00

0.46

0.41

.046

5.97

5.21

6.35

4.32

8.89

1.91

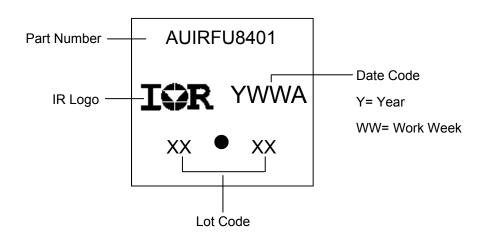
0.89

1.14

LEAD ASSIGNMENTS

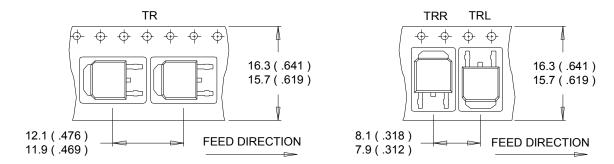
- 1.- GATE
- 2.- DRAIN 3.- SOURCE
- 4.- DRAIN

I-Pak (TO-251AA) Part Marking Information



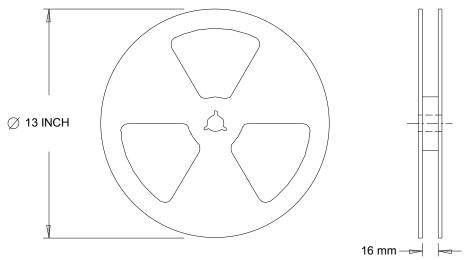


D-Pak (TO-252AA) Tape & Reel Information (Dimensions are shown in millimeters (inches))



NOTES:

- 1. CONTROLLING DIMENSION: MILLIMETER.
- 2. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).
- 3. OUTLINE CONFORMS TO EIA-481 & EIA-541.



NOTES:

1. OUTLINE CONFORMS TO EIA-481.



Qualification Information

4000000						
		Automotive (per AEC-Q101)				
			is part number(s) passed Automotive qualification. Infineon's consumer qualification level is granted by extension of the higherel.			
Moisture Sensitivity Level		D-Pak	MCI 1			
		I-Pak	MSL1			
	Machine Madel		Class M2 (+/- 200V) [†]			
	Machine Model	AEC-Q101-002				
FOD	Liverson Dady Madal	Class H1B (+/- 1000V) [†]				
ESD	ESD Human Body Model		AEC-Q101-001			
	Charged Davies Madel	Class C5 (+/- 2000V) [†]				
Charged Device Model		AEC-Q101-005				
RoHS Compliant Yes		Yes				

[†] Highest passing voltage.

Revision History

Date	Comments			
12/14/2015	 Updated datasheet with corporate template Corrected ordering table on page 1. 			
01/28/2016	Corrected Qualification table (Human Body model value) on page 12.			
10/03/2017	Corrected typo error on part marking on page 9 and 10.			

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