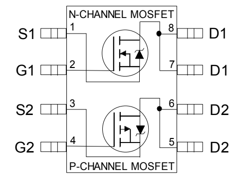
Features

- Advanced Planar Technology
- Ultra Low On-Resistance
- Logic Level Gate Drive
- Dual N and P Channel MOSFET
- Surface Mount
- Available in Tape & Reel
- 150°C Operating Temperature
- Lead-Free, RoHS Compliant
- Automotive Qualified *



Top View

	N-CH	P-CH
V_{DSS}	55V	-55V
$R_{DS(on)}$ typ.	0.043Ω	0.095Ω
max.	0.050Ω	0.105Ω
I_D	4.7A	-3.4A

SO-8
AUIRF7343Q

G	D	S
Gate	Drain	Source

Description

Specifically designed for Automotive applications, these HEXFET® Power MOSFET's in a Dual SO-8 package utilize the lastest processing techniques to achieve extremely low on-resistance per silicon area. Additional features of these Automotive qualified HEXFET Power MOSFET's are a 150°C junction operating temperature, fast switching speed and improved repetitive avalanche rating. These benefits combine to make this design an extremely efficient and reliable device for use in Automotive applications and a wide variety of other applications.

The efficient SO-8 package provides enhanced thermal characteristics and dual MOSFET die capability making it ideal in a variety of power applications. This dual, surface mount SO-8 can dramatically reduce board space and is also available in Tape & Reel.

Base part number	Package Type	Standard Pack		Orderable Part Number
		Form	Quantity	
AUIRF7343Q	SO-8	Tape and Reel	4000	AUIRF7343QTR

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
		N-Channel	P-Channel	
V_{DS}	Drain-Source Voltage	55	-55	V
I_D @ T_A = 25°C	Continuous Drain Current, V_{GS} @ 10V	4.7	-3.4	A
I_D @ T_A = 70°C	Continuous Drain Current, V_{GS} @ 10V	3.8	-2.7	A
I_{DM}	Pulsed Drain Current ①	38	-27	A
P_D @T_A = 25°C	Maximum Power Dissipation ⑤	2.0		W
P_D @T_A = 70°C	Maximum Power Dissipation ⑤	1.3		W
E_{AS}	Single Pulse Avalanche Energy (Thermally Limited) ③	72	114	mJ
I_{AR}	Avalanche Current	4.7	-3.4	A
E_{AR}	Repetitive Avalanche Energy	0.20		mJ
V_{GS}	Gate-to-Source Voltage	± 20		V
dv/dt	Peak Diode Recovery dv/dt ②	5.0	-5.0	V/ns
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 150		°C

Thermal Resistance

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-Ambient (PCB Mount, steady state) ⑤	——	62.5	°C/W

HEXFET® is a registered trademark of Infineon.
*Qualification standards can be found at www.infineon.com

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

	Parameter		Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	N-Ch	55	——	——	V	V_{GS} = 0V, I_D = 250µA
		P-Ch	-55	——	——		V_{GS} = 0V, I_D = -250µA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	N-Ch	——	0.059	——	V/°C	Reference to 25°C, I_D = 1mA
		P-Ch	——	0.054	——		Reference to 25°C, I_D = -1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	N-Ch	——	0.043	0.050	Ω	V_{GS} = 10V, I_D = 4.7A ④
			——	0.056	0.065		V_{GS} = 4.5V, I_D = 3.8A ④
		P-Ch	——	0.095	0.105		V_{GS} = -10V, I_D = -3.4A ⑤
			——	0.150	0.170		V_{GS} = -4.5V, I_D = -2.7A ④
$V_{GS(th)}$	Gate Threshold Voltage	N-Ch	1.0	——	——	V	V_{DS} = V_{GS}, I_D = 250µA
		P-Ch	-1.0	——	——		V_{DS} = V_{GS}, I_D = -250µA
gfs	Forward Trans conductance	N-Ch	7.9	——	——	S	V_{DS} = 10V, I_D = 4.5A④
		P-Ch	3.3	——	——		V_{DS} = -10V, I_D = -3.1A④
I_{DSS}	Drain-to-Source Leakage Current	N-Ch	——	——	2.0	µA	V_{DS} = 55V, V_{GS} = 0V
		P-Ch	——	——	-2.0		V_{DS} = -55V,V_{GS} = 0V
		N-Ch	——	——	25		V_{DS} = 55V, V_{GS} = 0V ,T_J = 55°C
		P-Ch	——	——	-25		V_{DS} = -55V,V_{GS} = 0V,T_J = 55°C
I_{GSS}	Gate-to-Source Forward Leakage	N-P	——	——	± 100	nA	V_{GS} = ± 20V
	Gate-to-Source Reverse Leakage	N-P	——	——	± 100		V_{GS} = ± 20V

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

Q_g	Total Gate Charge	N-Ch	——	24	36	nC	N-Channel I_D = 4.5A, V_{DS} = 44V,V_{GS} = 10V ④
		P-Ch	——	26	38		
Q_{gs}	Gate-to-Source Charge	N-Ch	——	2.3	3.4		
		P-Ch	——	3.0	4.5		P-Channel I_D = - 3.1A,V_{DS} = -44V,V_{GS} = -10V
Q_{gd}	Gate-to-Drain Charge	N-Ch	——	7.0	10		
		P-Ch	——	8.4	13		
$t_{d(on)}$	Turn-On Delay Time	N-Ch	——	8.3	12	ns	N-Channel V_{DD} = 28V,I_D = 1.0A,R_G = 6.0Ω, R_D = 28Ω ④
		P-Ch	——	14	22		
t_r	Rise Time	N-Ch	——	3.2	4.8		
		P-Ch	——	10	15		
$t_{d(off)}$	Turn-Off Delay Time	N-Ch	——	32	48		P-Channel V_{DD} = -28V,I_D = -1.0A,R_G = 6.0Ω, R_D = 28Ω
		P-Ch	——	43	64		
t_f	Fall Time	N-Ch	——	13	20		
		P-Ch	——	22	32		
C_{iss}	Input Capacitance	N-Ch	——	740	——	pF	N-Channel V_{GS} = 0V,V_{DS} = 25V,f = 1.0MHz
		P-Ch	——	690	——		
C_{oss}	Output Capacitance	N-Ch	——	190	——		
		P-Ch	——	210	——		P-Channel V_{GS} = 0V,V_{DS} = -25V,f = 1.0MHz
C_{rss}	Reverse Transfer Capacitance	N-Ch	——	71	——		
		P-Ch		86	——		

Diode Characteristics

	Parameter		Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	N-Ch	——	——	2.0	A	
		P-Ch	——	——	-2.0		
I_{SM}	Pulsed Source Current (Body Diode) ①	N-Ch	——	——	38		
		P-Ch	——	——	-27		
V_{SD}	Diode Forward Voltage	N-Ch	——	0.70	1.2	V	T_J = 25°C,I_S = 2.0A,V_{GS} = 0V ④
		P-Ch	——	-0.80	-1.2		T_J = 25°C,I_S = -2.0A,V_{GS} = 0V ④
t_{rr}	Reverse Recovery Time	N-Ch	——	60	90	ns	N-Channel T_J = 25°C ,I_F = 2.0A, di/dt = 100A/µs
		P-Ch	——	54	80		
Q_{rr}	Reverse Recovery Charge	N-Ch	——	120	170	nC	P-Channel ④ T_J = 25°C,I_F = -2.0A, di/dt = 100A/µs
		P-Ch		85	130		

Notes:

① Repetitive rating; pulse width limited by max. junction temperature. (See Fig. 22)
② N-Channel $I_{SD} \leq$ 4.7A, di/dt $\leq$ 220A/µs, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq$ 150°C.
P-Channel $I_{SD} \leq$ -3.4A, di/dt $\leq$ -150A/µs, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq$ 150°C
③ N-Channel Starting T_J = 25°C, L = 6.5mH, R_G = 25Ω, I_{AS} = 4.7A.
P-Channel Starting T_J = 25°C, L = 20mH, R_G = 25Ω, I_{AS} = -3.4A.
④ Pulse width $\leq$ 300µs; duty cycle $\leq$ 2%.
⑤ Surface mounted on FR-4 board , t $\leq$ 10sec.

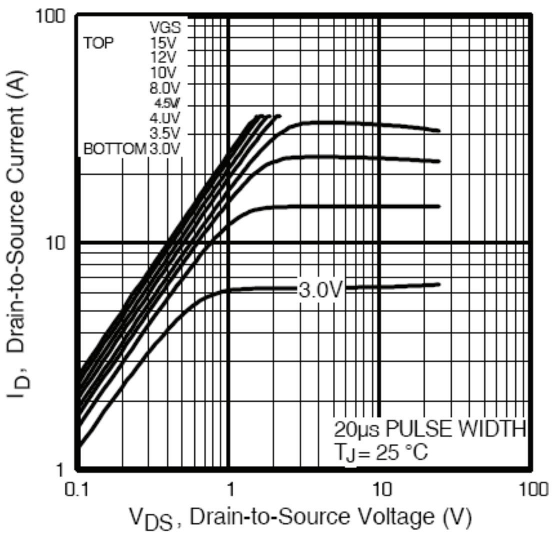


Fig. 1 Typical Output Characteristics

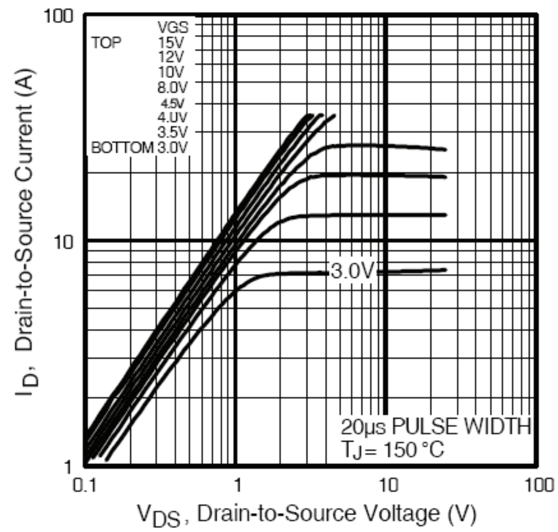


Fig. 2 Typical Output Characteristics

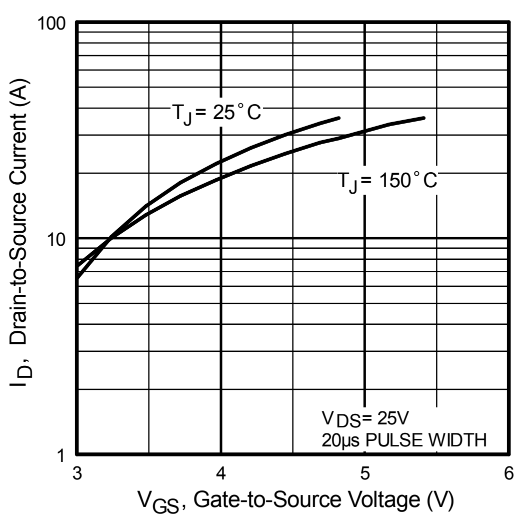


Fig. 3 Typical Transfer Characteristics

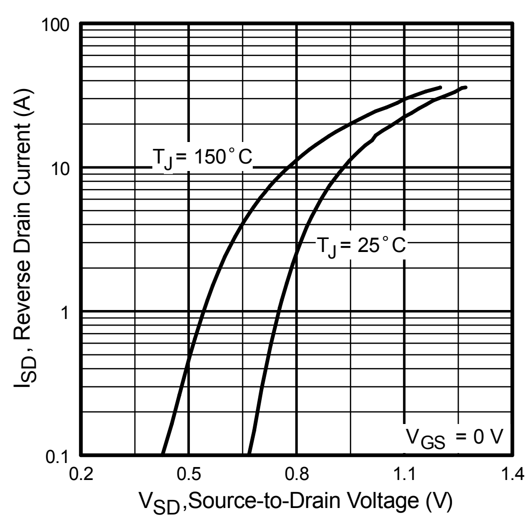


Fig. 4 Typical Source-Drain Diode Forward Voltage

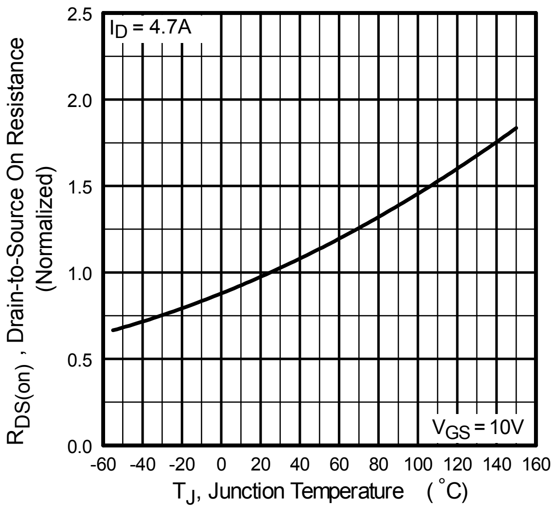


Fig 5. Normalized On-Resistance Vs. Temperature

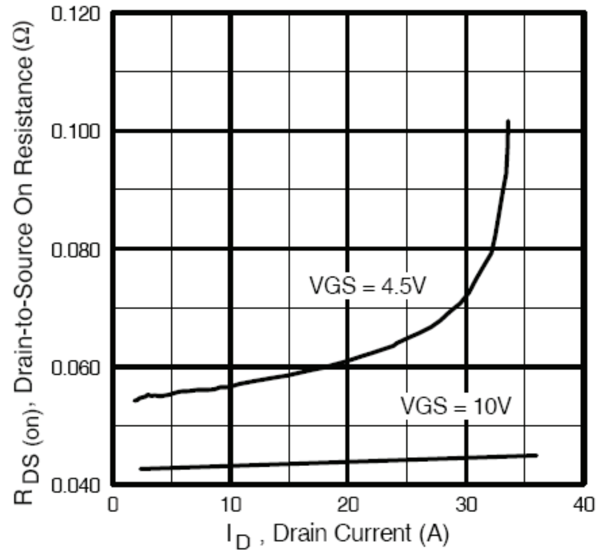


Fig 6. Typical On-Resistance Vs. Drain Current

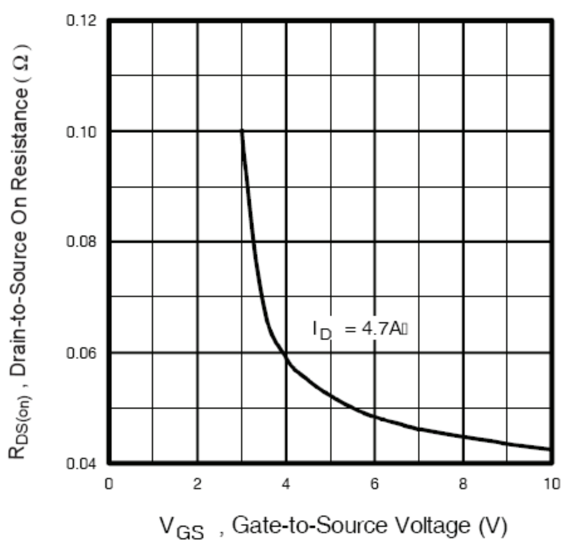


Fig. 7 Typical On-Resistance Vs. Gate Voltage

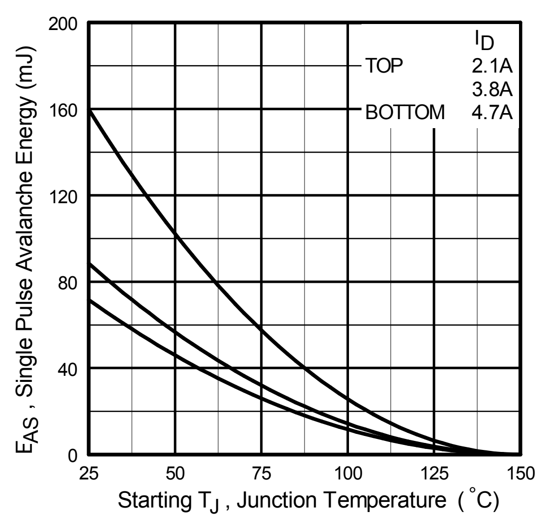


Fig 8. Maximum Avalanche Energy Vs. Drain Current

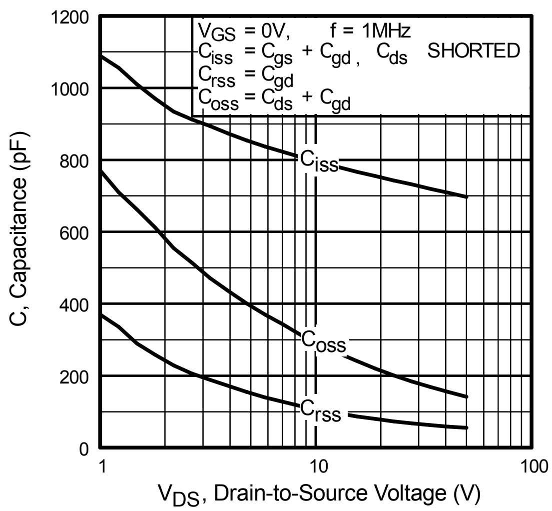


Fig 9. Typical Capacitance Vs. Drain-to-Source Voltage

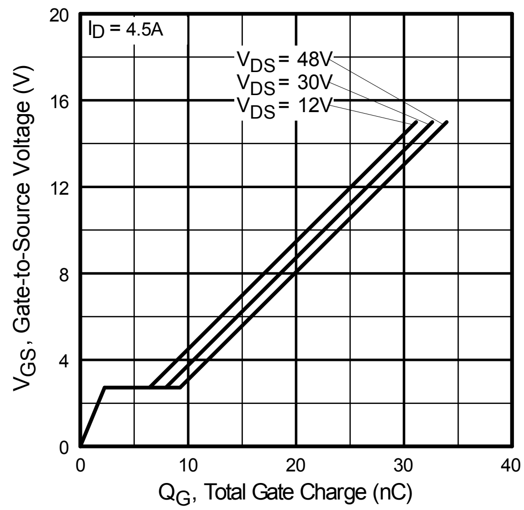


Fig 10. Typical Gate Charge Vs. Gate-to-Source Voltage

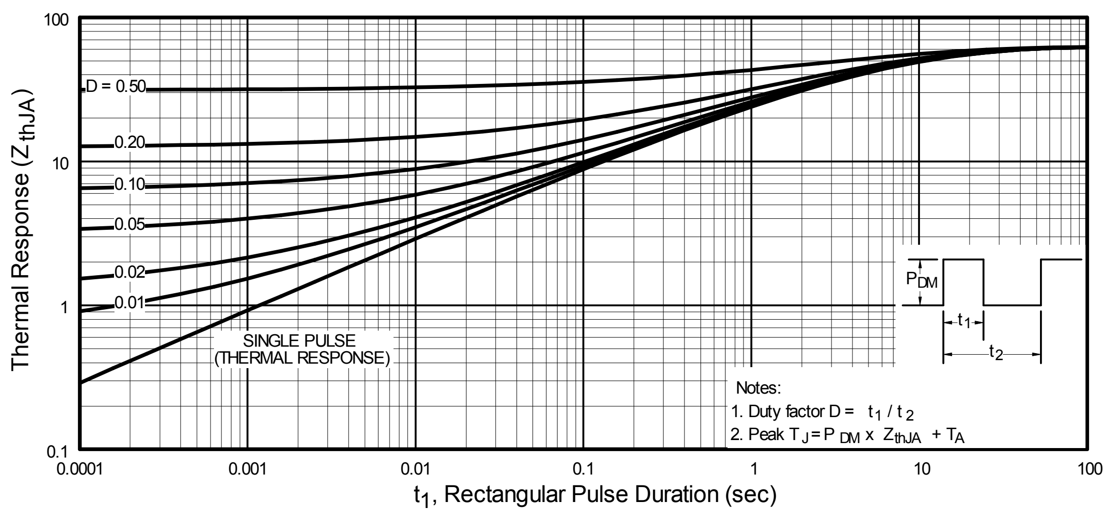


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

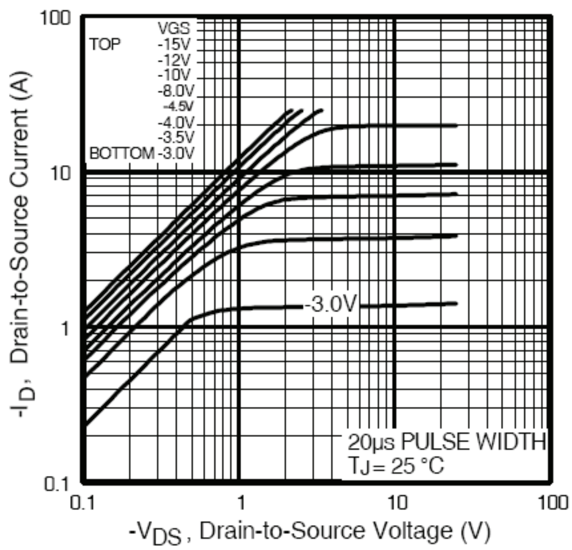


Fig. 12 Typical Output Characteristics

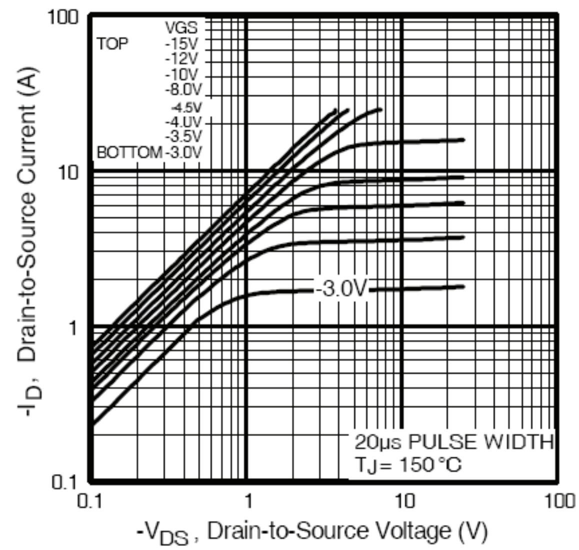


Fig. 13 Typical Output Characteristics

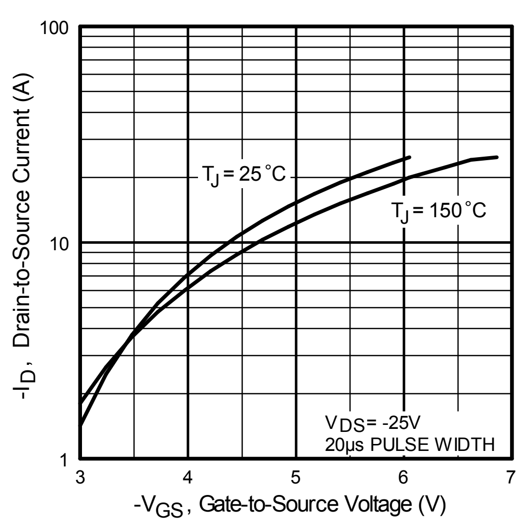


Fig. 14 Typical Transfer Characteristics

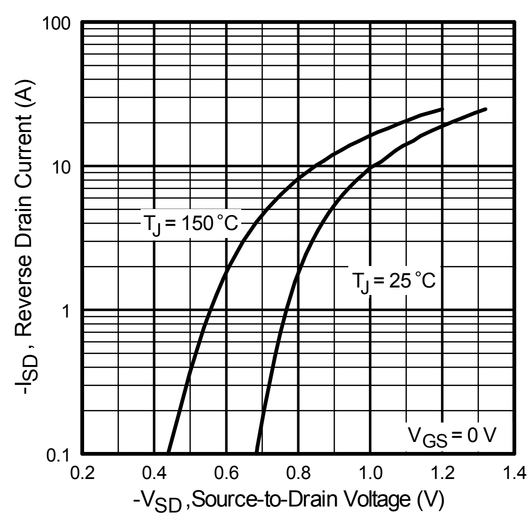


Fig. 15 Typical Source-Drain Diode Forward Voltage

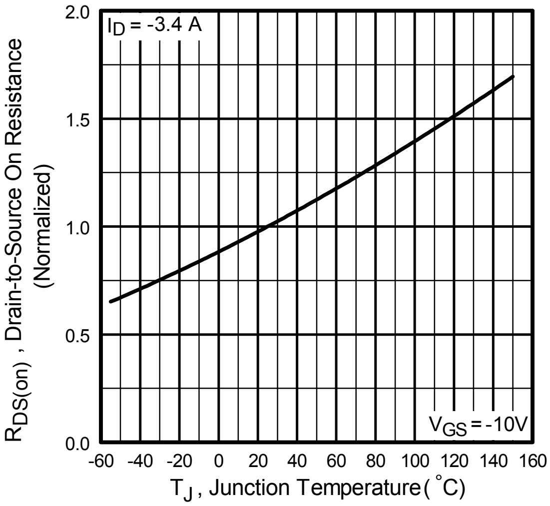


Fig 16. Normalized On-Resistance Vs. Temperature

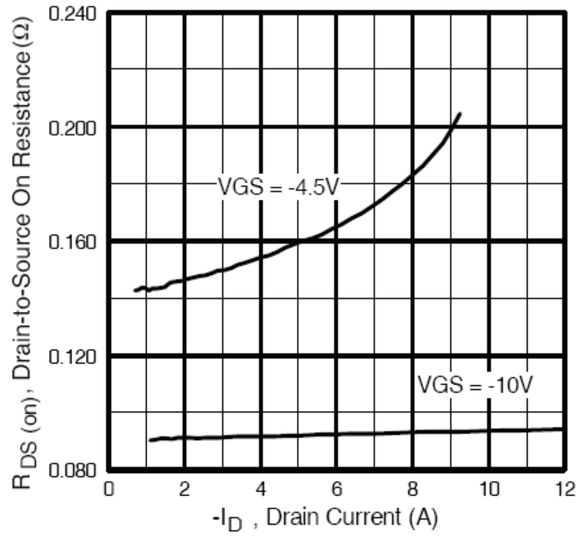


Fig 17. Typical On-Resistance Vs. Drain Current

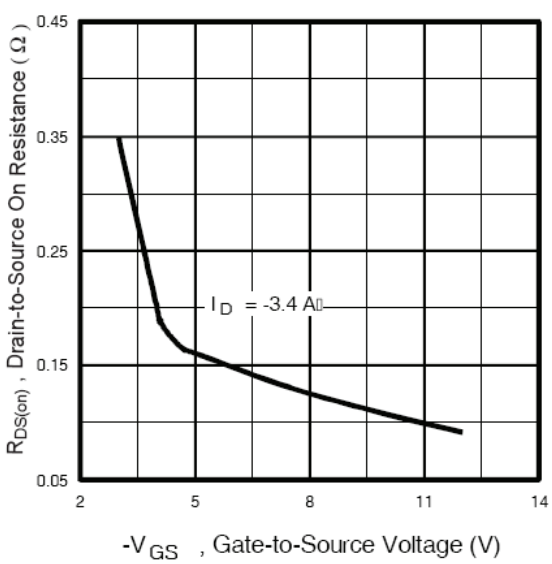


Fig. 18 Typical On-Resistance Vs. Gate Voltage

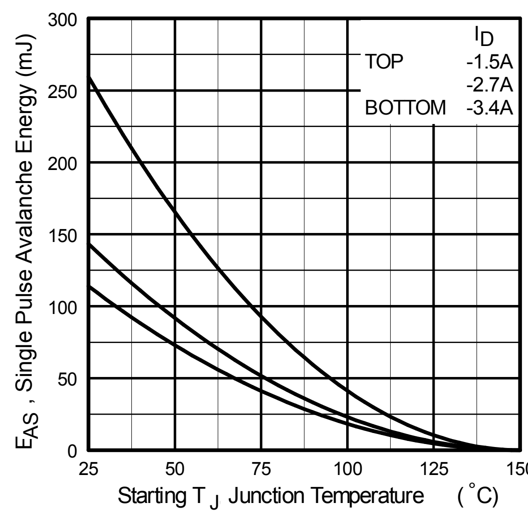


Fig 19. Maximum Avalanche Energy Vs. Drain Current

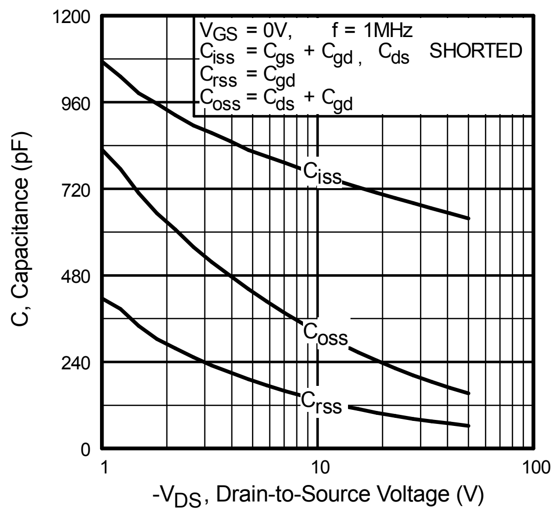


Fig 20. Typical Capacitance Vs. Drain-to-Source Voltage

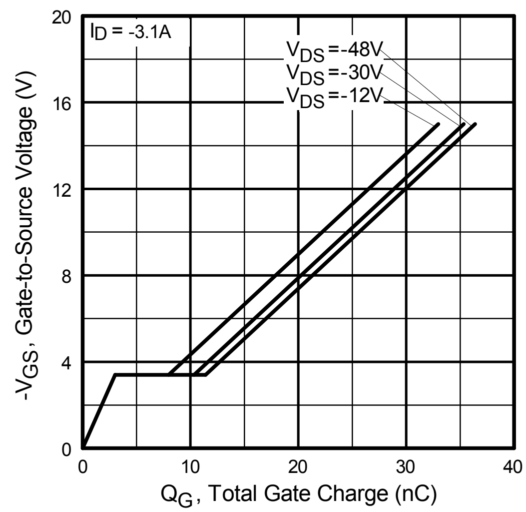


Fig 21. Typical Gate Charge Vs. Gate-to-Source Voltage

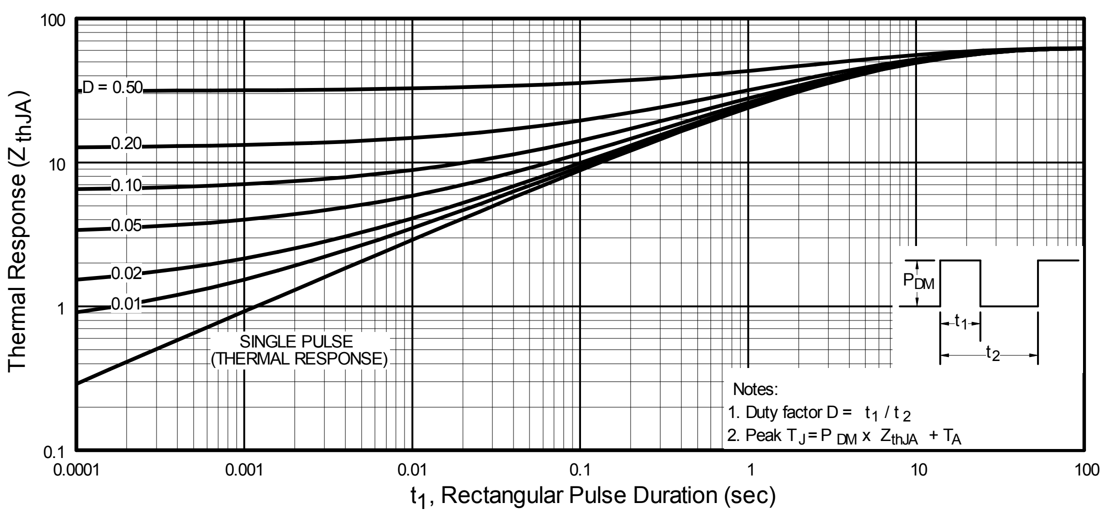
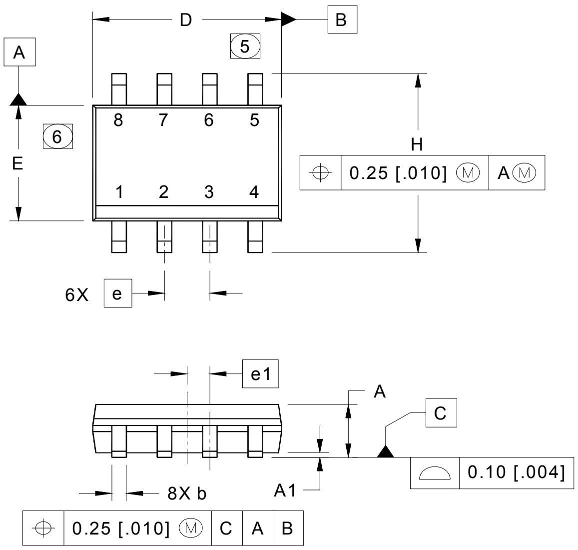
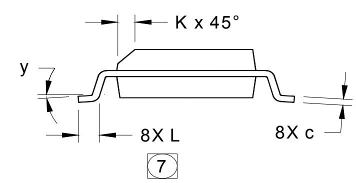


Fig 22. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

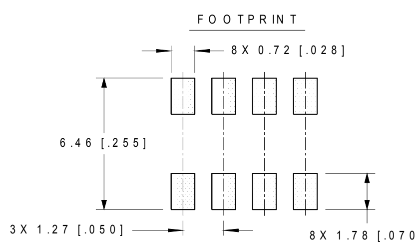
SO-8 Package Outline (Dimensions are shown in millimeters (inches))



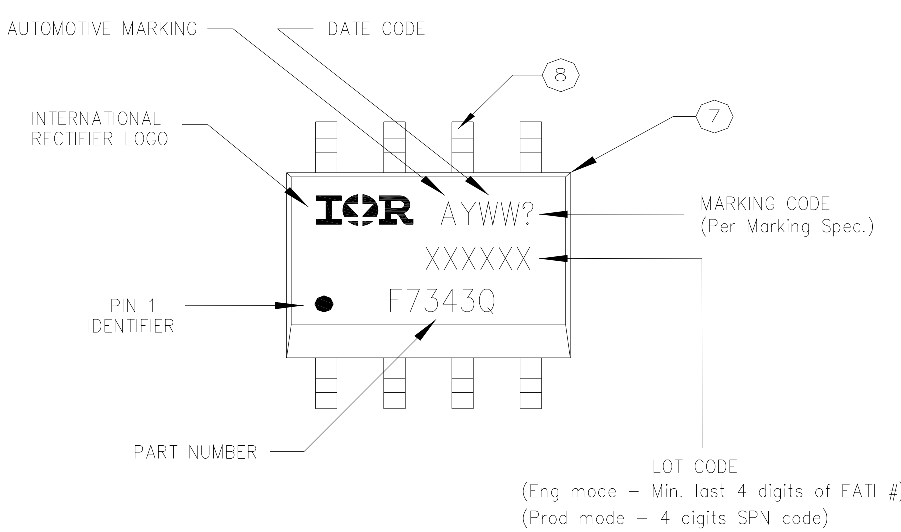
DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.013	.020	0.33	0.51
c	.0075	.0098	0.19	0.25
D	.189	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
e	.050 BASIC		1.27 BASIC	
e 1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.0099	.0196	0.25	0.50
L	.016	.050	0.40	1.27
y	0°	8°	0°	8°



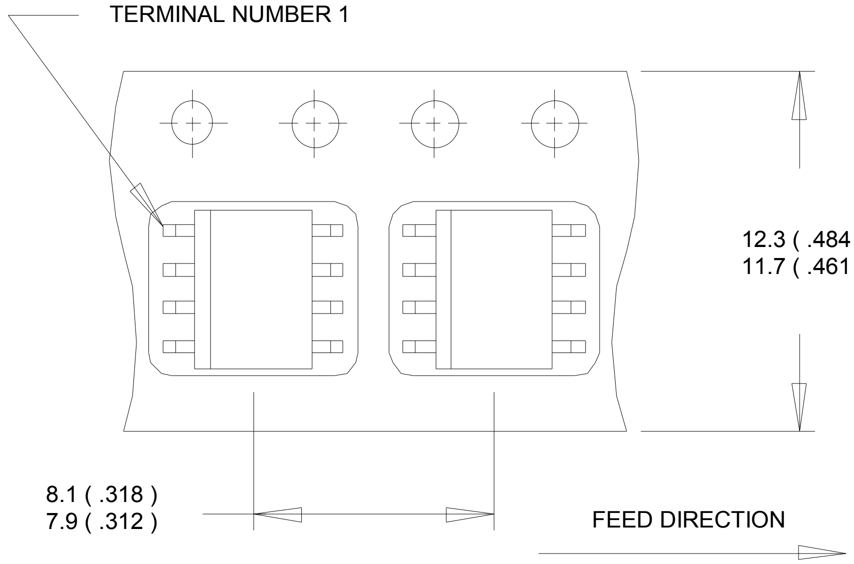
NOTES:
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
2. CONTROLLING DIMENSION: MILLIMETER
3. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA.
5. DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 [.006].
6. DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.25 [.010].
7. DIMENSION IS THE LENGTH OF LEAD FOR SOLDERING TO A SUBSTRATE.



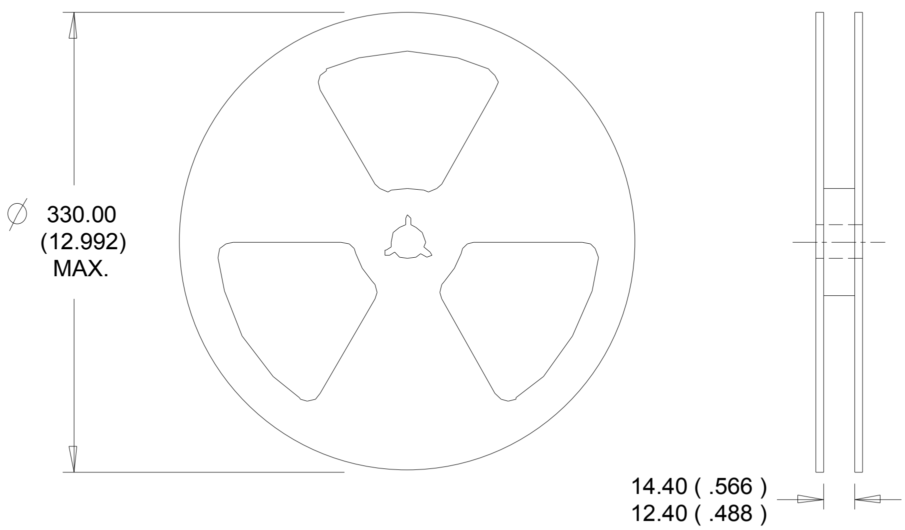
SO-8 Part Marking Information



SO-8 Tape and Reel (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. CONTROLLING DIMENSION : MILLIMETER.
2. OUTLINE CONFORMS TO EIA-481 & EIA-541.

Qualification Information

Qualification Level		Automotive (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		SO-8	MSL1
ESD	Machine Model	Class M2 (+/- 200V)† AEC-Q101-002	
	Human Body Model	Class H1A (+/- 500V)† AEC-Q101-001	
	Charged Device Model	Class C5 (+/- 1125V)† AEC-Q101-005	
RoHS Compliant		Yes	

† Highest passing voltage.

Revision History

Date	Comments
3/10/2014	• Added "Logic Level Gate Drive" bullet in the features section on page 1 • Updated data sheet with new IR corporate template
9/30/2015	• Updated datasheet with corporate template • Corrected ordering table on page 1.

Published by
Infineon Technologies AG
81726 München, Germany

OCEAN CHIPS
Океан Электроники
Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения **«JONHON»**, а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов **«FORSTAR»**.

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

Телефон: 8 (812) 309-75-97 (многоканальный)
Факс: 8 (812) 320-03-32
Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А