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[International Rectifier \(Infineon Technologies Americas Corp.\)](#)
[AUIRF7379QTR](#)

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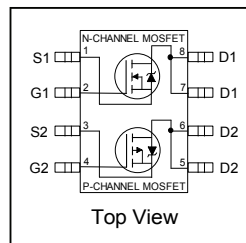
sales@integrated-circuit.com

AUTOMOTIVE GRADE

AUIRF7379Q

Features

- Advanced Planar Technology
- 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 *

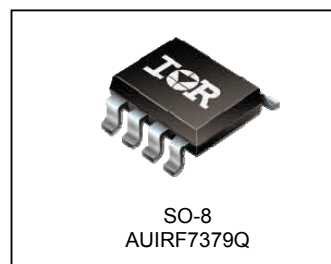


	N-CH	P-CH
V_{DS}	30V	-30V
$R_{DS(on)}$ typ.	0.038Ω	0.070Ω
max.	0.045Ω	0.090Ω
I_D	5.8A	-4.3A

Description

Specifically designed for Automotive applications, these HEXFET® Power MOSFET's in a Dual SO-8 package utilize the latest 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.



G	D	S
Gate	Drain	Source

Base part number	Package Type	Standard Pack		Orderable Part Number
		Form	Quantity	
AUIRF7379Q	SO-8	Tape and Reel	4000	AUIRF7379QTR

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 (T_A) is 25°C, unless otherwise specified.

Symbol	Parameter	Max.		Units
		N-Channel	P-Channel	
V_{DS}	Drain-Source Voltage	30	-30	V
$I_D @ T_A = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	5.8	-4.3	A
$I_D @ T_A = 70^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	4.6	-3.4	
I_{DM}	Pulsed Drain Current ①	46	-34	
$P_D @ T_A = 25^\circ\text{C}$	Maximum Power Dissipation	2.5		W
	Linear Derating Factor	0.02		W/°C
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) ④	—	50	°C/W

HEXFET® is a registered trademark of Infineon.

*Qualification standards can be found at 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	N-Ch	30	—	—	V	$V_{GS} = 0V, I_D = 250\mu A$
		P-Ch	-30	—	—		$V_{GS} = 0V, I_D = -250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	N-Ch	—	0.032	—	V/ $^\circ\text{C}$	Reference to $25^\circ\text{C}, I_D = 1\text{mA}$
		P-Ch	—	-0.037	—		Reference to $25^\circ\text{C}, I_D = -1\text{mA}$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	N-Ch	—	0.038	0.045	Ω	$V_{GS} = 10V, I_D = 5.8A$ ③
			—	0.055	0.075		$V_{GS} = 4.5V, I_D = 4.9A$ ③
		P-Ch	—	0.070	0.090		$V_{GS} = -10V, I_D = -4.3A$ ③
			—	0.130	0.180		$V_{GS} = -4.5V, I_D = -3.7A$ ③
$V_{GS(th)}$	Gate Threshold Voltage	N-Ch	1.0	—	3.0	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
		P-Ch	-1.0	—	-3.0		$V_{DS} = V_{GS}, I_D = -250\mu A$
g_{fs}	Forward Trans conductance	N-Ch	5.2	—	—	S	$V_{DS} = 15V, I_D = 2.4A$ ③
		P-Ch	2.5	—	—		$V_{DS} = -24V, I_D = -1.8A$ ③
I_{DSS}	Drain-to-Source Leakage Current	N-Ch	—	—	1.0	μA	$V_{DS} = 24V, V_{GS} = 0V$
		P-Ch	—	—	-1.0		$V_{DS} = -24V, V_{GS} = 0V$
		N-Ch	—	—	25		$V_{DS} = 24V, V_{GS} = 0V, T_J = 125^\circ\text{C}$
		P-Ch	—	—	-25		$V_{DS} = -24V, V_{GS} = 0V, T_J = 125^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage	N-P	—	—	± 100	nA	$V_{GS} = \pm 20V$
	Gate-to-Source Reverse Leakage	N-P	—	—	± 100		$V_{GS} = \pm 20V$

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

Q_g	Total Gate Charge	N-Ch	—	—	25	nC	N-Channel $I_D = 2.4A, V_{DS} = 24V, V_{GS} = 10V$ ③ P-Channel $I_D = -1.8A, V_{DS} = -24V, V_{GS} = -10V$
Q_{gs}	Gate-to-Source Charge	N-Ch	—	—	2.9		
		P-Ch	—	—	2.9		
Q_{gd}	Gate-to-Drain Charge	N-Ch	—	—	7.9		
		P-Ch	—	—	9.0		
$t_{d(on)}$	Turn-On Delay Time	N-Ch	—	6.8	—	ns	N-Channel $V_{DD} = 15V, I_D = 2.4A, R_G = 6.0\Omega, R_D = 6.2\Omega$ ③ P-Channel $V_{DD} = -15V, I_D = -1.8A, R_G = 6.0\Omega, R_D = 8.2\Omega$
		P-Ch	—	11	—		
t_r	Rise Time	N-Ch	—	21	—		
		P-Ch	—	17	—		
$t_{d(off)}$	Turn-Off Delay Time	N-Ch	—	22	—		
		P-Ch	—	25	—		
t_f	Fall Time	N-Ch	—	7.7	—		
		P-Ch	—	18	—		
L_D	Internal Drain Inductance	N-P	—	4.0	—	nH	Between lead, 6mm (0.25in.) from Package and center of die contact
L_S	Internal Source Inductance	N-P	—	6.0	—		
C_{iss}	Input Capacitance	N-Ch	—	520	—	pF	N-Channel $V_{GS} = 0V, V_{DS} = 25V, f = 1.0\text{MHz}$ P-Channel $V_{GS} = 0V, V_{DS} = -25V, f = 1.0\text{MHz}$
		P-Ch	—	440	—		
C_{oss}	Output Capacitance	N-Ch	—	180	—		
		P-Ch	—	200	—		
C_{rss}	Reverse Transfer Capacitance	N-Ch	—	72	—		
		P-Ch	—	93	—		

Diode Characteristics

	Parameter		Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	N-Ch	—	—	3.1	A	
		P-Ch	—	—	-3.1		
I_{SM}	Pulsed Source Current (Body Diode) ①	N-Ch	—	—	46		
		P-Ch	—	—	-34		
V_{SD}	Diode Forward Voltage	N-Ch	—	—	1.0	V	$T_J = 25^\circ\text{C}, I_S = 1.8A, V_{GS} = 0V$ ③
		P-Ch	—	—	-1.0		$T_J = 25^\circ\text{C}, I_S = -1.8A, V_{GS} = 0V$ ③
t_{rr}	Reverse Recovery Time	N-Ch	—	47	71	ns	N-Channel $T_J = 25^\circ\text{C}, I_F = 2.4A, di/dt = 100A/\mu s$
		P-Ch	—	53	80		P-Channel ③
Q_{rr}	Reverse Recovery Charge	N-Ch	—	56	84	nC	$T_J = 25^\circ\text{C}, I_F = -1.8A, di/dt = 100A/\mu s$
		P-Ch	—	66	99		

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② N-Channel $I_{SD} \leq 2.4A, di/dt \leq 73A/\mu s, V_{DD} \leq V_{(BR)DSS}, T_J \leq 150^\circ\text{C}$.
P-Channel $I_{SD} \leq -1.8A, di/dt \leq 90A/\mu s, V_{DD} \leq V_{(BR)DSS}, T_J \leq 150^\circ\text{C}$.
- ③ Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.
- ④ Surface mounted on FR-4 board, $t \leq 10\text{sec}$.

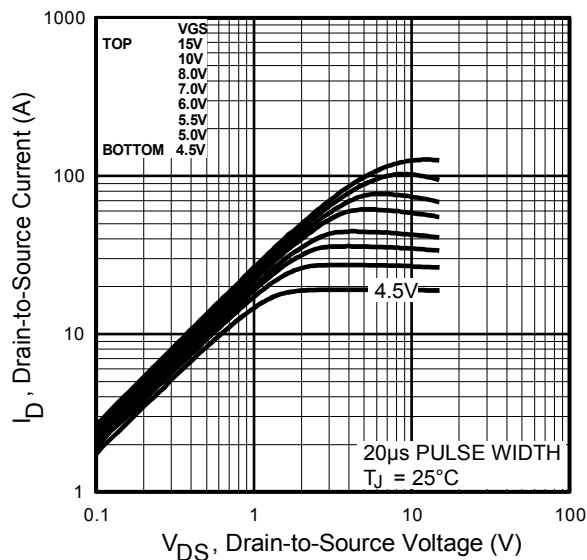


Fig. 1 Typical Output Characteristics

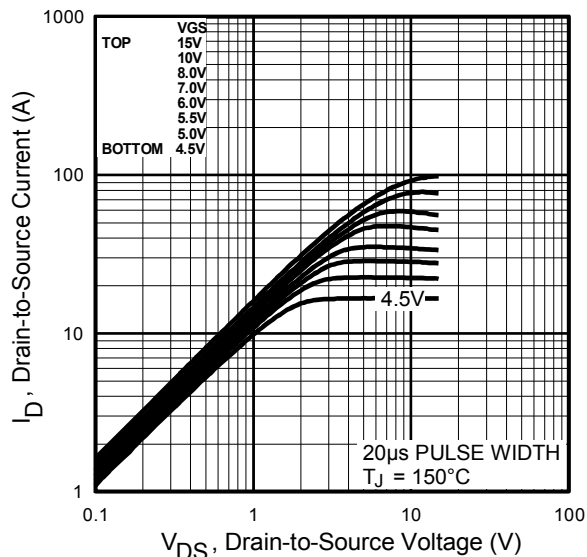


Fig. 2 Typical Output Characteristics

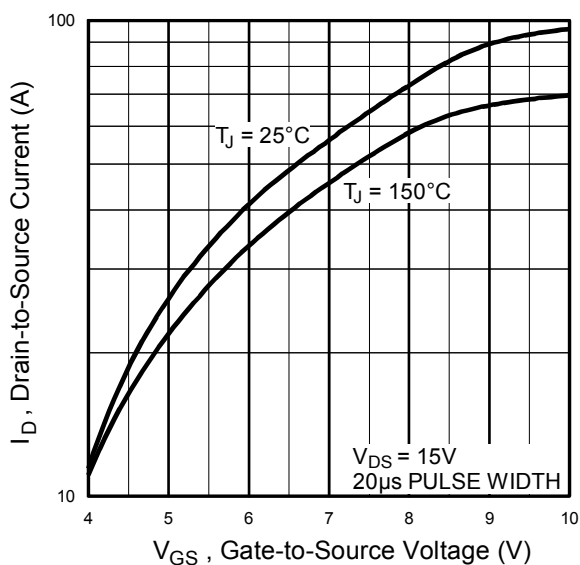


Fig. 3 Typical Transfer Characteristics

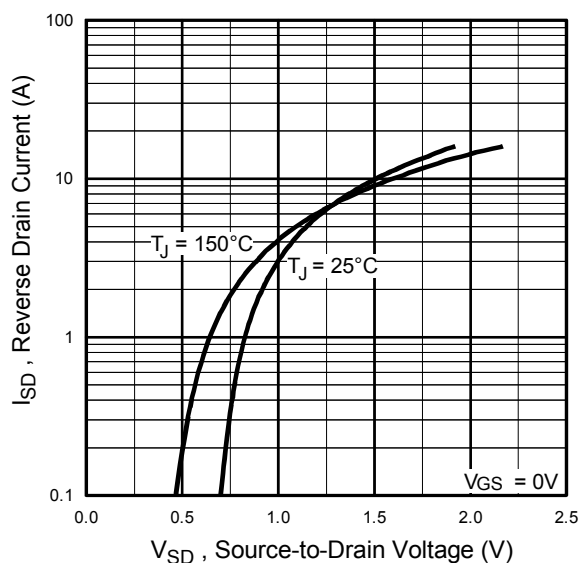


Fig. 4 Typical Source-Drain Diode Forward Voltage

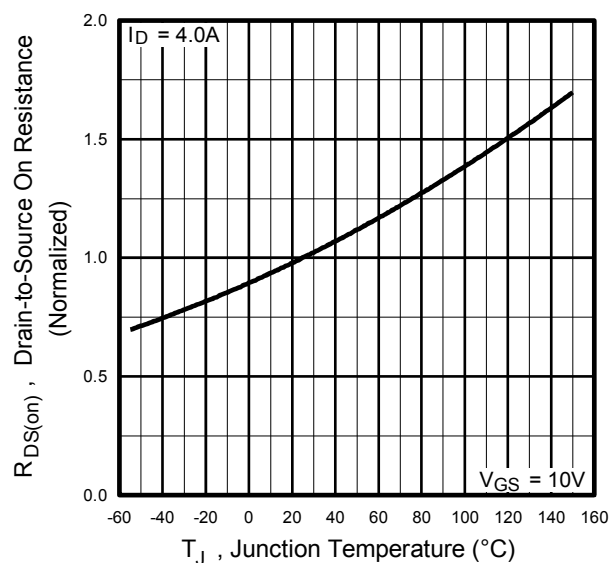


Fig 5. Normalized On-Resistance Vs. Temperature

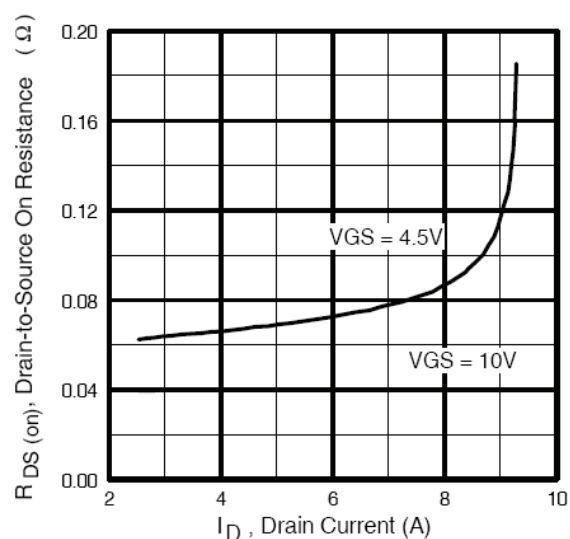


Fig 6. Typical On-Resistance Vs. Drain Current

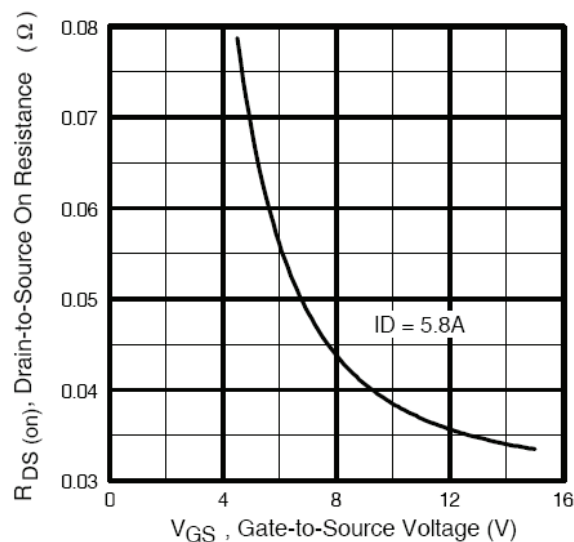


Fig. 7 Typical On-Resistance Vs. Gate Voltage

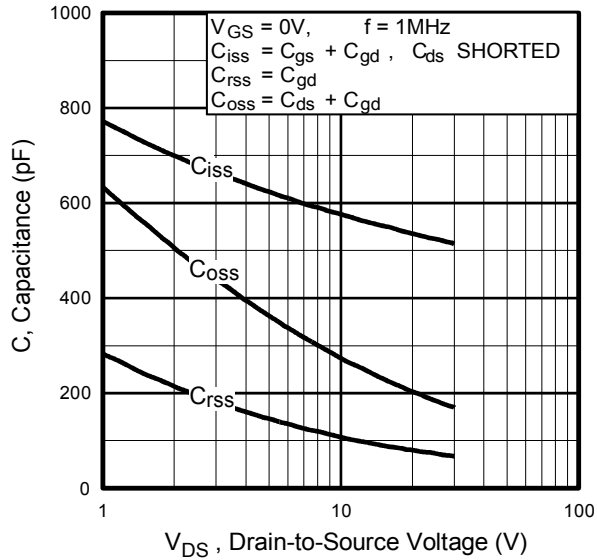


Fig 8. Typical Capacitance Vs. Drain-to-Source Voltage

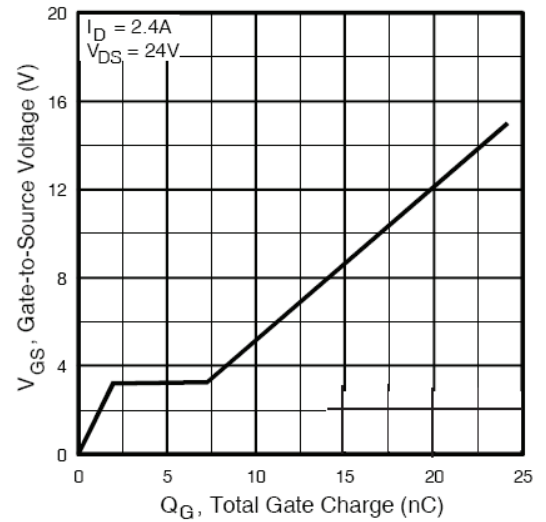


Fig 9. Typical Gate Charge Vs. Gate-to-Source Voltage

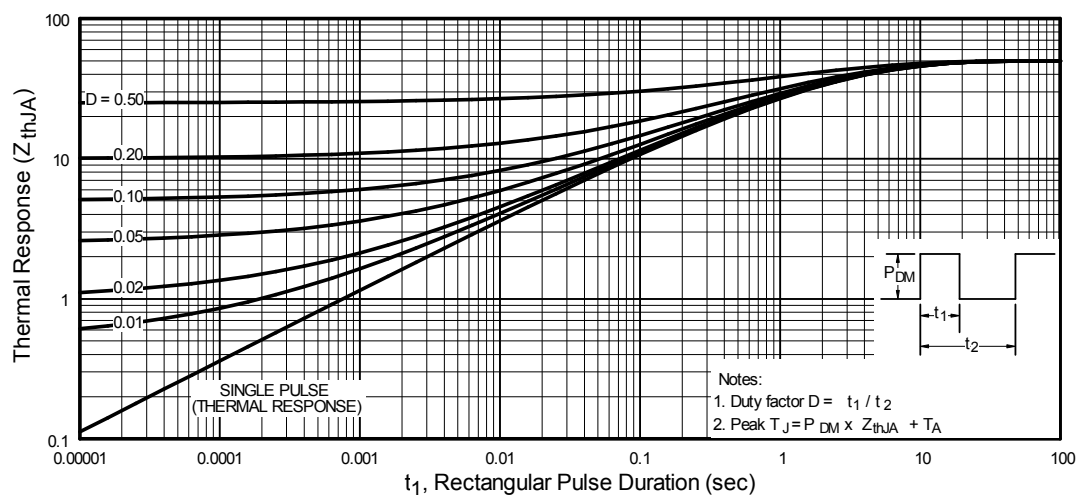


Fig 10. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

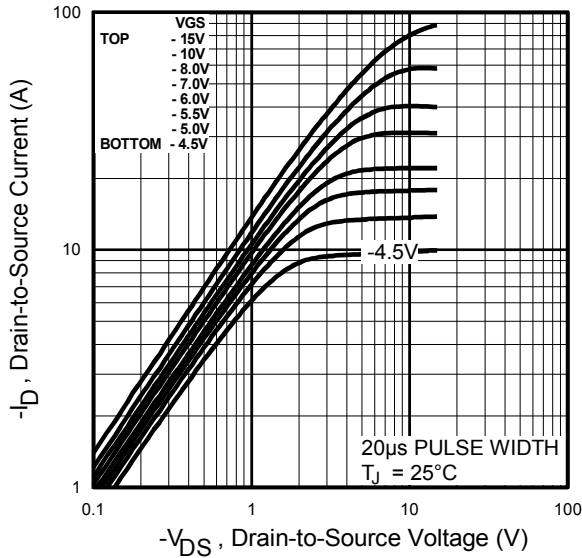


Fig. 11 Typical Output Characteristics

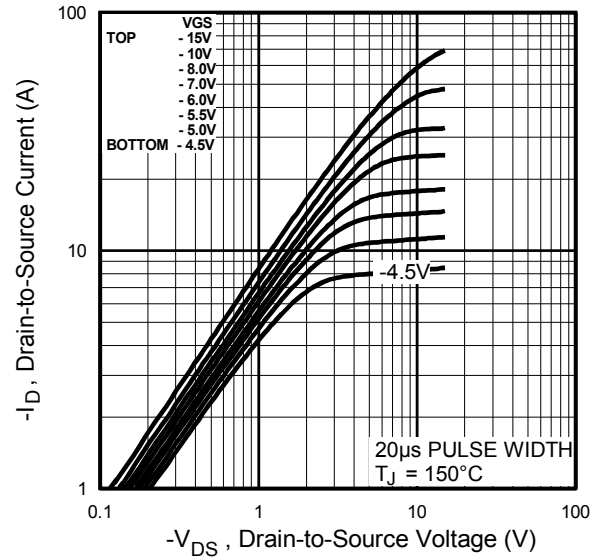


Fig. 12 Typical Output Characteristics

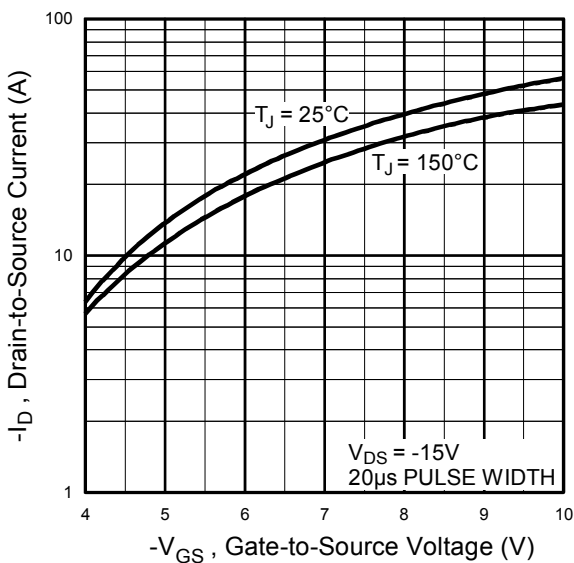


Fig. 13 Typical Transfer Characteristics

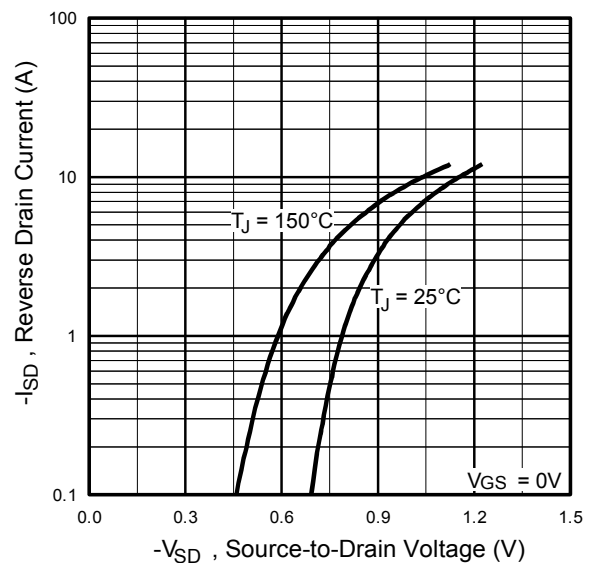


Fig. 14 Typical Source-Drain Diode Forward Voltage

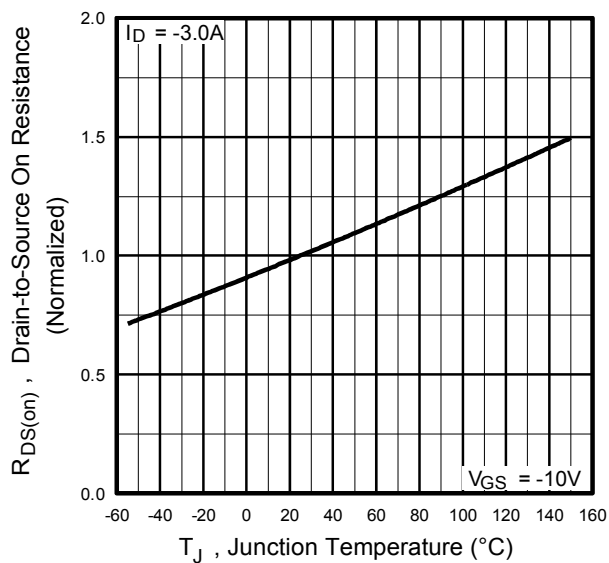


Fig 15. Normalized On-Resistance Vs. Temperature

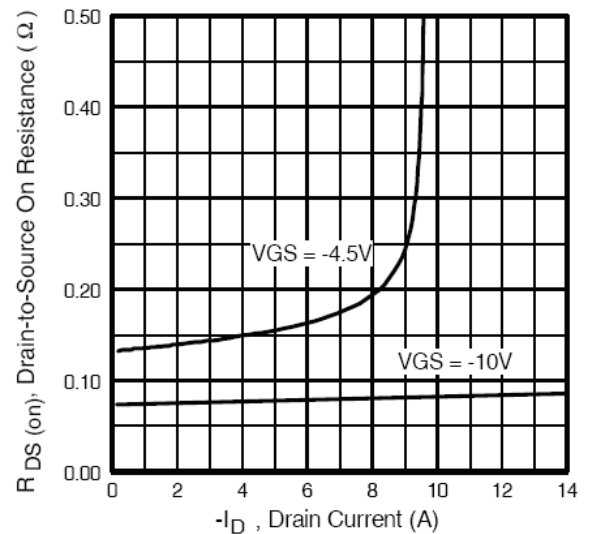


Fig 16. Typical On-Resistance Vs. Drain Current

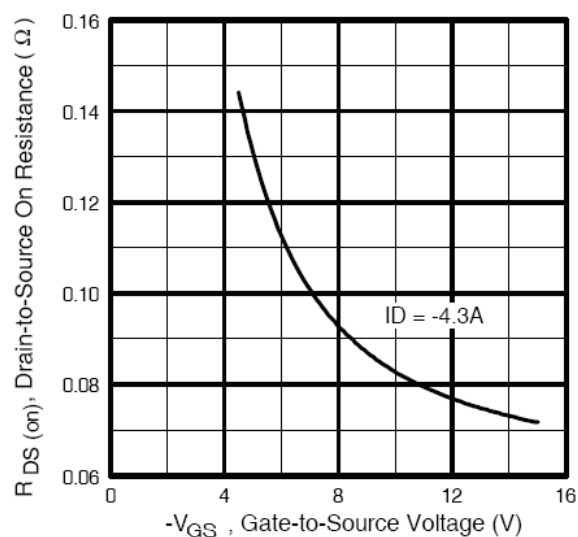


Fig. 17 Typical On-Resistance Vs. Gate Voltage

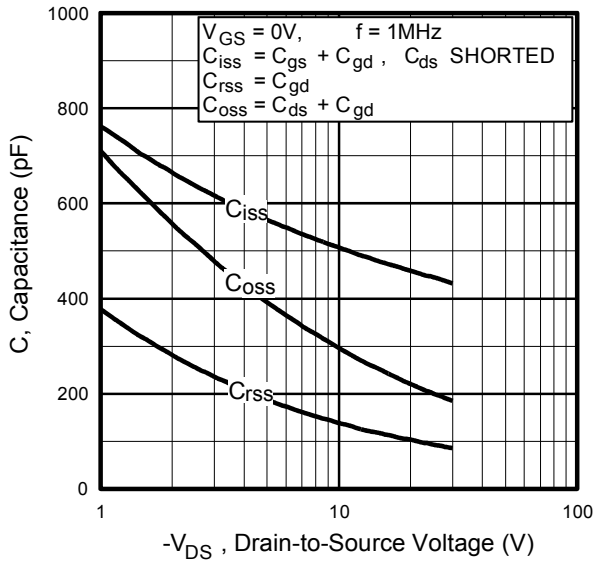


Fig 18. Typical Capacitance Vs. Drain-to-Source Voltage

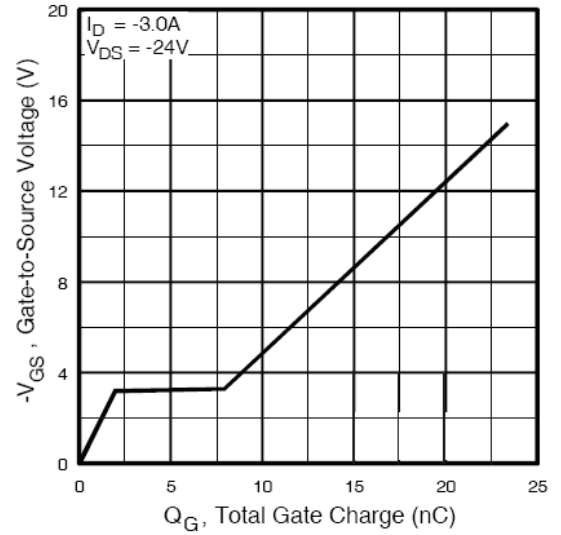


Fig 19. Typical Gate Charge Vs. Gate-to-Source Voltage

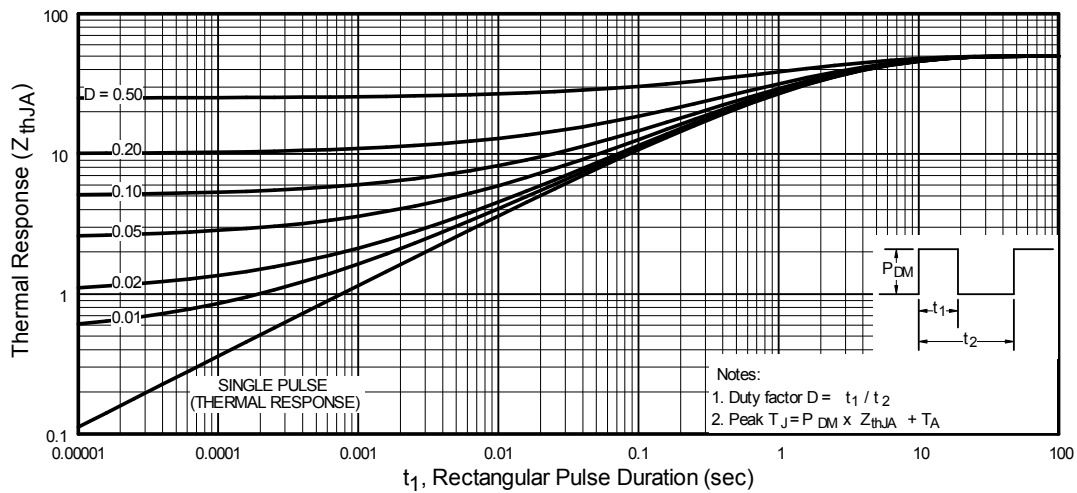
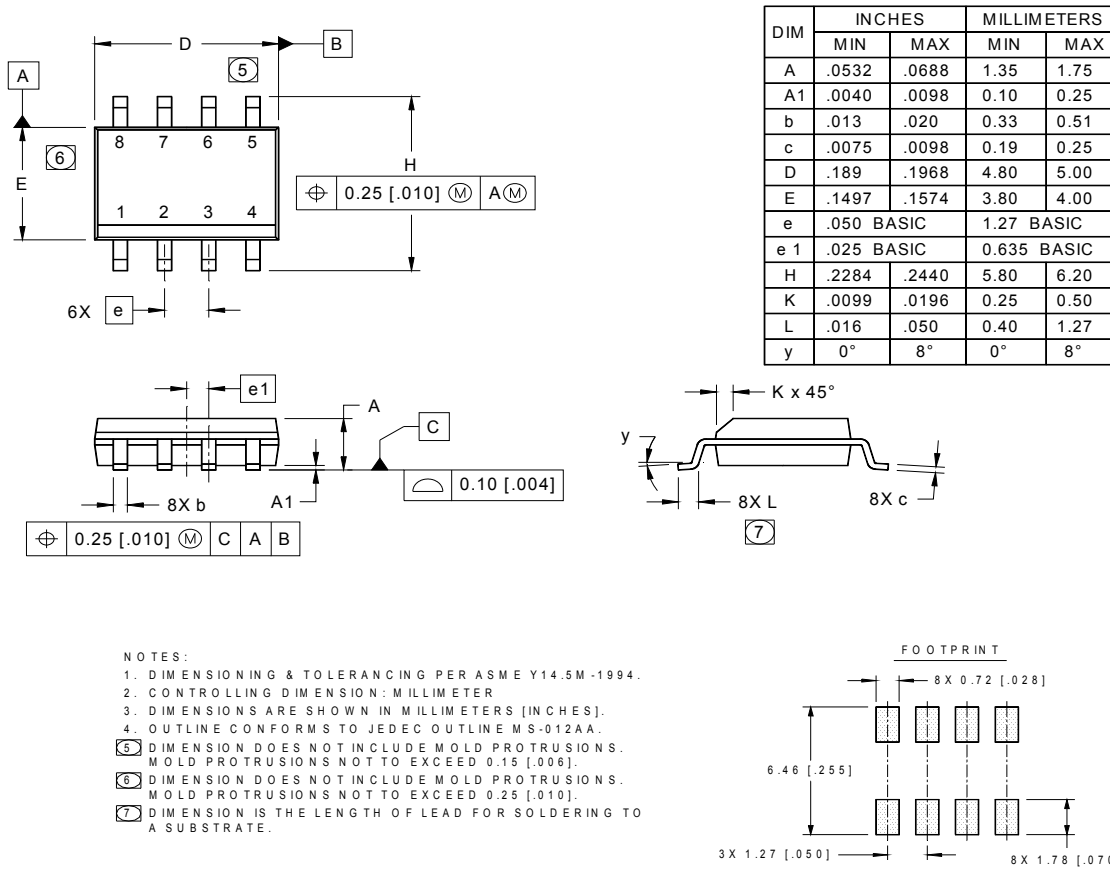
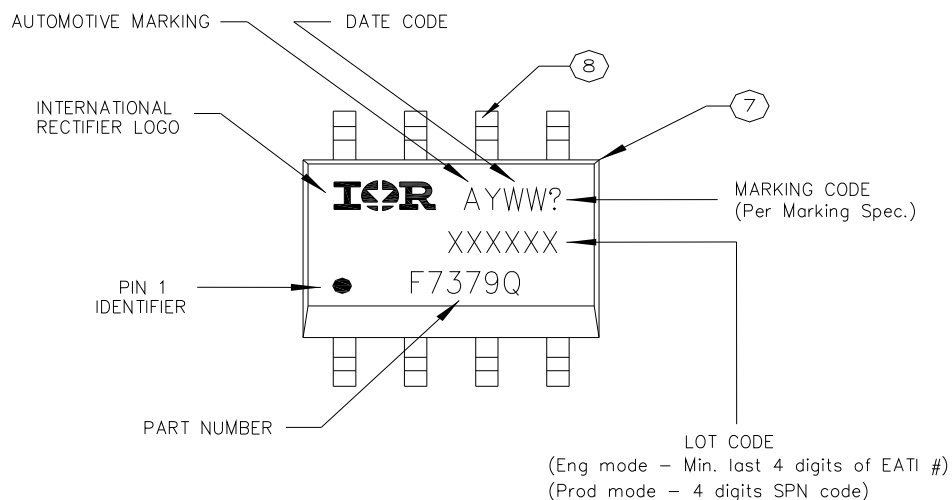


Fig 20. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

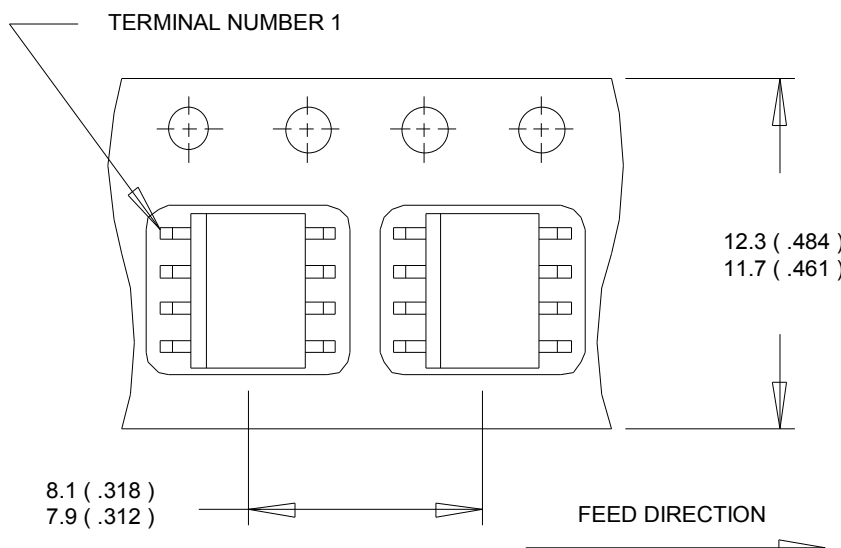
SO-8 Package Outline (Dimensions are shown in millimeters (inches))



SO-8 Part Marking Information

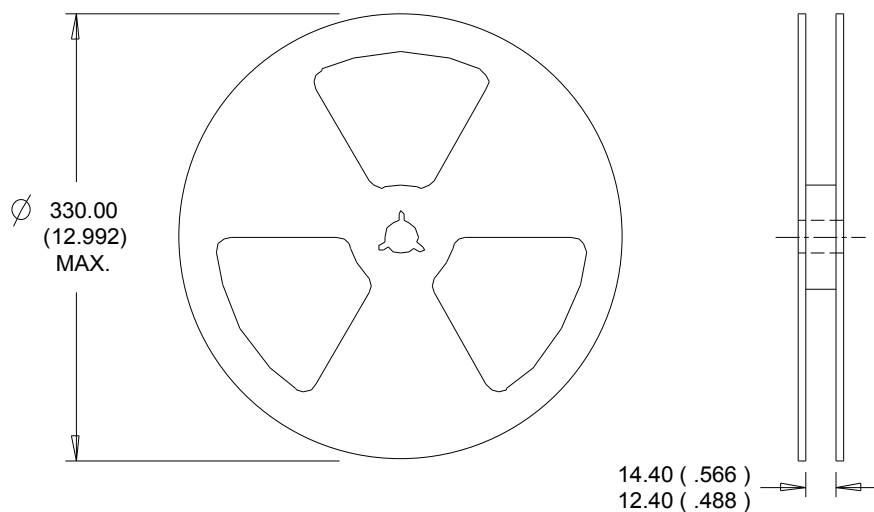


SO-8 Tape and Reel (Dimensions are shown in millimeters (inches))



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	N Ch: Class M2 (+/- 150V) [†] P Ch: Class M2 (+/- 150V) [†] AEC-Q101-002	
	Human Body Model	N Ch: Class H1A (+/- 500V) [†] P Ch: Class H0 (+/- 250V) [†] AEC-Q101-001	
	Charged Device Model	N Ch: Class C5 (+/- 2000V) [†] P Ch: Class C5 (+/- 2000V) [†] 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.

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