



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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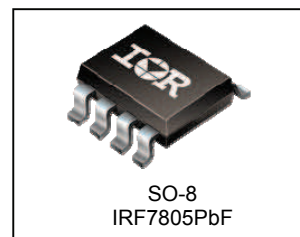
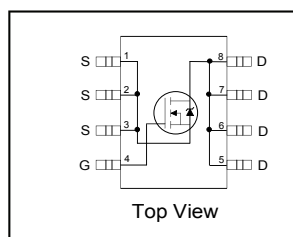
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HEXFET® Chip-Set for DC-DC Converters

- N Channel Application Specific MOSFETs
- Ideal for Mobile DC-DC Converters
- Low Conduction Losses
- Low Switching Losses
- Lead-Free


Description

This new device employs advanced HEXFET Power MOSFET technology to achieve an unprecedented balance of on-resistance and gate charge. The reduced conduction and switching losses make this device ideal for high efficiency DC-DC Converters that power the latest generation of mobile microprocessors.

The IRF7805PbF offers maximum efficiency for mobile CPU core DC-DC converters.

Devices Features

	IRF7805PbF
V_{DS}	30V
R_{DS(on)}	11mΩ
Q_g	31nC
Q_{sw}	11.5nC
Q_{oss}	36nC

G	D	S
Gate	Drain	Source

Base part number	Package Type	Standard Pack		Orderable Part Number
		Form	Quantity	
IRF7805PbF	SO-8	Tape and Reel	4000	IRF7805PbF

Symbol	Parameter	Max.	Units
V _{DS}	Drain-Source Voltage	30	V
V _{GS}	Gate-to-Source Voltage	± 12	
I _D @ T _A = 25°C	Continuous Drain Current, V _{GS} @ 10V ③	13	A
I _D @ T _A = 70°C	Continuous Drain Current, V _{GS} @ 10V ③	10	
I _{DM}	Pulsed Drain Current ①	100	
P _D @ T _A = 25°C	Maximum Power Dissipation ③	2.5	W
P _D @ T _A = 70°C	Maximum Power Dissipation ③	1.6	
	Linear Derating Factor	0.02	W/°C
T _J	Operating Junction and	-55 to + 150	°C
T _{STG}	Storage Temperature Range		

Thermal Resistance

Symbol	Parameter	Typ.	Max.	Units
R _{θJL}	Junction-to-Drain Lead ⑤	—	20	°C/W
R _{θJA}	Junction-to-Ambient ③	—	50	

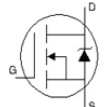
Static @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage ⑥	30	—	—	V	$V_{GS} = 0V, I_D = 250\mu A$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance ⑥	—	9.2	11	m Ω	$V_{GS} = 4.5V, I_D = 7.0A$ ②
$V_{GS(th)}$	Gate Threshold Voltage ⑥	1.0	—	3.0	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
I_{DSS}	Drain-to-Source Leakage Current	—	—	70	μA	$V_{DS} = 30V, V_{GS} = 0V$
		—	—	10		$V_{DS} = 24V, V_{GS} = 0V$
		—	—	150		$V_{DS} = 24V, V_{GS} = 0V, T_J = 100^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage	—	—	100	nA	$V_{GS} = 12V$
	Gate-to-Source Reverse Leakage	—	—	-100		$V_{GS} = -12V$

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

Q_g	Total Gate Charge ⑥	—	22	31	nC	$V_{GS} = 5.0V$ $V_{DS} = 16V$ $I_D = 7.0A$
Q_{gs1}	Pre -Vth Gate-to-Source Charge	—	3.7	—		
Q_{gs2}	Post-Vth Gate-to-Source Charge	—	1.4	—		
Q_{gd}	Gate-to-Drain Charge	—	6.8	—		
Q_{sw}	Switch Charge ($Q_{gs2} + Q_{gd}$) ⑥	—	8.2	11.5		
Q_{oss}	Output Charge ⑥	—	30	36	nC	$V_{DS} = 16V, V_{GS} = 0V$
R_G	Gate Resistance	0.5	—	1.7	Ω	
$t_{d(on)}$	Turn-On Delay Time	—	16	—	ns	$V_{DD} = 16V, V_{GS} = 4.5V$ ② $I_D = 7.0A$ $R_G = 2\Omega$ Resistive Load
t_r	Rise Time	—	20	—		
$t_{d(off)}$	Turn-Off Delay Time	—	38	—		
t_f	Fall Time	—	16	—		

Diode Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode) ①	—	—	2.5	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode)	—	—	106		
V_{SD}	Diode Forward Voltage ⑥	—	—	1.2	V	$T_J = 25^\circ\text{C}, I_S = 7.0A, V_{GS} = 0V$
Q_{rr}	Reverse Recovery Charge ④	—	88	—	nC	$di/dt = 700A/\mu s$ $V_{DS} = 16V, V_{GS} = 0V, I_S = 7.0A$
Q_{rr}	Reverse Recovery Charge ④	—	55	—		$di/dt = 700A/\mu s$ (with 10BQ040) $V_{DS} = 16V, V_{GS} = 0V, I_S = 7.0A$

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.
- ③ When mounted on 1" in square copper board, $t < 10$ sec.
- ④ Typ = measured - Q_{oss}
- ⑤ R_θ is measured at T_J of approximately 90°C .
- ⑥ Devices are 100% tested to these parameters.

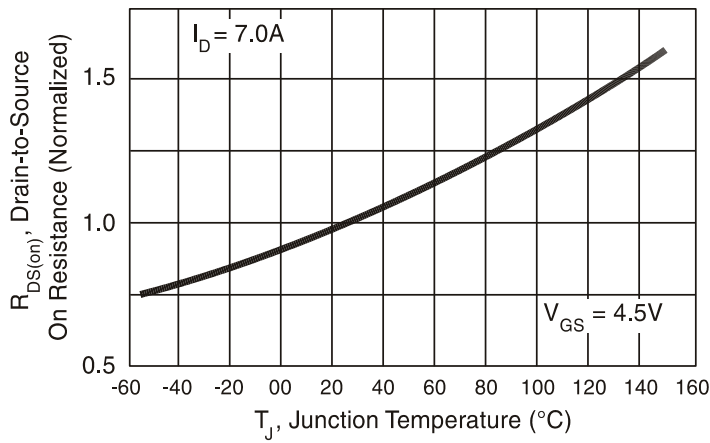


Fig. 1 Normalized On-Resistance vs. Temperature

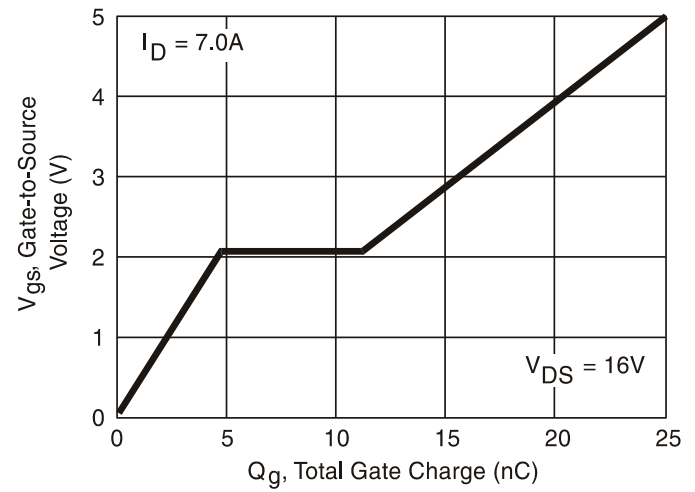


Fig. 2 Typical Gate Charge vs. Gate-to-Source Voltage

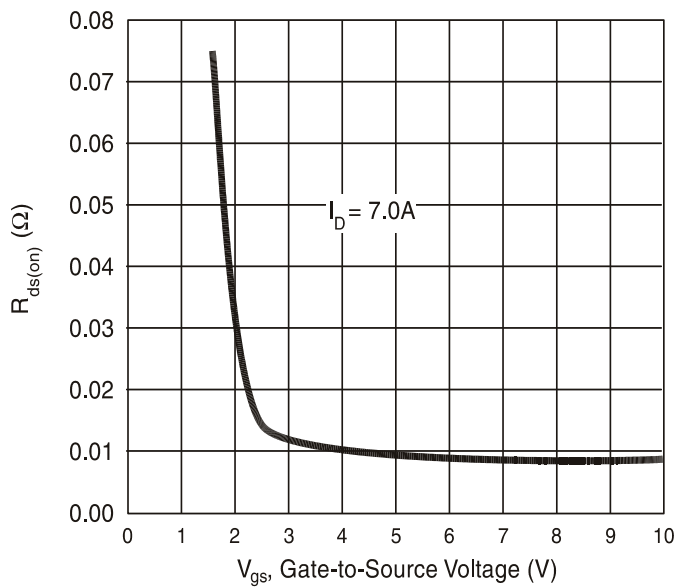


Fig. 3 Typical $R_{DS(on)}$ vs. Gate-to-Source Voltage

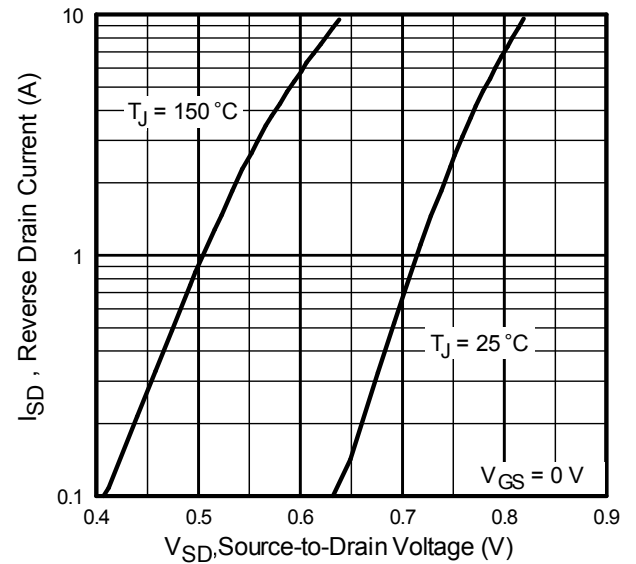


Fig. 4 Typical Source-Drain Diode Forward Voltage

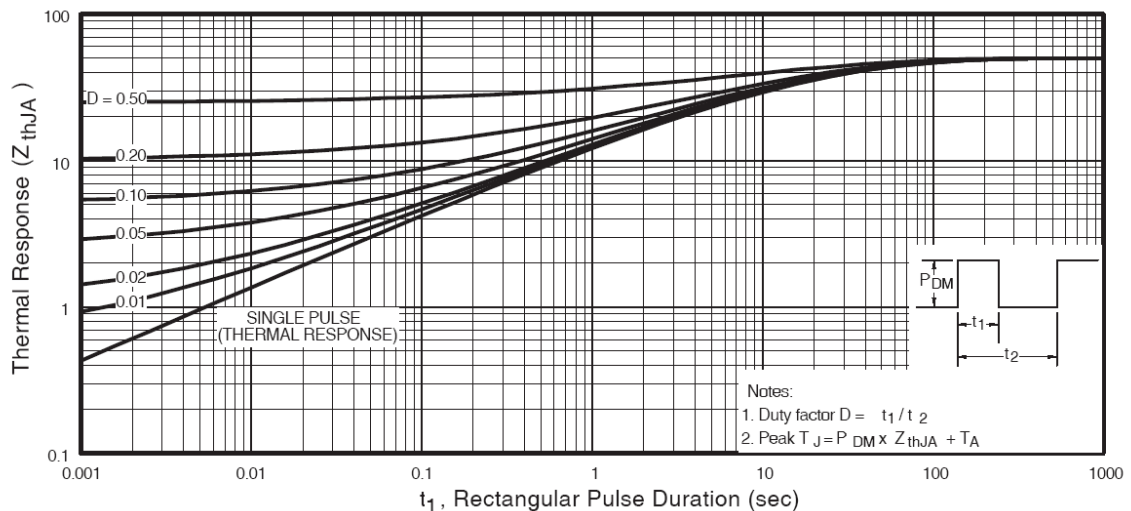
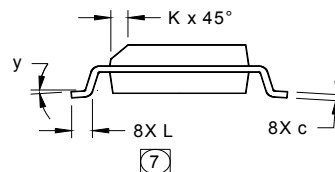
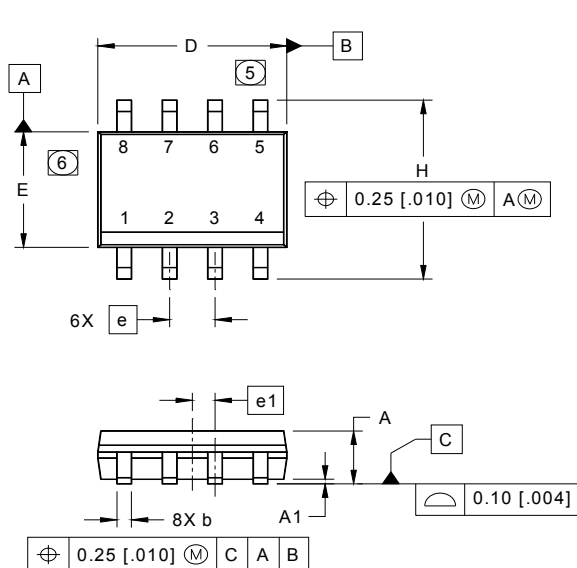
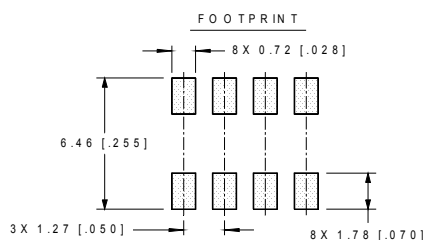


Fig. 5. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

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

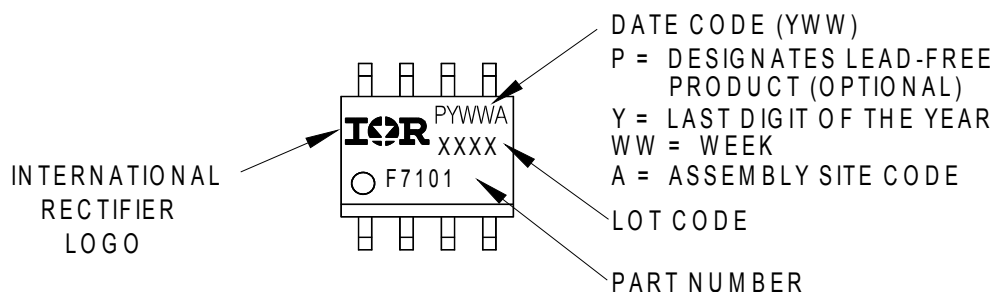


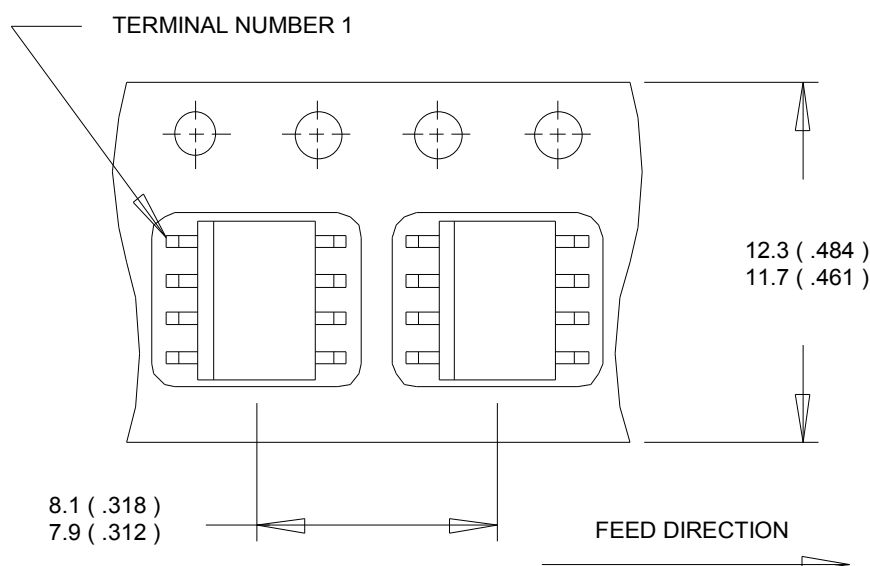
- NOTES:
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
 2. CONTROLLING DIMENSION: MILLIMETER
 3. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
 4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA.
 5. DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 [0.006].
 6. DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.25 [0.010].
 7. DIMENSION IS THE LENGTH OF LEAD FOR SOLDERING TO A SUBSTRATE.



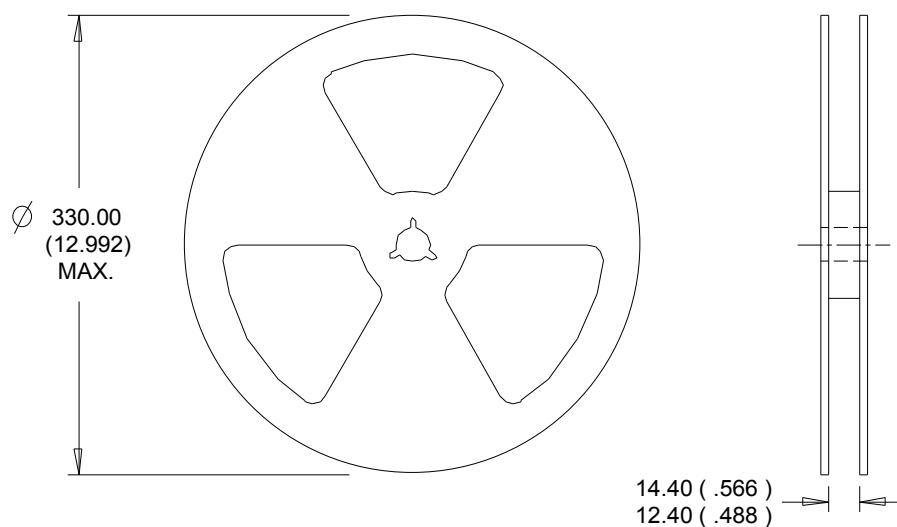
SO-8 Part Marking Information

EXAMPLE: THIS IS AN IRF7101 (MOSFET)



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	Consumer	
Moisture Sensitivity Level	SO-8	MSL1 (per JEDEC J-STD-020D) [†]
RoHS Compliant	Yes	

[†] Applicable version of JEDEC standard at the time of product release.

Revision History

Date	Comments
08/23/2016	<ul style="list-style-type: none"> Changed datasheet with Infineon logo - all pages. Corrected typo Qoss from typ/max "3.0nC/3.6nC" to "30nC/36nC" on page 2. Added disclaimer on last page.

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