IRF7466TRPBF Datasheet

DiGi Electronics Part Number	IRF7466TRPBF-DG
Manufacturer	Infineon Technologies
Manufacturer Product Number	IRF7466TRPBF
Description	MOSFET N-CH 30V 11A 8SO
Detailed Description	N-Channel 30 V 11A (Ta) 2.5W (Ta) Surface Mount 8-SO

https://www.DiGi-Electronics.com

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RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
IRF7466TRPBF	Infineon Technologies
Series:	Product Status:
HEXFET®	Obsolete
FET Type:	Technology:
N-Channel	MOSFET (Metal Oxide)
Drain to Source Voltage (Vdss):	Current - Continuous Drain (Id) @ 25°C:
30 V	11A (Ta)
Drive Voltage (Max Rds On, Min Rds On):	Rds On (Max) @ Id, Vgs:
4.5V, 10V	12.5mOhm @ 11A, 10V
Vgs(th) (Max) @ Id:	Gate Charge (Qg) (Max) @ Vgs:
3V @ 250µA	23 nC @ 4.5 V
Vgs (Max):	Input Capacitance (Ciss) (Max) @ Vds:
±20V	2100 pF @ 15 V
FET Feature:	Power Dissipation (Max):
-	2.5W (Ta)
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Supplier Device Package:	Package / Case:
8-SO	8-SOIC (0.154", 3.90mm Width)

Environmental & Export classification

Moisture Sensitivity Level (MSL):	REACH Status:
1 (Unlimited)	REACH Unaffected
ECCN:	HTSUS:
EAR99	8541.29.0095

PD- 95730

International
IOR Rectifier

SMPS MOSFET

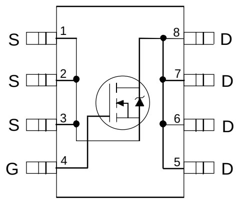
IRF7466PbF

Applications

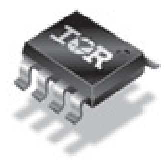
- High Frequency Isolated DC-DC Converters with Synchronous Rectification for Telecom and Industrial Use
- High Frequency Buck Converters for Computer Processor Power
- Lead-Free

HEXFET® Power MOSFET

V_{DSS}	$R_{DS(on)}$ max(mΩ)	I_D
30V	12.5@V_{GS} = 10V	11A



Top View



SO-8

Benefits

- Ultra-Low Gate Impedance
- Very Low $R_{DS(on)}$
- Fully Characterized Avalanche Voltage and Current

Absolute Maximum Ratings

Symbol	Parameter	Max.	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-to-Source Voltage	± 20	V
I_D @ T_A = 25°C	Continuous Drain Current, V_{GS} @ 10V	11	A
I_D @ T_A = 70°C	Continuous Drain Current, V_{GS} @ 10V	9.0	
I_{DM}	Pulsed Drain Current①	90	
P_D @T_A = 25°C	Maximum Power Dissipation③	2.5	W
P_D @T_A = 70°C	Maximum Power Dissipation③	1.6	W
	Linear Derating Factor	0.02	mW/°C
T_J , T_{STG}	Junction and Storage Temperature Range	-55 to + 150	°C

Thermal Resistance

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JL}$	Junction-to-Drain Lead	–––	20	°C/W
$R_{\theta JA}$	Junction-to-Ambient ④	–––	50	

Notes ① through ④ are on page 8

8/11/04

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

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	30	–––	–––	V	V_{GS} = 0V, I_D = 250μA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	–––	0.028	–––	V/°C	Reference to 25°C, I_D = 1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	–––	9.8	12.5	mΩ	V_{GS} = 10V, I_D = 11A ③
		–––	13	17		V_{GS} = 4.5V, I_D = 8.8A ③
$V_{GS(th)}$	Gate Threshold Voltage	1.0	–––	3.0	V	V_{DS} = V_{GS}, I_D = 250μA
I_{DSS}	Drain-to-Source Leakage Current	–––	–––	20	μA	V_{DS} = 24V, V_{GS} = 0V
		–––	–––	100		V_{DS} = 24V, V_{GS} = 0V, T_J = 125°C
I_{GSS}	Gate-to-Source Forward Leakage	–––	–––	200	nA	V_{GS} = 16V
	Gate-to-Source Reverse Leakage	–––	–––	-200		V_{GS} = -16V

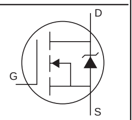
Dynamic @ T_J = 25°C (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
g_{fs}	Forward Transconductance	22	–––	–––	S	V_{DS} = 15V, I_D = 8.8A
Q_g	Total Gate Charge	–––	16	23	nC	I_D = 8.8A
Q_{gs}	Gate-to-Source Charge	–––	7.4	11		V_{DS} = 15V
Q_{gd}	Gate-to-Drain ("Miller") Charge	–––	5.3	8.0		V_{GS} = 4.5V ③
Q_{oss}	Output Gate Charge	–––	19	29		V_{GS} = 0V, V_{DS} = 15V
$t_{d(on)}$	Turn-On Delay Time	–––	10	–––	ns	V_{DD} = 15V
t_r	Rise Time	–––	2.8	–––		I_D = 8.8A
$t_{d(off)}$	Turn-Off Delay Time	–––	13	–––		R_G = 1.8Ω
t_f	Fall Time	–––	3.6	–––		V_{GS} = 4.5V ③
C_{iss}	Input Capacitance	–––	2100	–––	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	–––	710	–––		V_{DS} = 15V
C_{rss}	Reverse Transfer Capacitance	–––	52	–––		ƒ = 1.0MHz

Avalanche Characteristics

Symbol	Parameter	Typ.	Max.	Units
E_{AS}	Single Pulse Avalanche Energy②	–––	230	mJ
I_{AR}	Avalanche Current①	–––	8.8	A

Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	–––	–––	2.3	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	–––	–––	90		
V_{SD}	Diode Forward Voltage	–––	0.8	1.3	V	T_J = 25°C, I_S = 8.8A, V_{GS} = 0V ③
		–––	0.66	–––		T_J = 125°C, I_S = 8.8A, V_{GS} = 0V ③
t_{rr}	Reverse Recovery Time	–––	42	63	ns	T_J = 25°C, I_F = 8.8A, V_R=15V
Q_{rr}	Reverse Recovery Charge	–––	59	89	nC	di/dt = 100A/μs ③
t_{rr}	Reverse Recovery Time	–––	42	63	ns	T_J = 125°C, I_F = 8.8A, V_R=15V
Q_{rr}	Reverse Recovery Charge	–––	61	92	nC	di/dt = 100A/μs ③

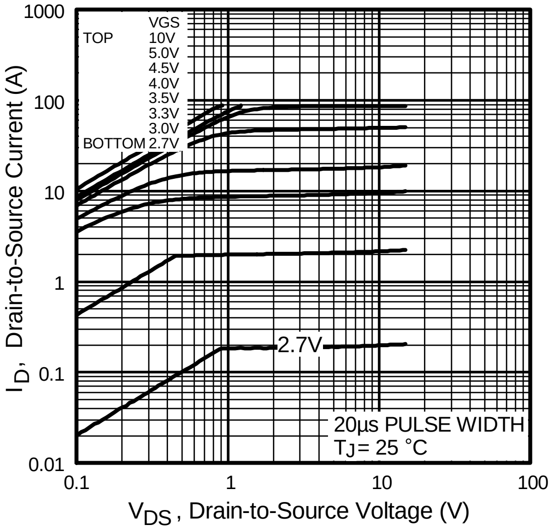


Fig 1. Typical Output Characteristics

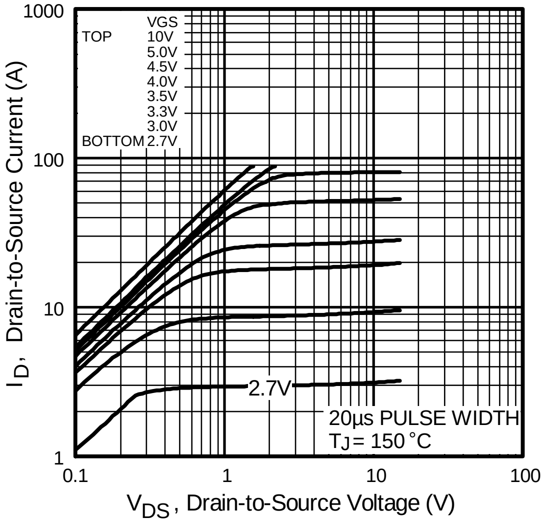


Fig 2. Typical Output Characteristics

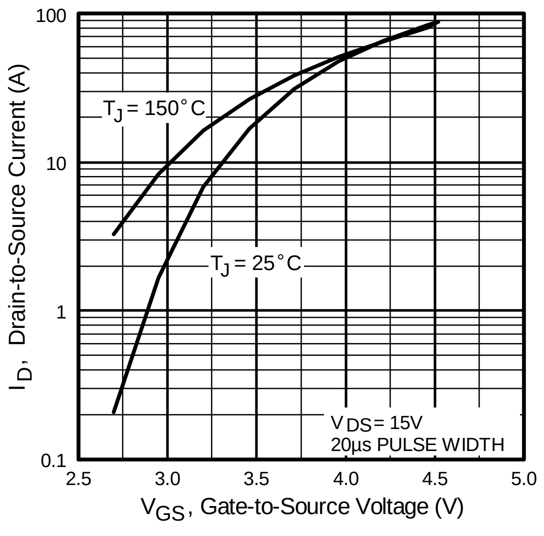


Fig 3. Typical Transfer Characteristics

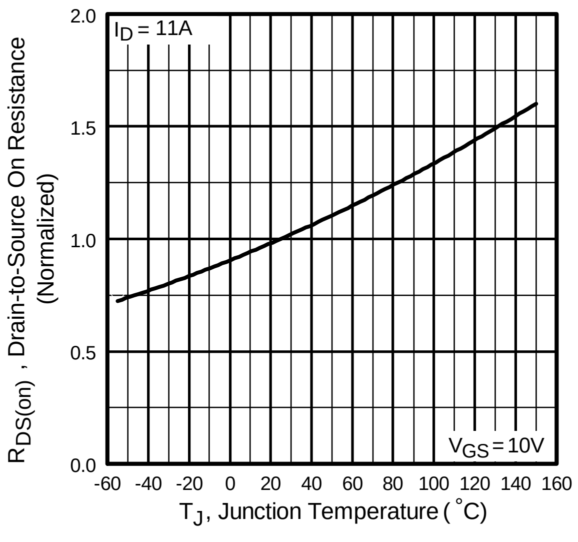


Fig 4. Normalized On-Resistance
Vs. Temperature

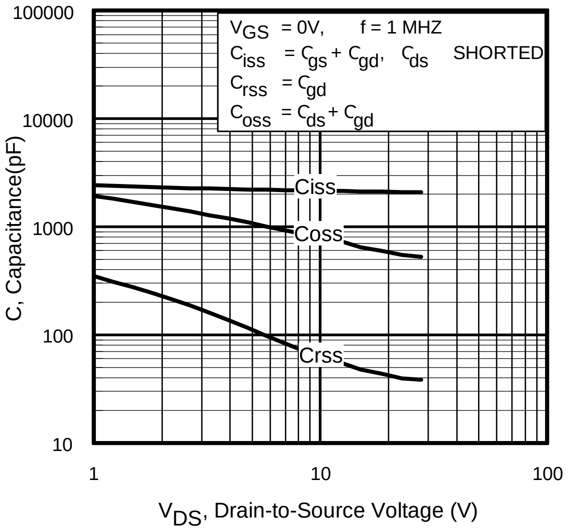


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

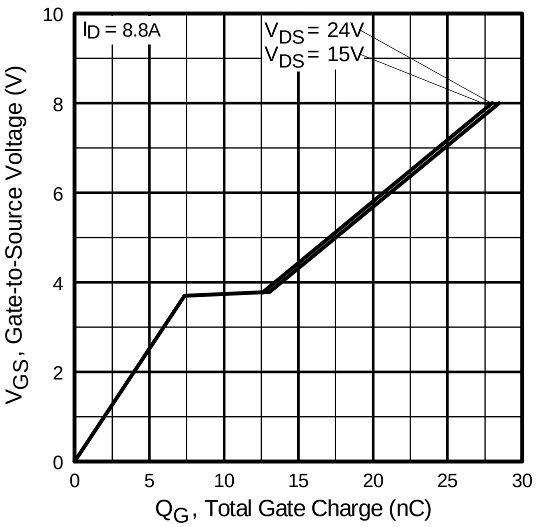


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

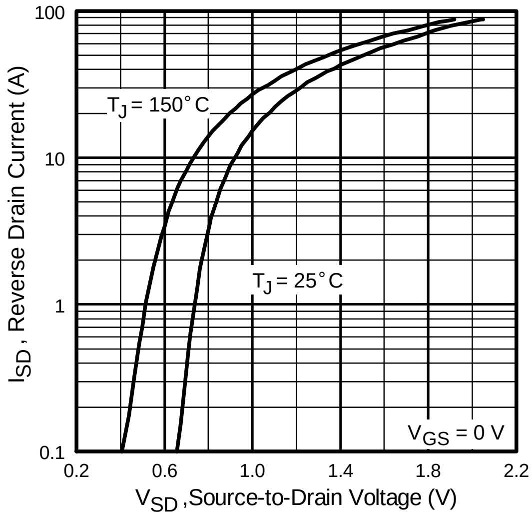


Fig 7. Typical Source-Drain Diode Forward Voltage

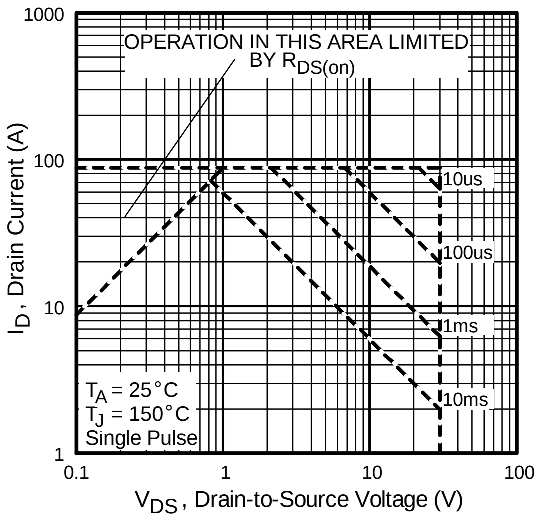
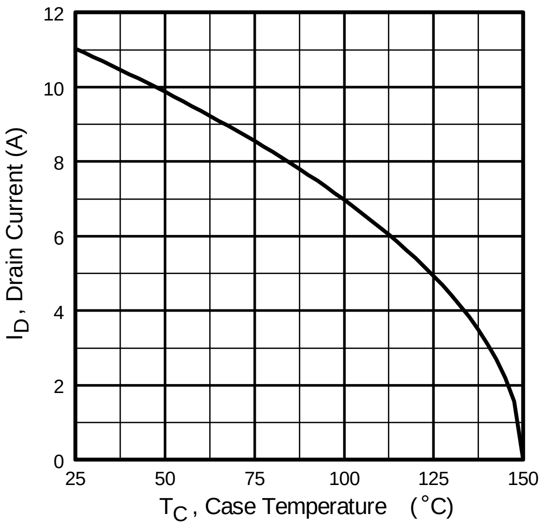


Fig 8. Maximum Safe Operating Area

Fig 6. On-Resistance Vs. Drain Current



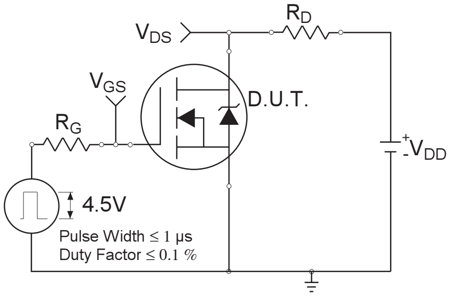


Fig 10a. Switching Time Test Circuit

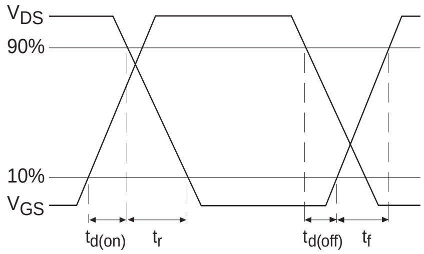


Fig 10b. Switching Time Waveforms

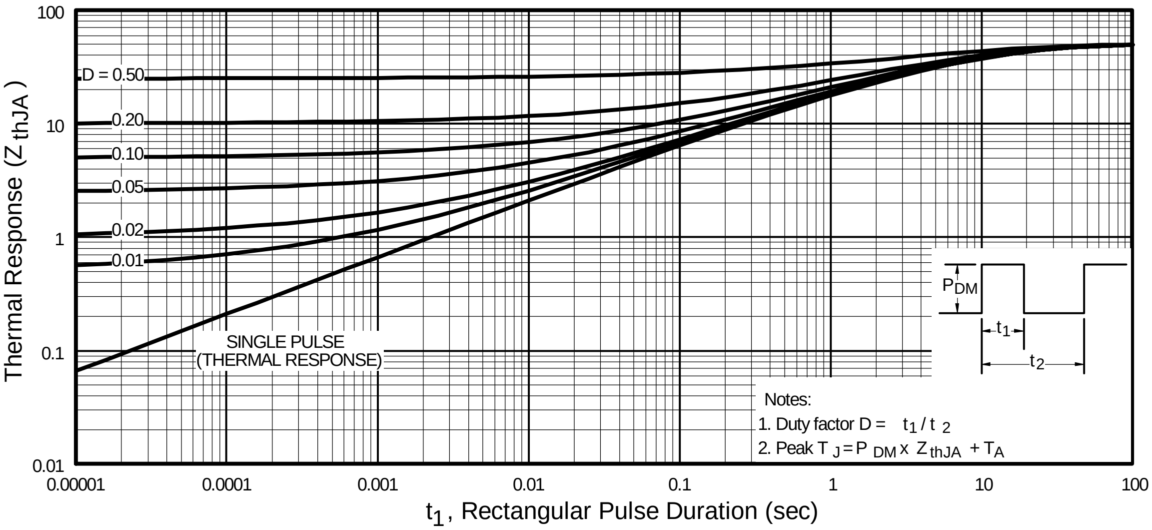


Fig 10. Maximum Effective Transient Thermal Impedance, Junction-to-Case

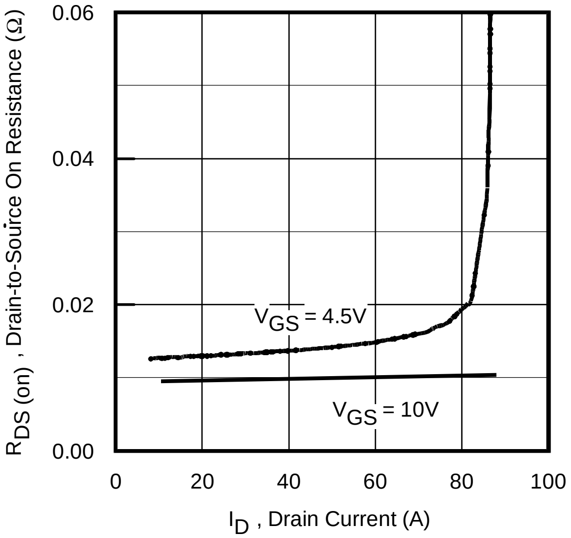


Fig 12. On-Resistance Vs. Drain Current

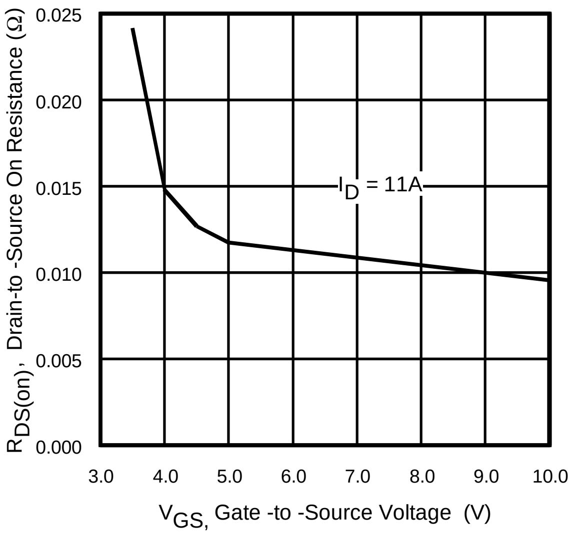


Fig 13. On-Resistance Vs. Gate Voltage

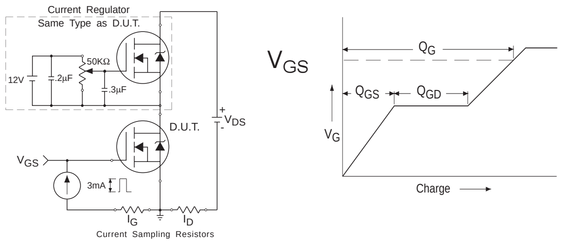


Fig 13a&b. Basic Gate Charge Test Circuit and Waveform

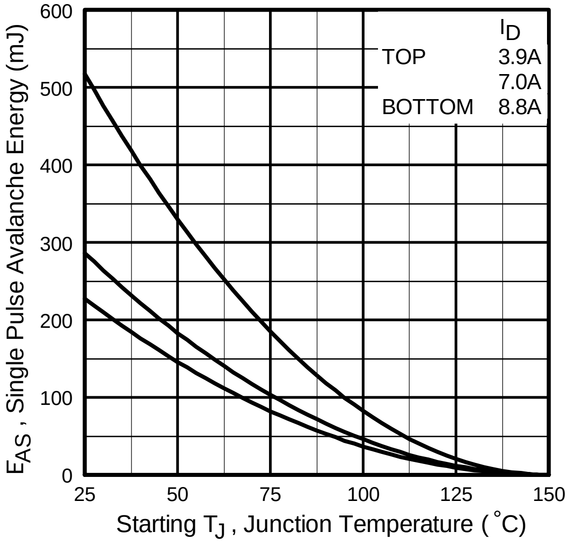


Fig 14c. Maximum Avalanche Energy Vs. Drain Current

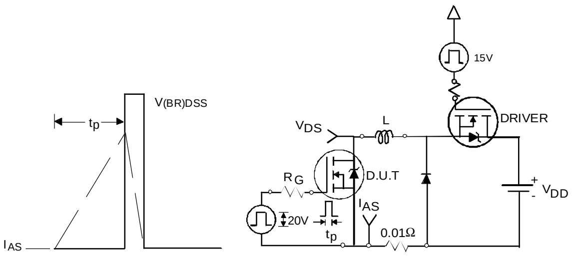
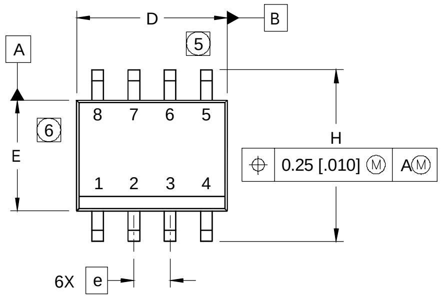


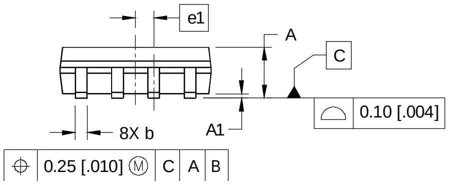
Fig 14a&b. Unclamped Inductive Test circuit and Waveforms

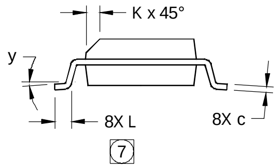
SO-8 Package Outline

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°





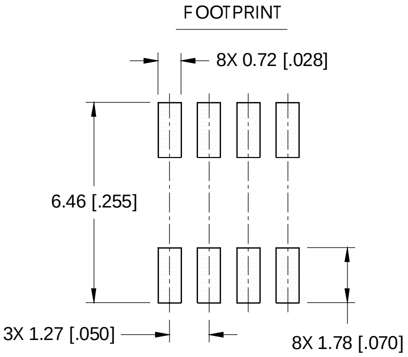
NOTES:

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].

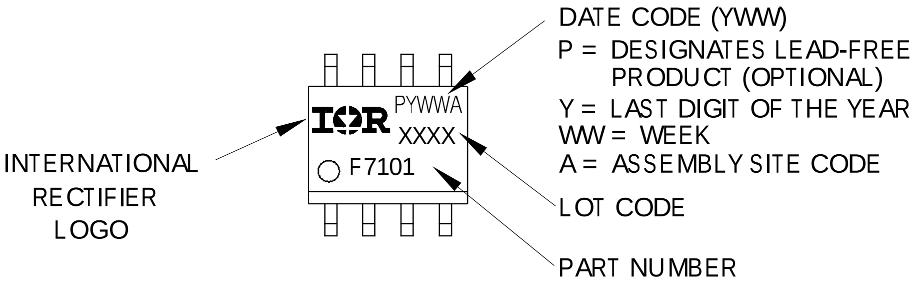
6 DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.25 [.010].

7 DIMENSION IS THE LENGTH OF LEAD FOR SOLDERING TO A SUBSTRATE.



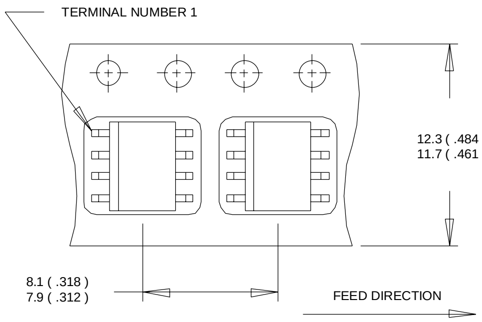
SO-8 Part Marking

EXAMPLE: THIS IS AN IRF7101 (MOSFET)

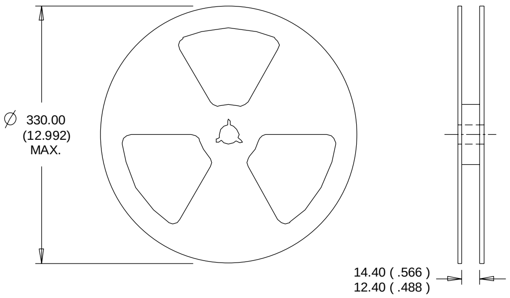


SO-8 Tape and Reel

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.

Notes:

① Repetitive rating; pulse width limited by max. junction temperature.

② Starting $T_J = 25°C$, L = 5.9mH $R_G = 25\Omega$, $I_{AS} = 8.8A$.

③ Pulse width ≤ 400µs; duty cycle ≤ 2%.

④ When mounted on 1 inch square copper board, t<10 sec

Data and specifications subject to change without notice.
This product has been designed and qualified for the Consumer market.
Qualifications Standards can be found on IR's Web site.

International
IOR Rectifier

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QUALITY MANAGEMENT SYSTEM CERTIFICATE

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DCI Certification Ltd

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATE

DIGI ELECTRONICS HK LIMITED

GB/T 24001-2016 idt ISO14001:2015

DCI Certification Ltd

OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEM CERTIFICATE

DIGI ELECTRONICS HK LIMITED

GB/T45001-2020 idt ISO45001:2018

DCI Certification Ltd

CERTIFICATE OF INCORPORATION

I hereby certify that

is this day incorporated in Hong Kong under the Companies Ordinance

a limited company.

Registrar of Companies

Hong Kong Special Administrative Region

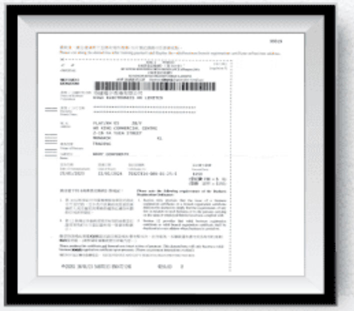
MEMBERSHIP

Certificate

DIGI ELECTRONICS HK LIMITED

A Dun & Bradstreet

D-U-N-S® Registered™ Business



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