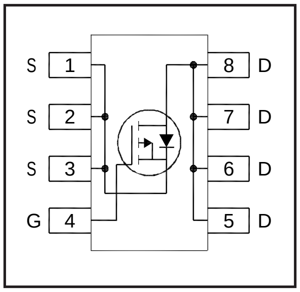
International
IOR Rectifier

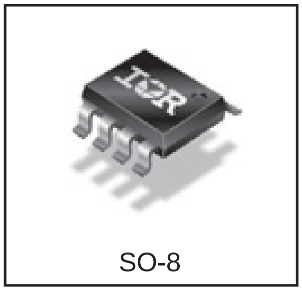
PD - 97465

IRF9317PbF

HEXFET® Power MOSFET

V_{DS}	**-30**	**V**
$R_{DS(on)}$ max (@V_{GS} = -10V)	**6.6**	**mΩ**
$R_{DS(on)}$ max (@V_{GS} = -4.5V)	**10.2**	**mΩ**
Q_g (typical)	**31**	**nC**
I_D (@T_A = 25°C)	**-16**	**A**




SO-8

Applications

- Charge and Discharge Switch for Notebook PC Battery Application

Features and Benefits

Features

Industry-Standard SO8 Package
RoHS Compliant Containing no Lead, no Bromide and no Halogen

Resulting Benefits

Multi-Vendor Compatibility
Environmentally Friendlier

Orderable part number	Package Type	Standard Pack		Note
		Form	Quantity	
IRF9317PbF	SO8	Tube/Bulk	95	
IRF9317TRPbF	SO8	Tape and Reel	4000	

Absolute Maximum Ratings

	Parameter	Max.	Units
V_{DS}	Drain-to-Source Voltage	-30	V
V_{GS}	Gate-to-Source Voltage	± 20	
I_D @ T_A = 25°C	Continuous Drain Current, V_{GS} @ 10V	-16	A
I_D @ T_A = 70°C	Continuous Drain Current, V_{GS} @ 10V	-13	
I_{DM}	Pulsed Drain Current ①	-130	
P_D @T_A = 25°C	Power Dissipation ④	2.5	W
P_D @T_A = 70°C	Power Dissipation ④	1.6	
	Linear Derating Factor	0.02	W/°C
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 150	°C

Notes ① through ⑥ are on page 2

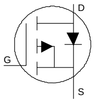
Static @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
BV_{DSS}	Drain-to-Source Breakdown Voltage	-30	——	——	V	V_{GS} = 0V, I_D = -250µA
$\Delta BV_{DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	——	0.022	——	V/°C	Reference to 25°C, I_D = -1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	——	5.4	6.6	mΩ	V_{GS} = -10V, I_D = -16A ③
		——	8.3	10.2		V_{GS} = -4.5V, I_D = -13A ③
$V_{GS(th)}$	Gate Threshold Voltage	-1.3	-1.8	-2.4	V	V_{DS} = V_{GS}, I_D = -50µA
$\Delta V_{GS(th)}$	Gate Threshold Voltage Coefficient	——	-5.7	——	mV/°C	
I_{DSS}	Drain-to-Source Leakage Current	——	——	-1.0	µA	V_{DS} = -24V, V_{GS} = 0V
		——	——	-150		V_{DS} = -24V, V_{GS} = 0V, T_J = 125°C
I_{GSS}	Gate-to-Source Forward Leakage	——	——	-100	nA	V_{GS} = -20V
	Gate-to-Source Reverse Leakage	——	——	100		V_{GS} = 20V
gfs	Forward Transconductance	36	——	——	S	V_{DS} = -10V, I_D = -13A
Q_g	Total Gate Charge ⑥	——	31	——	nC	V_{DS} = -15V, V_{GS} = -4.5V, I_D = - 13A
Q_g	Total Gate Charge ⑥	——	61	92	nC	V_{GS} = -10V
Q_{gs}	Gate-to-Source Charge ⑥	——	9	——		V_{DS} = -15V
Q_{gd}	Gate-to-Drain Charge ⑥	——	14	——		I_D = -13A
R_G	Gate Resistance ⑥	——	14	——	Ω	
$t_{d(on)}$	Turn-On Delay Time	——	19	——	ns	V_{DD} = -15V, V_{GS} = -4.5V ③
t_r	Rise Time	——	64	——		I_D = -1.0A
$t_{d(off)}$	Turn-Off Delay Time	——	160	——		R_G = 6.8Ω
t_f	Fall Time	——	120	——		See Figs. 20a &20b
C_{iss}	Input Capacitance	——	2820	——	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	——	640	——		V_{DS} = -15V
C_{rss}	Reverse Transfer Capacitance	——	370	——		f = 1.0MHz

Avalanche Characteristics

	Parameter	Typ.	Max.	Units
E_{AS}	Single Pulse Avalanche Energy ②	——	330	mJ
I_{AR}	Avalanche Current ①	——	-13	A

Diode Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	——	——	-2.5	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	——	——	-130		
V_{SD}	Diode Forward Voltage	——	——	-1.2	V	T_J = 25°C, I_S = -2.5A, V_{GS} = 0V ③
t_{rr}	Reverse Recovery Time	——	33	50	ns	T_J = 25°C, I_F = -2.5A, V_{DD} = -24V
Q_{rr}	Reverse Recovery Charge	——	30	45	nC	di/dt = 100A/µs ③

Thermal Resistance

	Parameter	Typ.	Max.	Units
$R_{\theta JL}$	Junction-to-Drain Lead ⑤	——	20	°C/W
$R_{\theta JA}$	Junction-to-Ambient ④	——	50	

Notes:

① Repetitive rating; pulse width limited by max. junction temperature.
② Starting T_J = 25°C, L = 4.3mH, R_G = 25Ω, I_{AS} = -13A.
③ Pulse width ≤ 400µs; duty cycle ≤ 2%.
④ When mounted on 1 inch square copper board.
⑤ R_θ is measured at T_J of approximately 90°C.
⑥ For DESIGN AID ONLY, not subject to production testing.

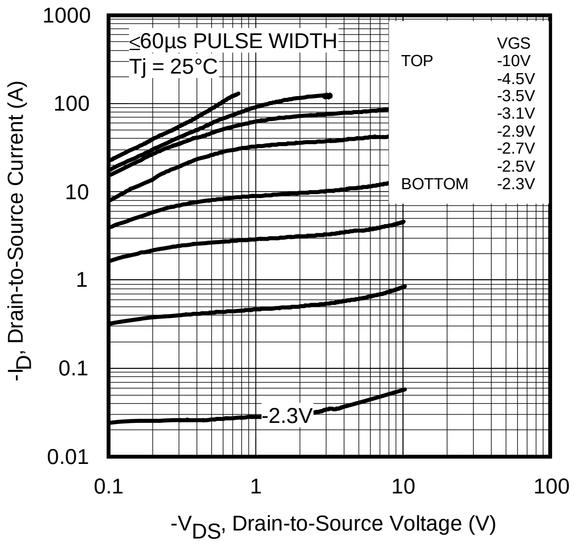


Fig 1. Typical Output Characteristics

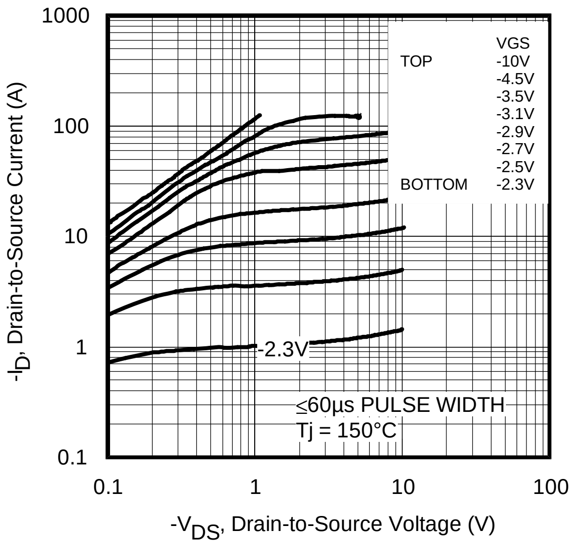


Fig 2. Typical Output Characteristics

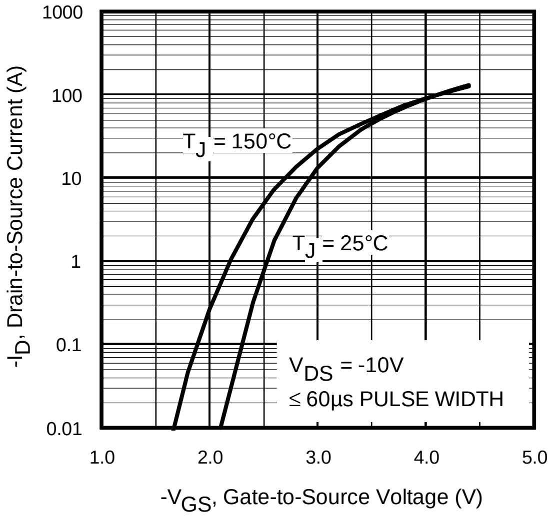


Fig 3. Typical Transfer Characteristics

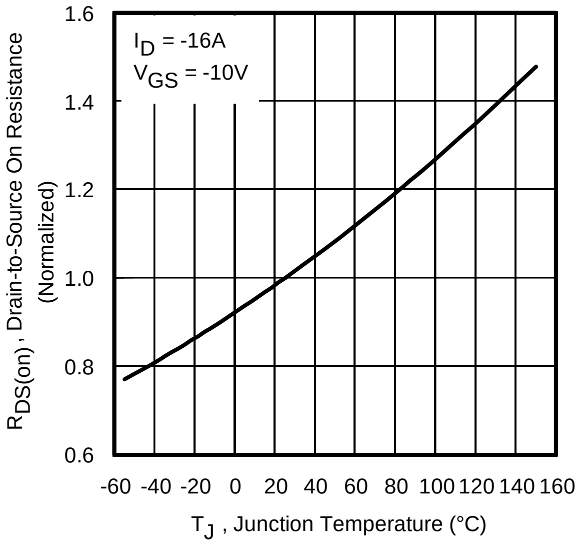


Fig 4. Normalized On-Resistance vs. Temperature

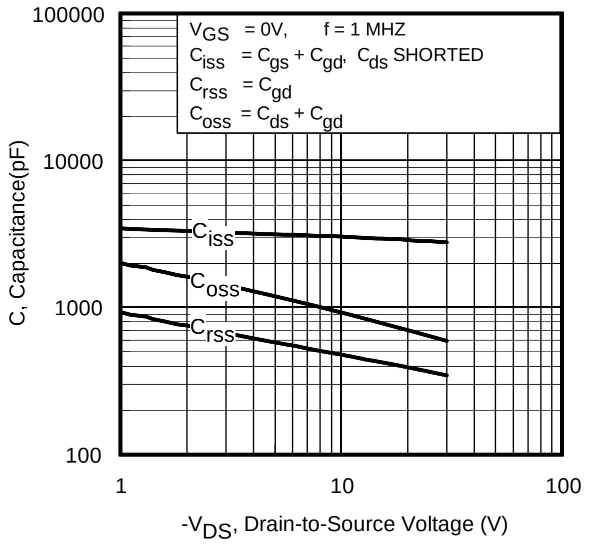


Fig 5. Typical Capacitance vs.Drain-to-Source Voltage

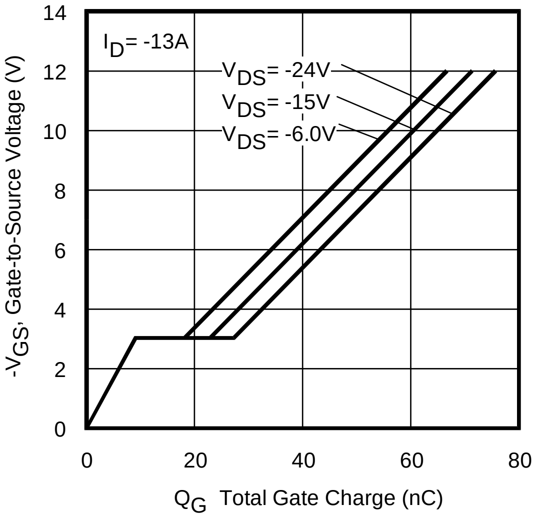


Fig 6. Typical Gate Charge vs.Gate-to-Source Voltage

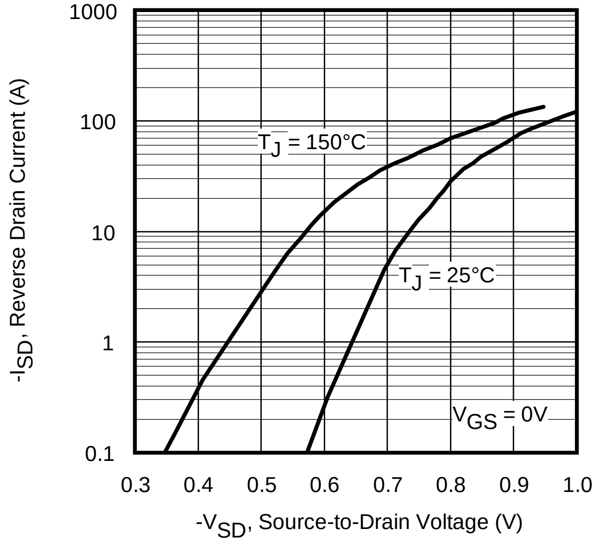


Fig 7. Typical Source-Draine Diode Forward Voltage

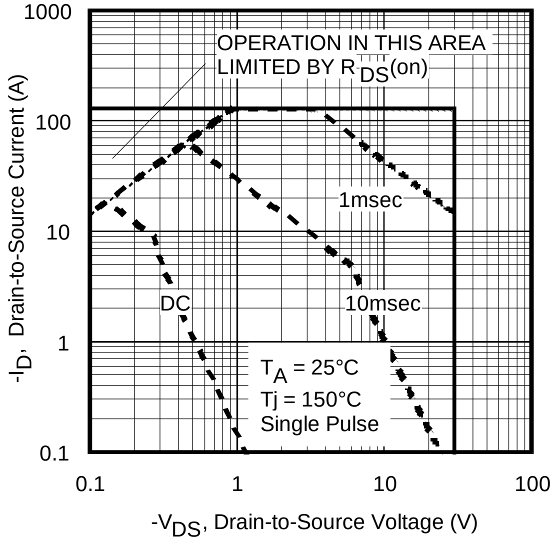


Fig 8. Maximum Safe Operating Area

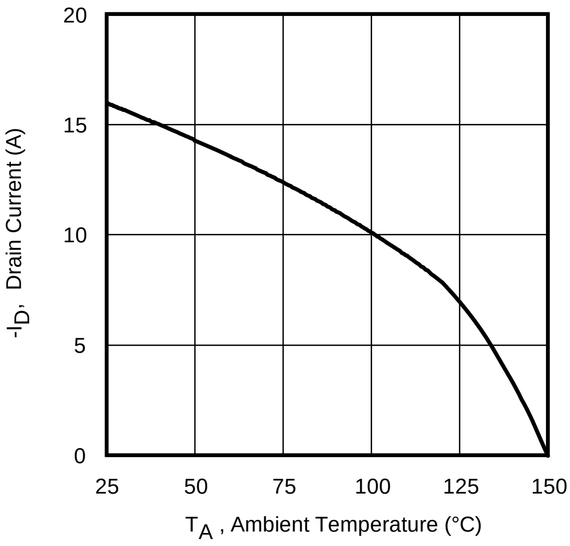


Fig 9. Maximum Drain Current vs.
Ambient Temperature

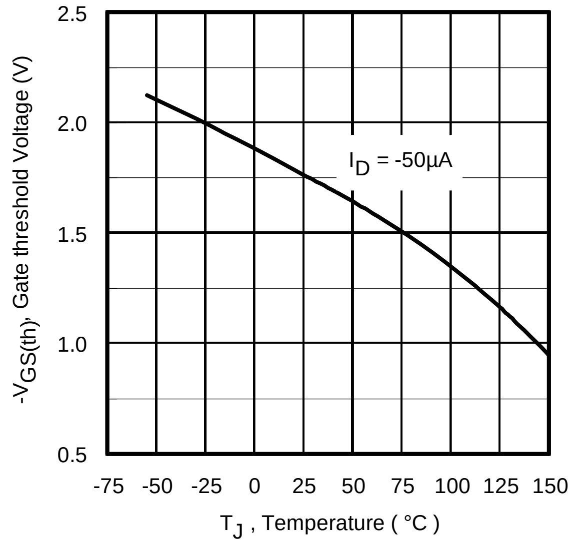


Fig 10. Threshold Voltage vs. Temperature

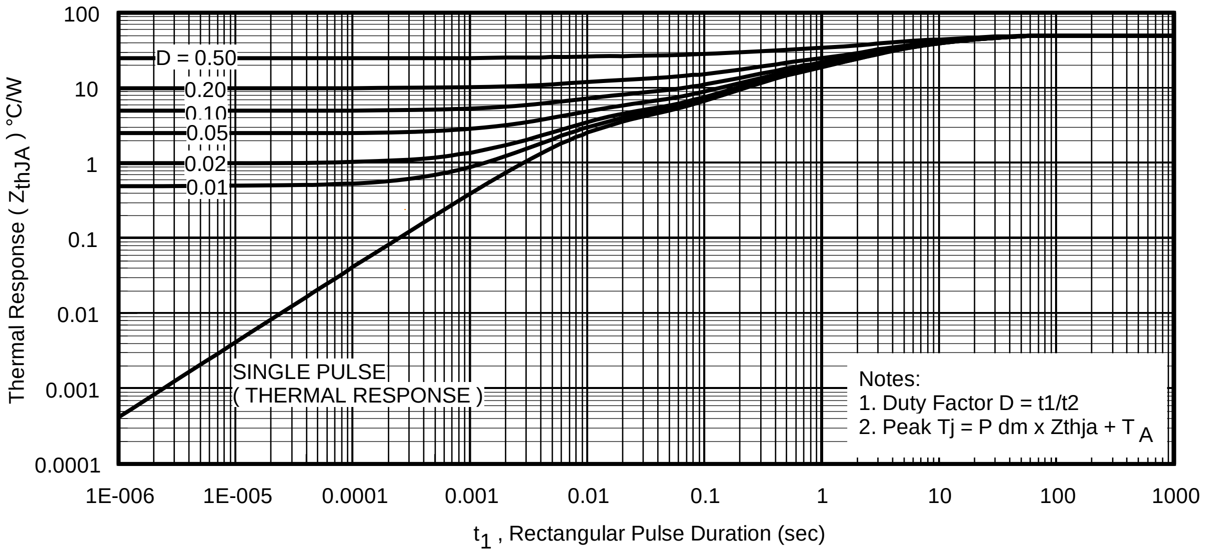


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

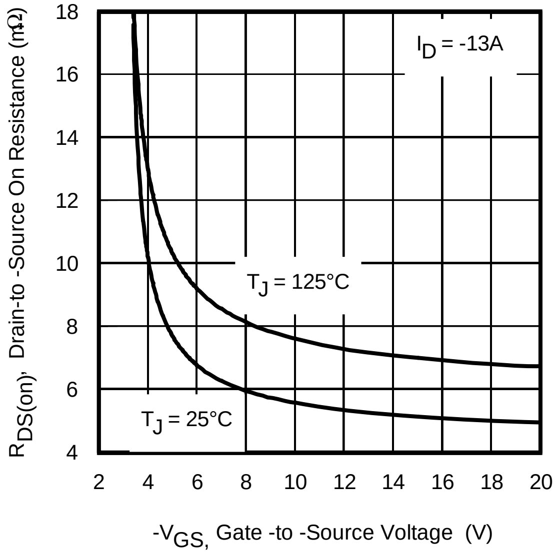


Fig 12. On-Resistance vs. Gate Voltage

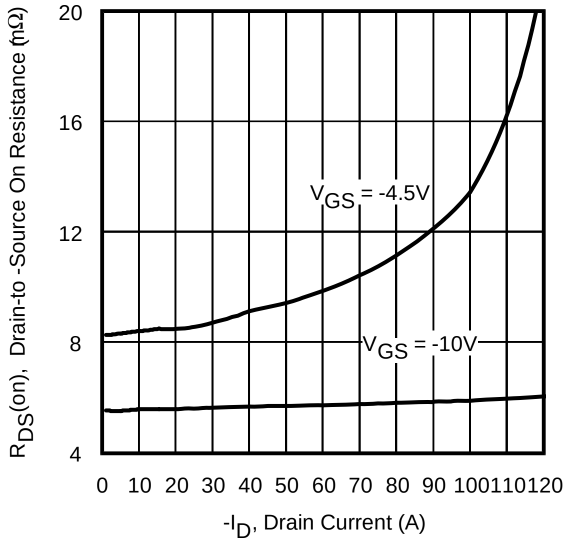


Fig 13. Typical On-Resistance vs. Drain Current

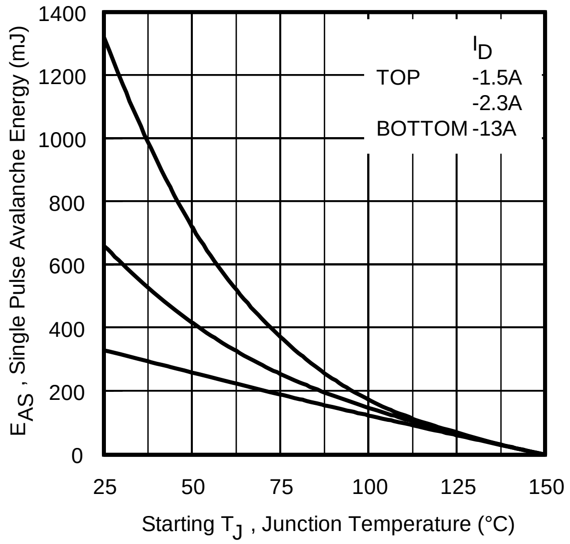


Fig 14. Maximum Avalanche Energy vs. Drain Current

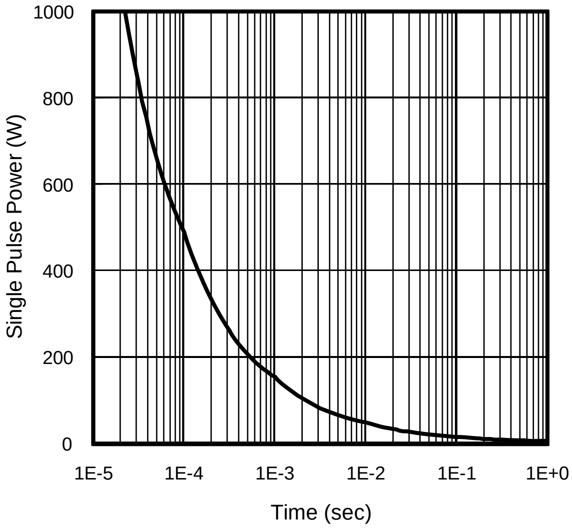
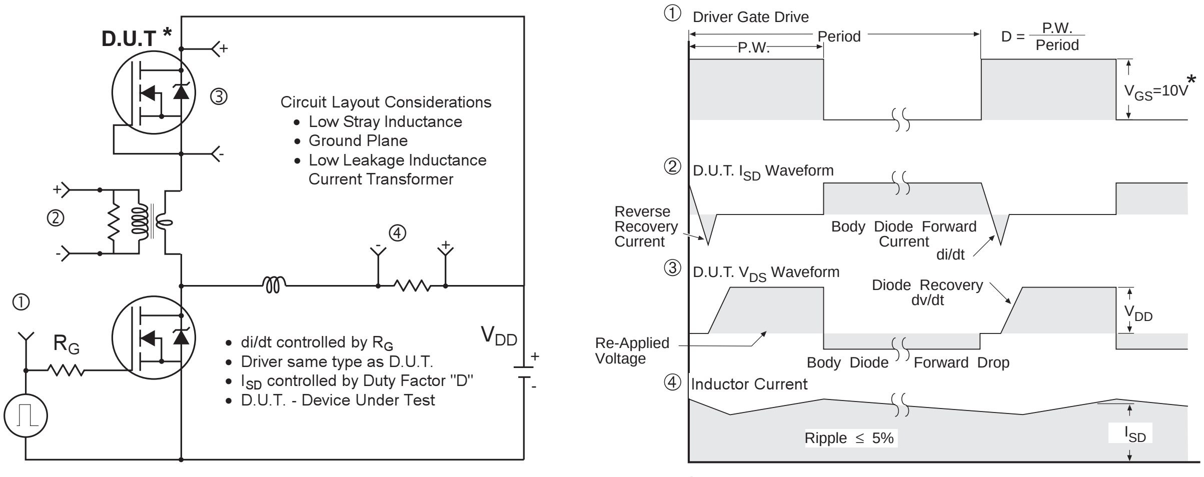


Fig 16. Typical Power vs. Time



* Reverse Polarity of D.U.T for P-Channel

* V_{GS} = 5V for Logic Level Devices

Fig 17. Diode Reverse Recovery Test Circuit for P-Channel HEXFET® Power MOSFETs

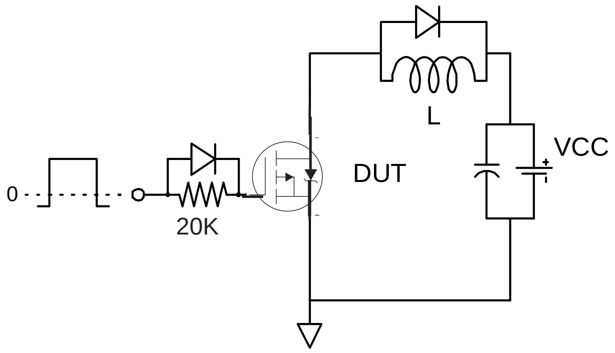


Fig 18a. Gate Charge Test Circuit

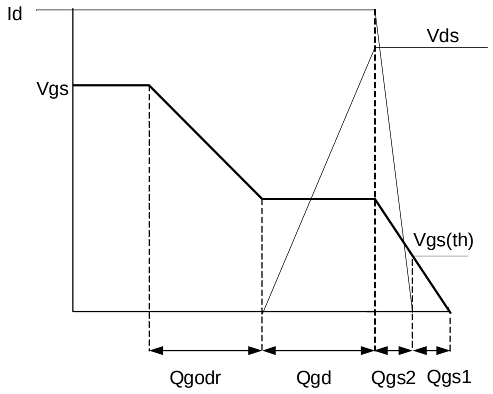


Fig 18b. Gate Charge Waveform

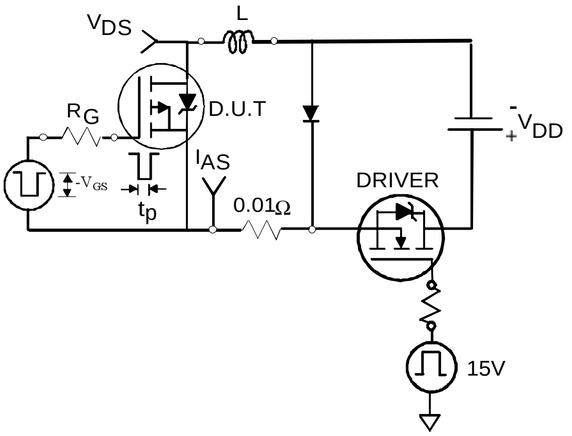


Fig 19a. Unclamped Inductive Test Circuit

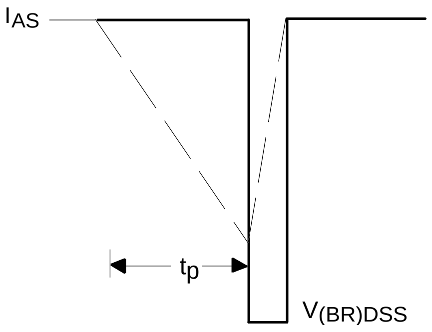


Fig 19b. Unclamped Inductive Waveforms

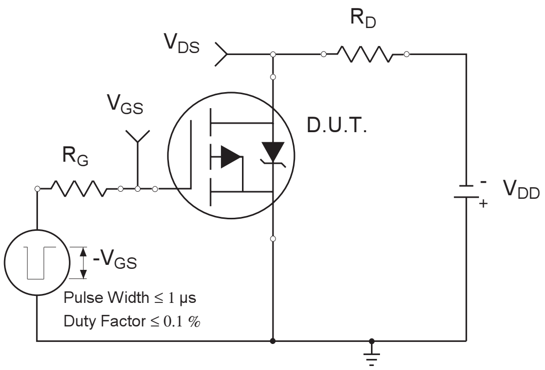


Fig 20a. Switching Time Test Circuit

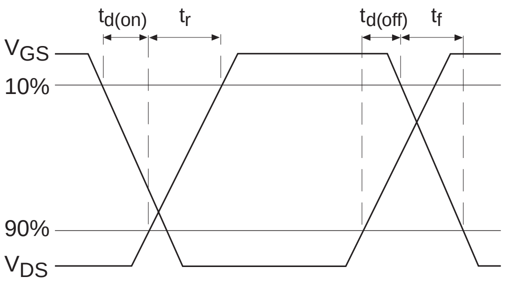
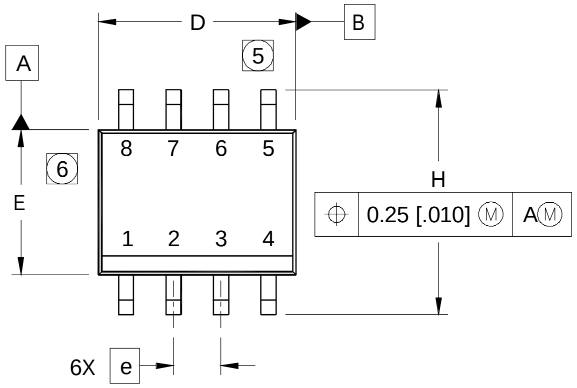


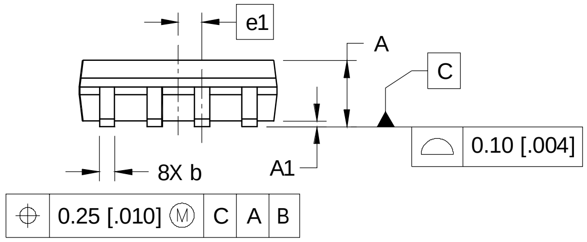
Fig 20b. Switching Time Waveforms

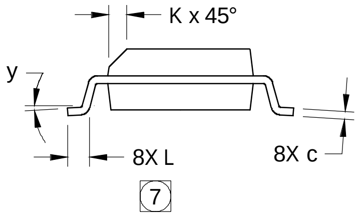
SO-8 Package Outline(Mosfet & Fetky)

Dimensions are shown in milimeters (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:

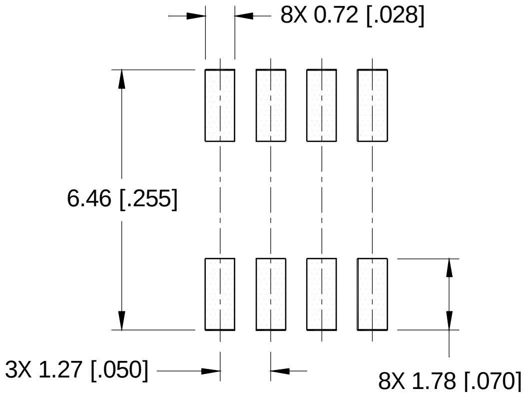
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
2. CONTROLLING DIMENSION: MILLIMETER
3. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA.

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].

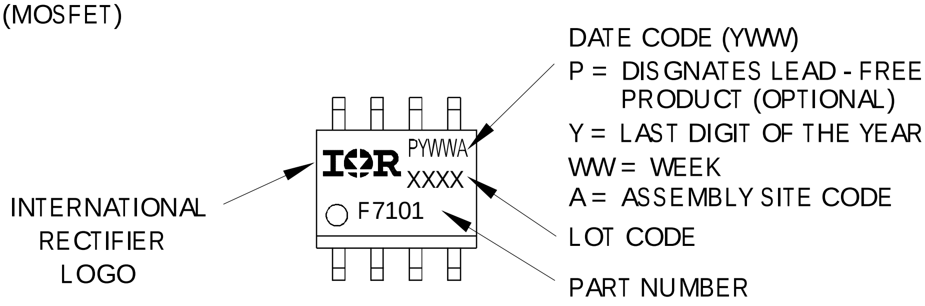
7 DIMENSION IS THE LENGTH OF LEAD FOR SOLDERING TO A SUBSTRATE.

FOOTPRINT



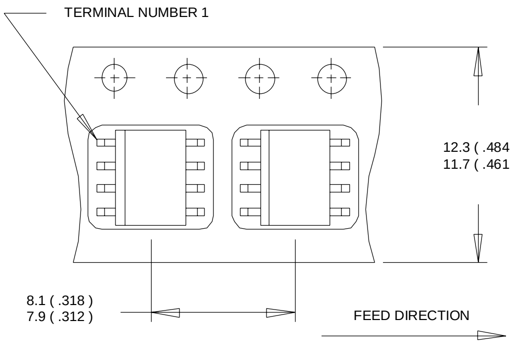
SO-8 Part Marking Information

EXAMPLE: THIS IS AN IRF7101 (MOSFET)

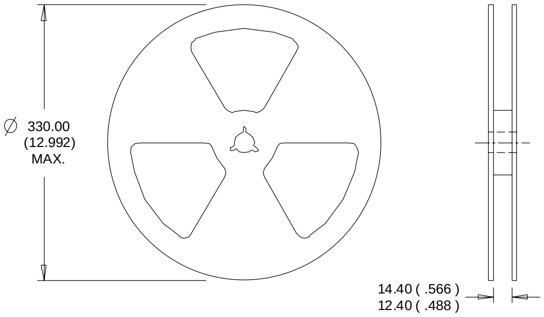


Note: For the most current drawing please refer to IR website at http://www.irf.com/package/

SO-8 Tape and Reel (Dimensions are shown in milimeters (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 [††]	
	(per JEDEC JESD47F[†††] guidelines)	
Moisture Sensitivity Level	SO-8	MSL1 (per JEDEC J-STD-020D[†††])
RoHS Compliant	Yes	

[†] Qualification standards can be found at International Rectifier's web site
http://www.irf.com/product-info/reliability

[††] Higher qualification ratings may be available should the user have such requirements.
Please contact your International Rectifier sales representative for further information:
http://www.irf.com/whoto-call/salesrep/

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

Data and specifications subject to change without notice.

International
IOR Rectifier

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Visit us at www.irf.com for sales contact information.3/2010

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

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.

Как с нами связаться

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Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
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