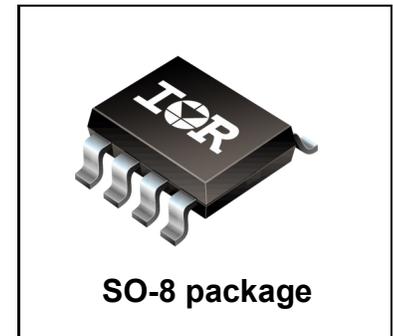
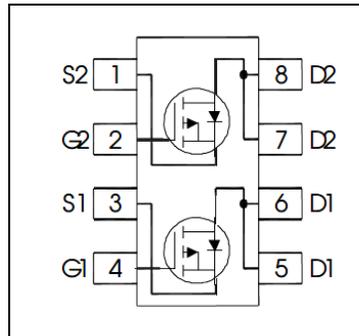


Dual P-Channel HEXFET Power MOSFET in a SO-8 package

V_{DS}	-30	V
$R_{DS(on) \max}$ (@ $V_{GS} = -10V$)	16.3	m Ω
$R_{DS(on) \max}$ (@ $V_{GS} = -4.5V$)	23.8	m Ω
Qg (typical)	19	nC
I_D (@ $T_A = 25^\circ C$)	-9.2	A



Applications

- Charge and Discharge Switch for Notebook PC Battery Application

Features and Benefits

Features

Industry-Standard SO-8 Package
RoHS Compliant Containing no Lead, no Bromide and no Halogen
MSL1, Consumer Qualification

results in

Benefits

Multi-Vendor Compatibility
Environmentally Friendlier
Increased Reliability

Orderable Part Number	Package Type	Standard Pack		Note
		Form	Quantity	
IRF9358PbF	SO8	Tube/Bulk	95	
IRF9358TRPbF	SO8	Tape and Reel	4000	

Absolute Maximum Ratings

Symbol	Parameter	Max.	Units
V_{DS}	Drain-to-Source Voltage	-30	V
V_{GS}	Gate-to-Source Voltage	± 20	V
$I_D @ T_A = 25^\circ C$	Continuous Drain Current, $V_{GS} @ -10V$	-9.2	A
$I_D @ T_A = 70^\circ C$	Continuous Drain Current, $V_{GS} @ -10V$	-7.3	
I_{DM}	Pulsed Drain Current ①	-73	
$P_D @ T_A = 25^\circ C$	Power Dissipation ④	2.0	W
$P_D @ T_A = 70^\circ C$	Power Dissipation ④	1.3	
	Linear Derating Factor	0.016	W/ $^\circ C$
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 150	$^\circ C$

Notes ① through ④ are on page 2

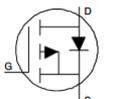
Electric Characteristics @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	-30	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	0.02	—	V/°C	Reference to 25°C , $I_D = -1.0\text{mA}$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	13.0	16.3	mΩ	$V_{GS} = -10V, I_D = -9.2A$ ③
		—	19.0	23.8		$V_{GS} = -4.5V, I_D = -7.3A$ ③
$V_{GS(th)}$	Gate Threshold Voltage	-1.3	-1.8	-2.4	V	$V_{DS} = V_{GS}, I_D = -25\mu A$
$\Delta V_{GS(th)}$	Gate Threshold Voltage Coefficient	—	-5.9	—	mV/°C	
I_{DSS}	Drain-to-Source Leakage Current	—	—	-1.0	μA	$V_{DS} = -24V, V_{GS} = 0V$
		—	—	-150		$V_{DS} = -24V, V_{GS} = 0V, T_J = 125^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage	—	—	-100	nA	$V_{GS} = -20V$
	Gate-to-Source Reverse Leakage	—	—	100		$V_{GS} = 20V$
g_{fs}	Forward Transconductance	23	—	—	S	$V_{DS} = -10V, I_D = -7.3A$
Q_g	Total Gate Charge ⑥	—	19	—	nC	$V_{DS} = -15V, V_{GS} = -4.5V, I_D = -7.3A$
Q_g	Total Gate Charge ⑥	—	38	—	nC	$I_D = -7.3A$
Q_{gs}	Gate-to-Source Charge ⑥	—	5.8	—		$V_{DS} = -15V$
Q_{gd}	Gate-to-Drain Charge ⑥	—	8.9	—		$V_{GS} = -10V$
R_G	Internal Gate Resistance ⑥	—	15	—	Ω	
$t_{d(on)}$	Turn-On Delay Time	—	5.7	—	ns	$V_{DD} = -15V, V_{GS} = -4.5V$ ③ $I_D = -1.0A$ $R_G = 6.8\Omega$ See Figs. 19a & 19b
t_r	Rise Time	—	7.2	—		
$t_{d(off)}$	Turn-Off Delay Time	—	146	—		
t_f	Fall Time	—	69	—		
C_{iss}	Input Capacitance	—	1740	—	pF	$V_{GS} = 0V$
C_{oss}	Output Capacitance	—	360	—		$V_{DS} = -25V$
C_{rss}	Reverse Transfer Capacitance	—	240	—		$f = 1.0\text{MHz}$

Avalanche Characteristics

	Parameter	Typ.	Max.	Units
E_{AS}	Single Pulse Avalanche Energy ②	—	210	mJ
I_{AR}	Avalanche Current ①	—	-7.3	A

Source - Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	-2.0	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	-73		
V_{SD}	Diode Forward Voltage	—	—	-1.2	V	$T_J = 25^\circ\text{C}, I_S = -2.0A, V_{GS} = 0V$ ③
t_{rr}	Reverse Recovery Time	—	55	83	ns	$T_J = 25^\circ\text{C}, I_F = -2.0A, V_{DD} = -24V$
Q_{rr}	Reverse Recovery Charge	—	35	53	nC	$di/dt = 100A/\mu s$ ③

Thermal Resistance

	Parameter	Typ.	Max.	Units
$R_{\theta JL}$	Junction-to-Ambient ⑤	—	20	°C/W
$R_{\theta JA}$	Junction-to-Ambient ④	—	62.5	

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Starting $T_J = 25^\circ\text{C}$, $L = 4.6\text{mH}$, $R_G = 50\Omega$, $I_{AS} = -6.4A$.
- ③ Pulse width $\leq 400\mu s$; duty cycle $\leq 2\%$.
- 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.

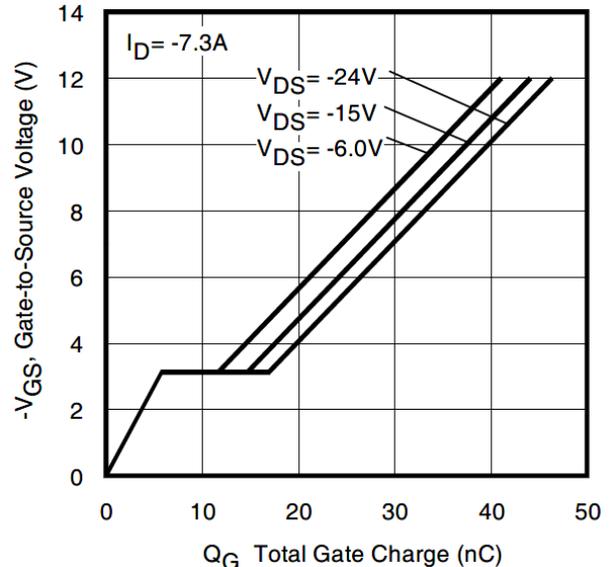
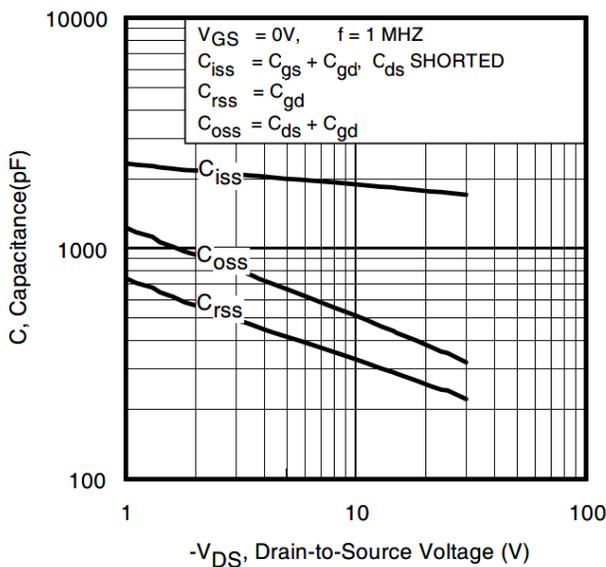
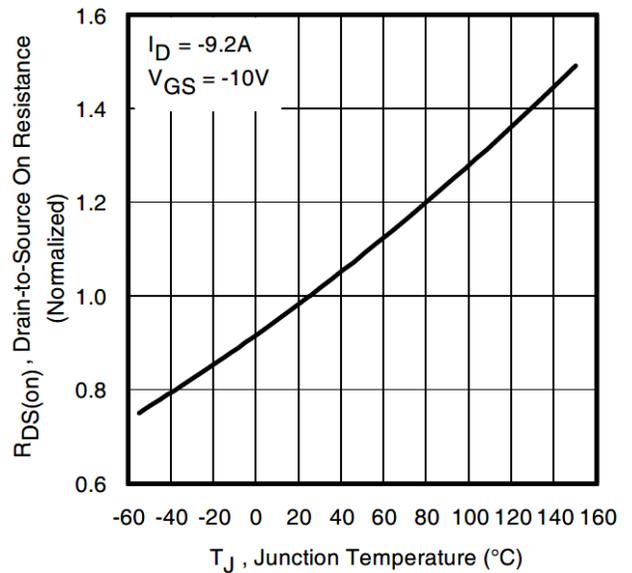
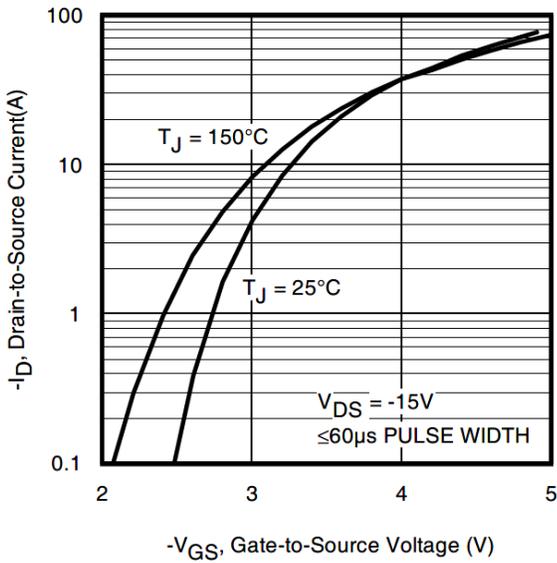
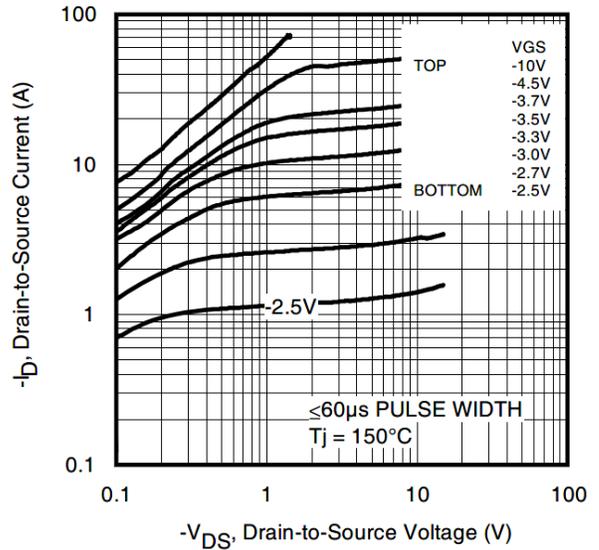
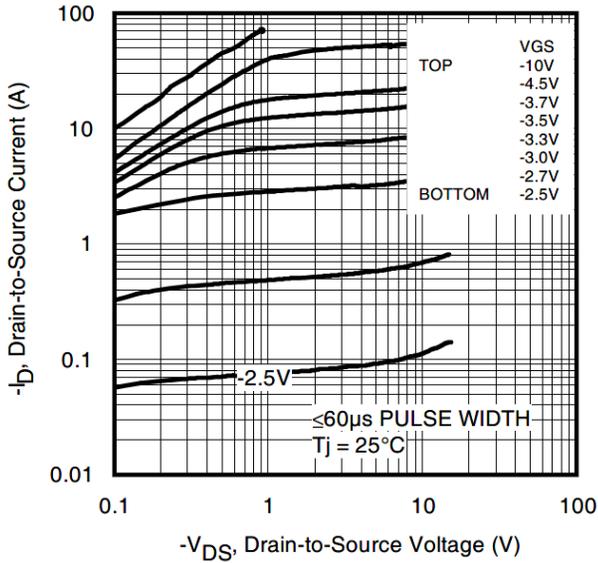


Fig 5. Typical Capacitance vs. Drain-to-Source Voltage

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

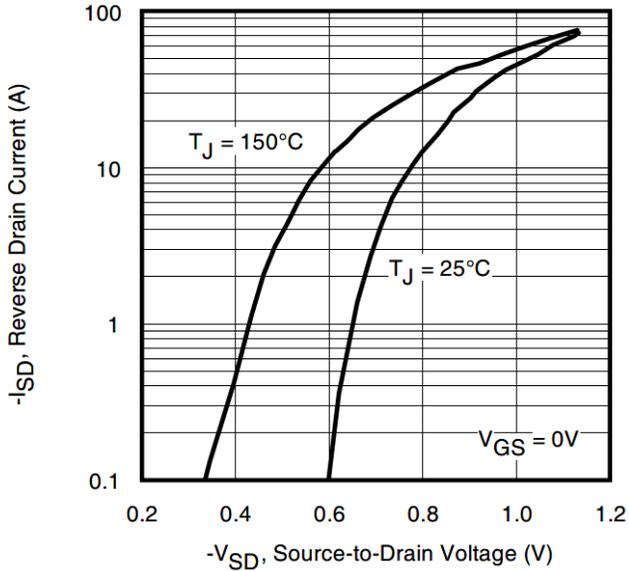


Fig 7. Typical Source-Drain Diode Forward Voltage

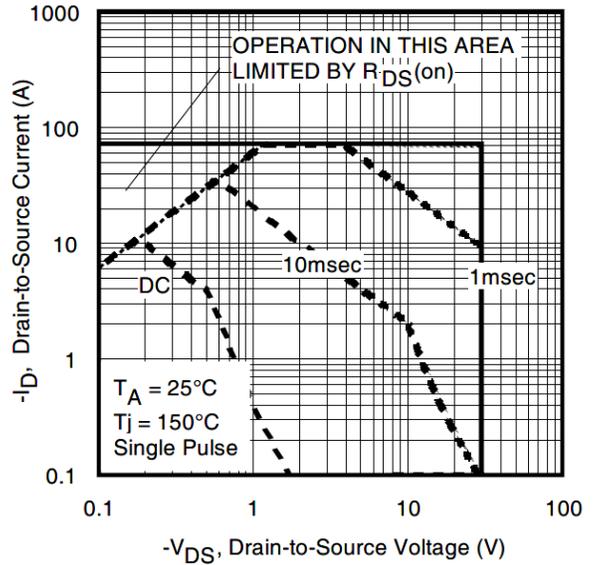


Fig 8. Maximum Safe Operating Area

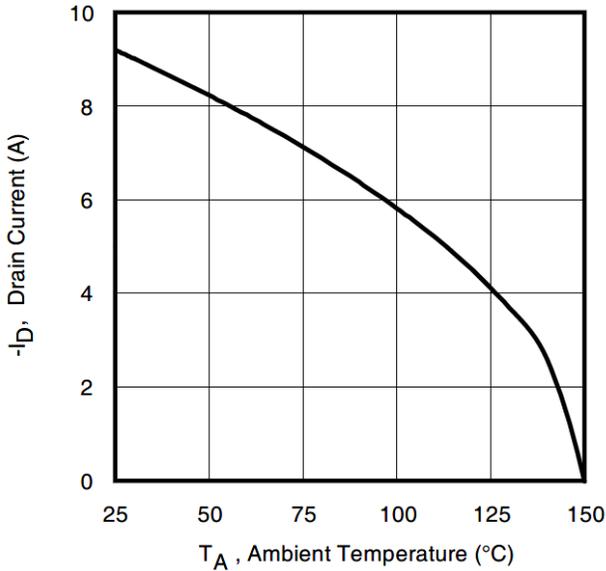


Fig 9. Maximum Drain Current vs. Ambient Temperature

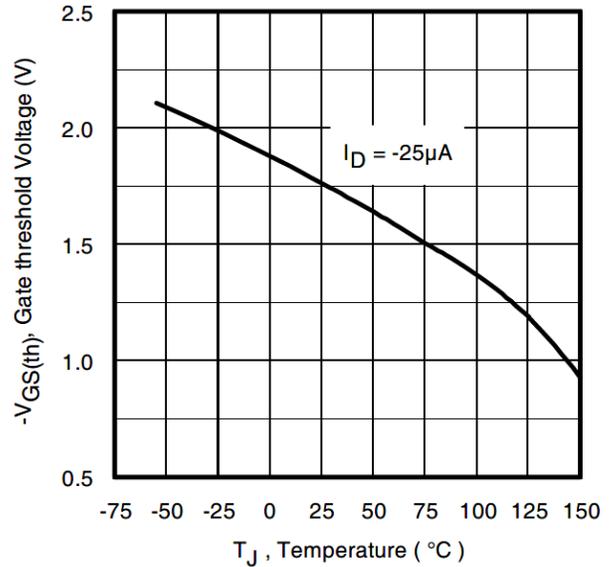


Fig 10. Typical Threshold Voltage vs. Junction Temperature

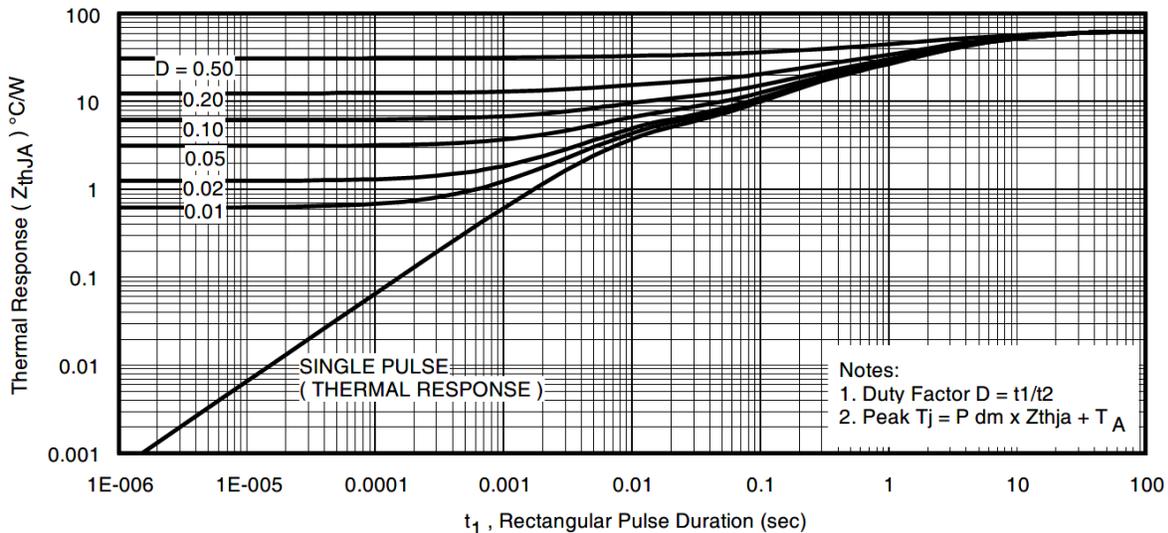


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

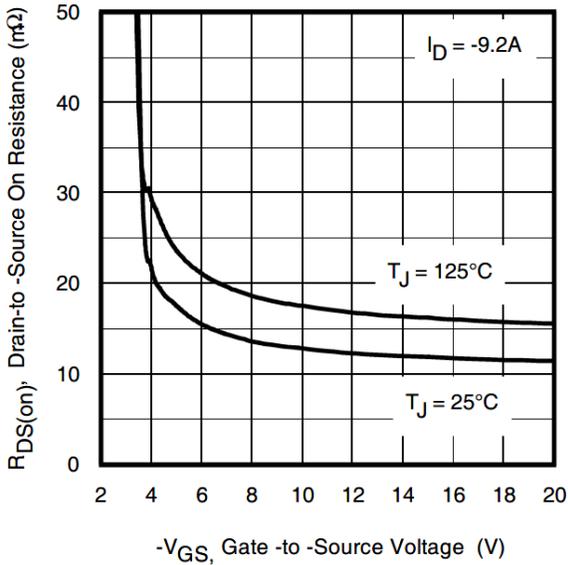


Fig 12. Typical On-Resistance vs. Gate Voltage

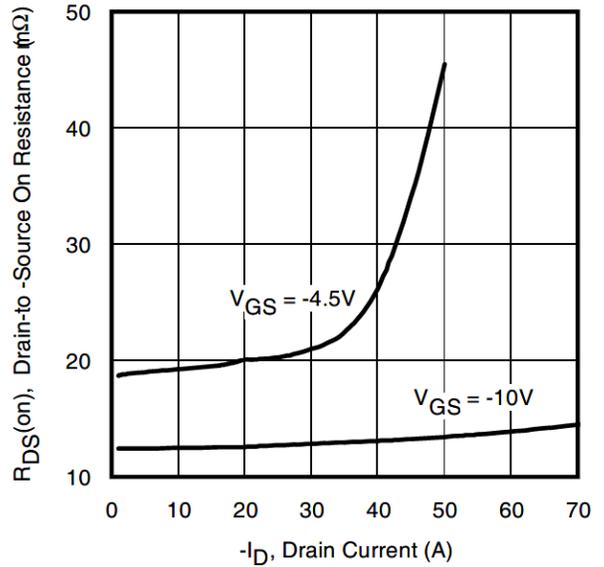


Fig 13. Typical On-Resistance vs. Drain Current

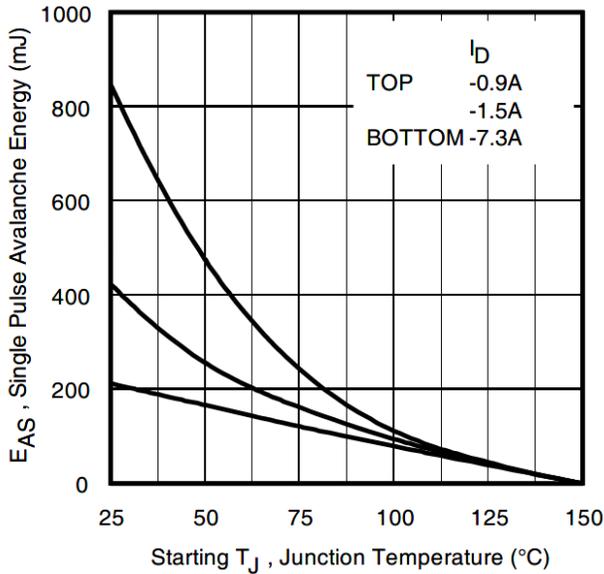


Fig 14. Maximum Avalanche Energy vs. Drain Current

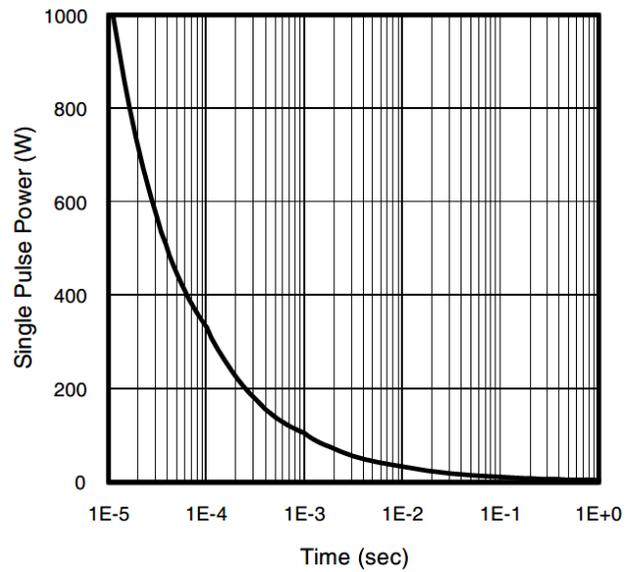
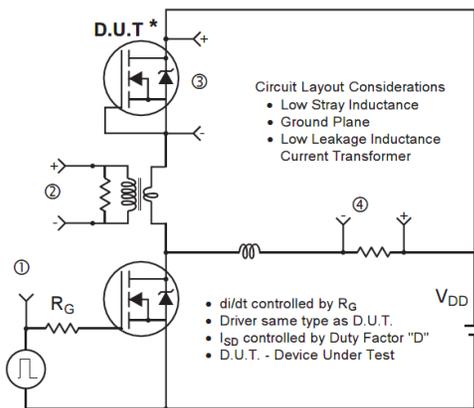
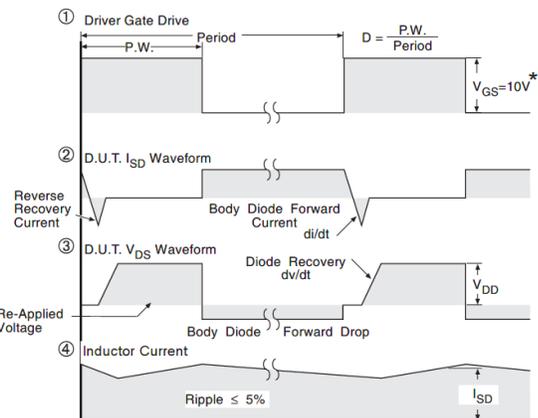


Fig 15. Typical Power Vs. Time



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



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

Fig 16. Peak Diode Recovery dv/dt Test Circuit for P-Channel HEXFET® Power MOSFETS

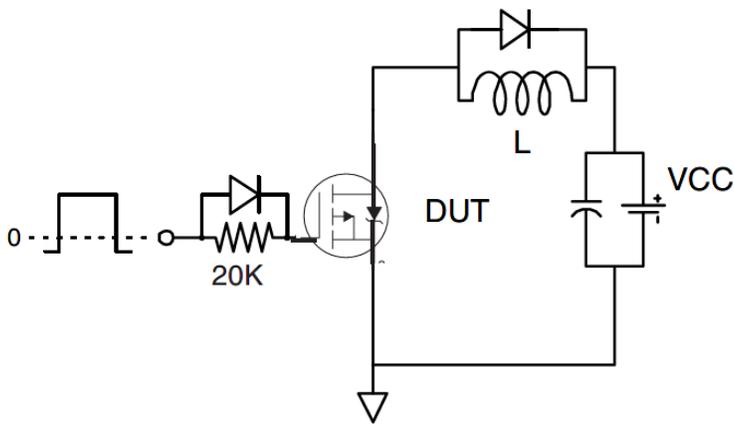


Fig 17a. Gate Charge Test Circuit

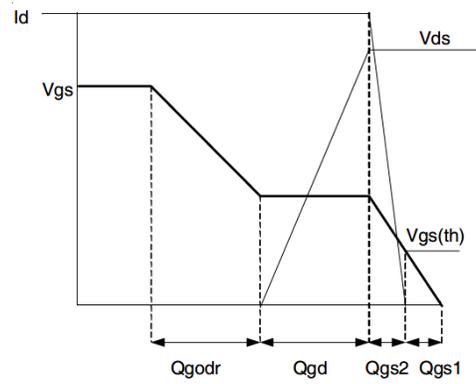


Fig 17b. Basic Gate Charge Waveform

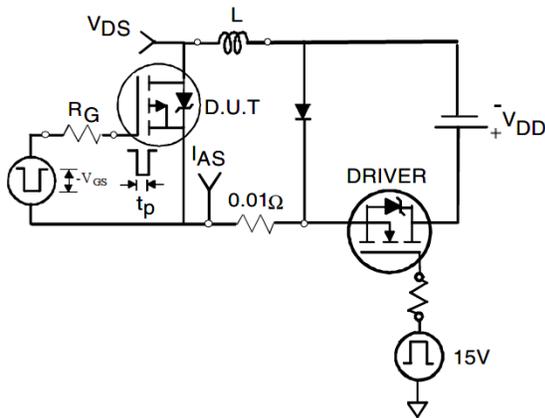


Fig 18a. Unclamped Inductive Test Circuit

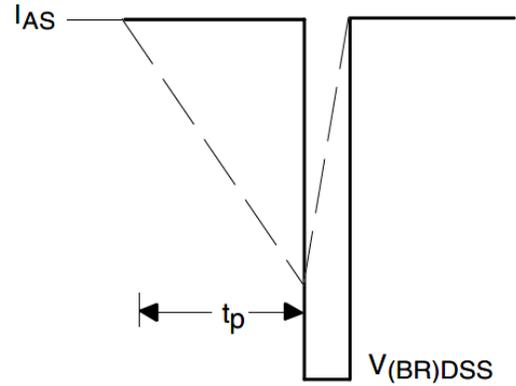


Fig 18b. Unclamped Inductive Waveform

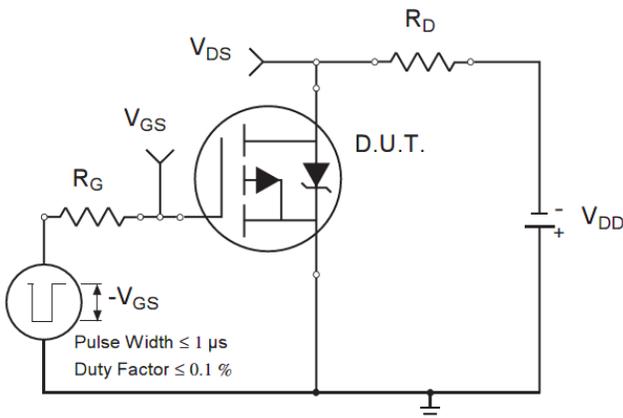


Fig 19a. Switching Time Test Circuit

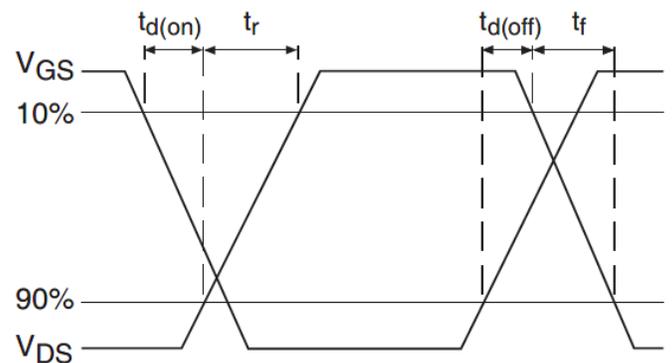
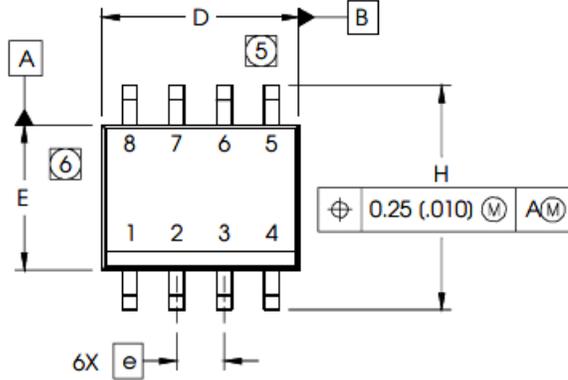


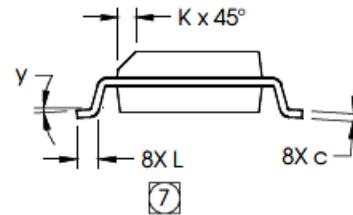
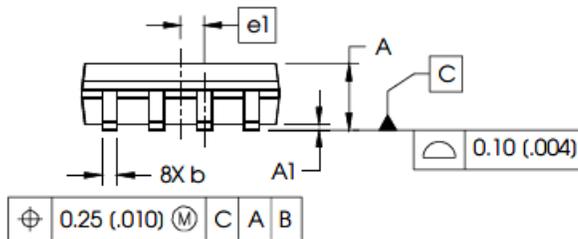
Fig 19b. Switching Time Waveforms

SO-8 Package Outline (Mosfet and Fetky)

Dimension are shown in millimeters (inches)



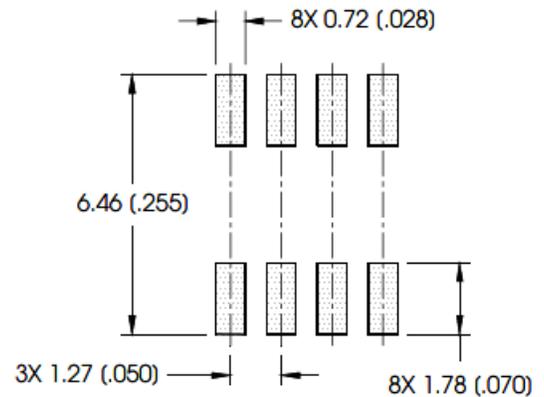
DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.013	.020	0.33	0.51
c	.0075	.0098	0.19	0.25
D	.189	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
e	.050 BASIC		1.27 BASIC	
e1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.0099	.0196	0.25	0.50
L	.016	.050	0.40	1.27
y	0°	8°	0°	8°



NOTES:

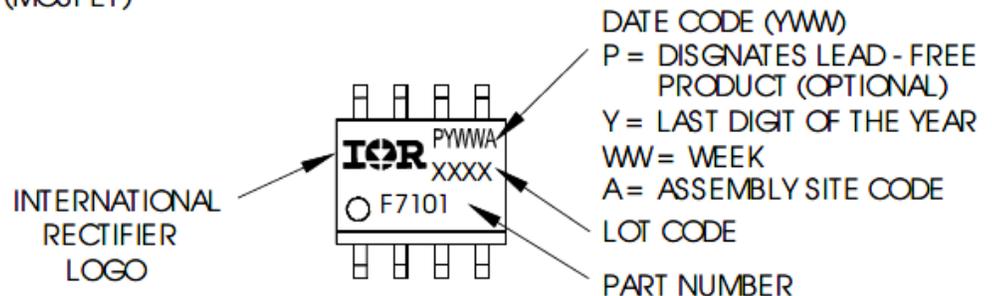
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
2. CONTROLLING DIMENSION: MILLIMETER
3. DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA.
- 5 DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 (.006).
- 6 DIMENSION DOES NOT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

FOOTPRINT



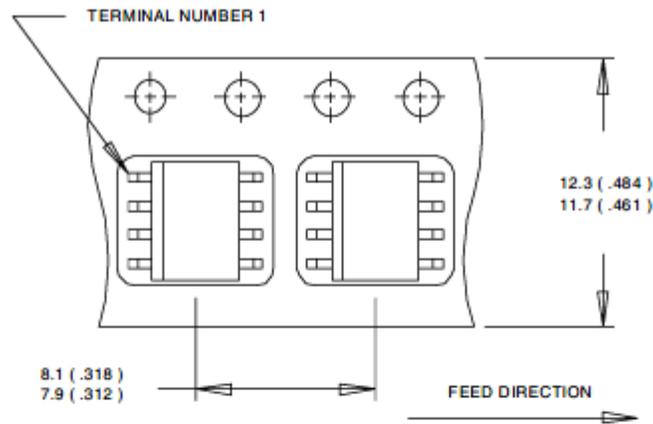
SO-8 Part Marking Information

EXAMPLE: THIS IS AN IRF7101 (MOSFET)

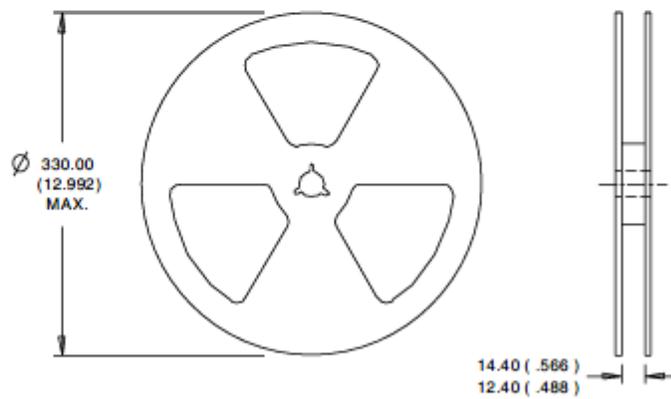


SO-8 Tape and Reel Information

Dimension 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 (per JEDEC JESD47F †guidelines)	
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	Rev.	Comments
2024-10-08	2.1	<ul style="list-style-type: none"> • Update datasheet to Infineon format. • Added title” Dual P-Channel HEXFET Power MOSFET in a SO-8 package “ -page1 • Added disclaimer on last page.

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