

EVVOSEMI[®]

THINK CHANGE DO



ESD



TVS



MOS



LDO



Diode



Sensor



DC-DC

Product Specification

▶ Domestic	Part Number	IRF7476
▶ Overseas	Part Number	IRF7476
▶ Equivalent	Part Number	IRF7476

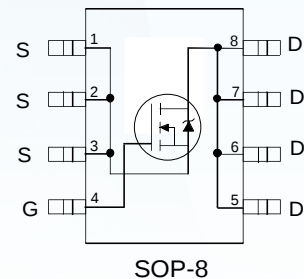
EV is the abbreviation of name EVVO

Benefits

- $V_{DS} (V) = 12V$
- $R_{DS(ON)} < 8m\Omega$ ($V_{GS} = 4.5V$)
- $R_{DS(ON)} < 30m\Omega$ ($V_{GS} = 2.8V$)

Applications

- High Frequency 3.3V and 5V input Point-of-Load Synchronous Buck Converters for Netcom and Computing Applications.
- Power Management for Netcom, Computing and Portable Applications.
- Lead-Free



Absolute Maximum Ratings

Symbol	Parameter	Max.	Units
V_{DS}	Drain-Source Voltage	12	V
V_{GS}	Gate-to-Source Voltage	± 12	V
$I_D @ T_A = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	15	A
$I_D @ T_A = 70^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	12	
I_{DM}	Pulsed Drain Current①	120	
$P_D @ T_A = 25^\circ C$	Maximum Power Dissipation④	2.5	W
$P_D @ T_A = 70^\circ C$	Maximum Power Dissipation④	1.6	W
	Linear Derating Factor	0.02	W/°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 Repetitive rating; pulse width limited by max. junction temperature.
- ② Starting $T_J = 25^\circ C$, $L = 2.3mH$
 $R_G = 25\Omega$, $I_{AS} = 12A$.
- ③ Pulse width $\leq 400\mu s$; duty cycle
- ④ When mounted on 1 inch square copper board.

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

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	12			V	$V_{GS} = 0V, I_D = 250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient		0.014		V/ $^\circ\text{C}$	Reference to $25^\circ\text{C}, I_D = 1mA$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance		6.0	8.0	m Ω	$V_{GS} = 4.5V, I_D = 15A$ ③
			12	30		$V_{GS} = 2.8V, I_D = 12A$ ③
$V_{GS(th)}$	Gate Threshold Voltage	0.6		1.9	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
I_{DSS}	Drain-to-Source Leakage Current			100	μA	$V_{DS} = 9.6V, V_{GS} = 0V$
				250		$V_{DS} = 9.6V, V_{GS} = 0V, T_J = 125^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage			200	nA	$V_{GS} = 12V$
	Gate-to-Source Reverse Leakage			-200		$V_{GS} = -12V$

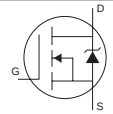
Dynamic @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
g_{fs}	Forward Transconductance	31			S	$V_{DS} = 6.0V, I_D = 12A$
Q_g	Total Gate Charge		26	40	nC	$I_D = 12A$
Q_{gs}	Gate-to-Source Charge		4.6			$V_{DS} = 10V$
Q_{gd}	Gate-to-Drain ("Miller") Charge		11			$V_{GS} = 4.5V$
Q_{oss}	Output Gate Charge		17			$V_{GS} = 0V, V_{DS} = 5.0V$
$t_{d(on)}$	Turn-On Delay Time		11		ns	$V_{DD} = 6.0V$
t_r	Rise Time		29			$I_D = 12A$
$t_{d(off)}$	Turn-Off Delay Time		19			$R_G = 1.8\Omega$
t_f	Fall Time		8.3			$V_{GS} = 4.5V$ ③
C_{iss}	Input Capacitance		2550		pF	$V_{GS} = 0V$
C_{oss}	Output Capacitance		2190			$V_{DS} = 6.0V$
C_{rss}	Reverse Transfer Capacitance		450			$f = 1.0MHz$

Avalanche Characteristics

Symbol	Parameter	Typ.	Max.	Units
E_{AS}	Single Pulse Avalanche Energy②		160	mJ
I_{AR}	Avalanche Current①		12	A

Diode Characteristics

Symbol	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			120		
V_{SD}	Diode Forward Voltage		0.87	1.2	V	$T_J = 25^\circ\text{C}, I_S = 12A, V_{GS} = 0V$ ③
			0.73			$T_J = 125^\circ\text{C}, I_S = 12A, V_{GS} = 0V$ ③
t_{rr}	Reverse Recovery Time		55	82	ns	$T_J = 25^\circ\text{C}, I_F = 12A, V_R = 12V$
Q_{rr}	Reverse Recovery Charge		59	89	nC	$di/dt = 100A/\mu s$ ③
t_{rr}	Reverse Recovery Time		54	81	ns	$T_J = 125^\circ\text{C}, I_F = 12A, V_R = 12V$
Q_{rr}	Reverse Recovery Charge		60	90	nC	$di/dt = 100A/\mu s$ ③

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

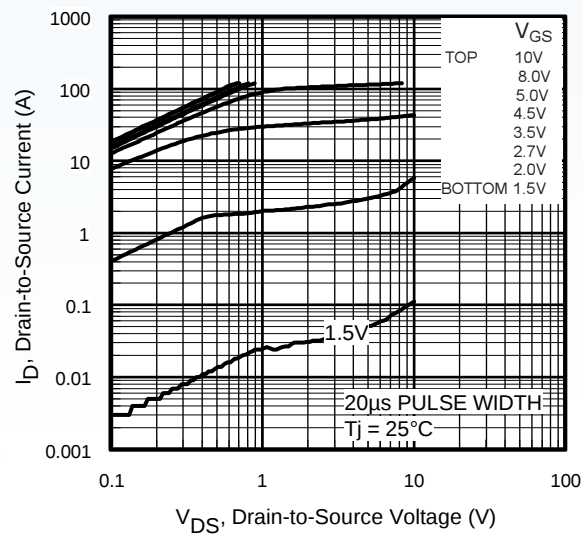


Fig 1. Typical Output Characteristics

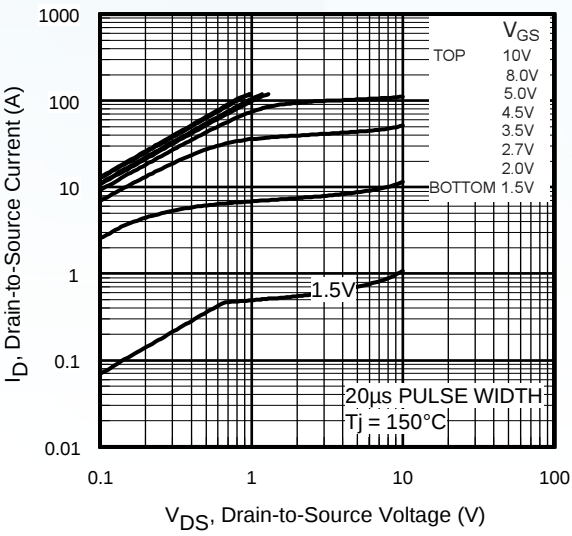


Fig 2. Typical Output Characteristics

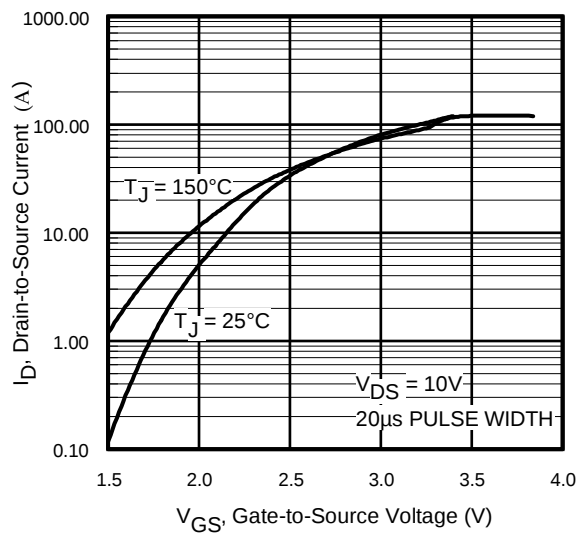


Fig 3. Typical Transfer Characteristics

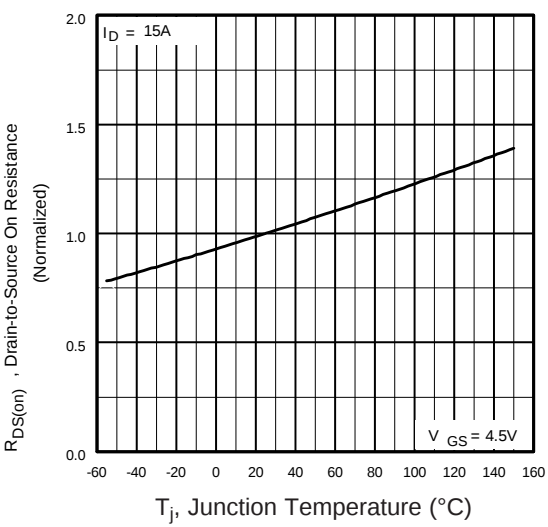


Fig 4. Normalized On-Resistance Vs. Temperature

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

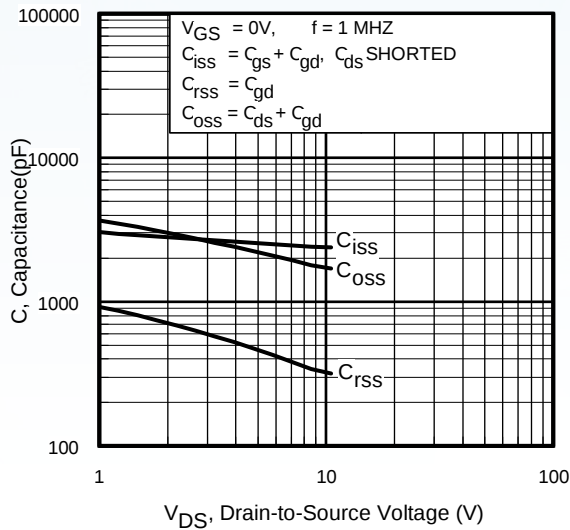


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

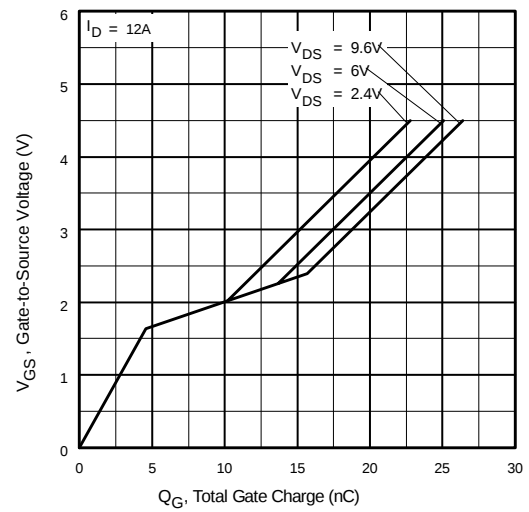


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

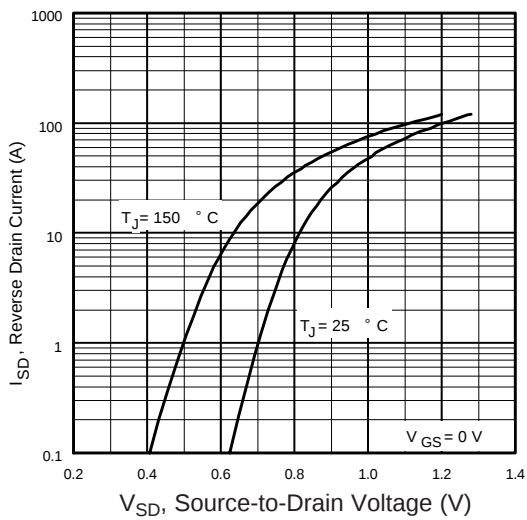


Fig 7. Typical Source-Drain Diode Forward Voltage

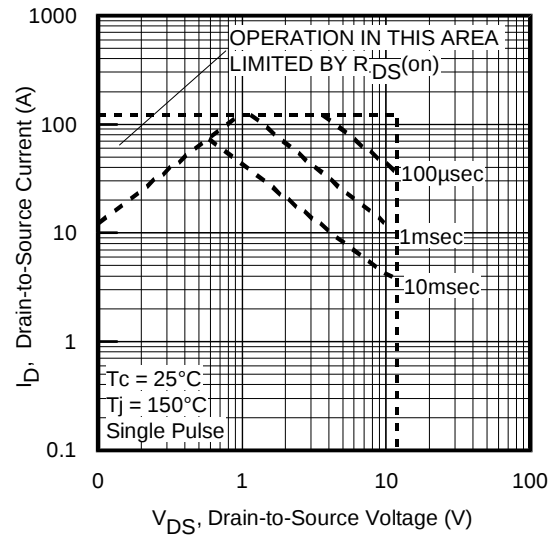


Fig 8. Maximum Safe Operating Area

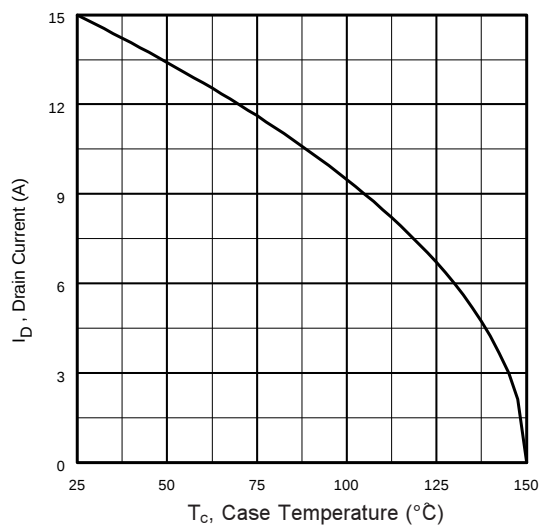


Fig 9. Maximum Drain Current Vs. Case Temperature

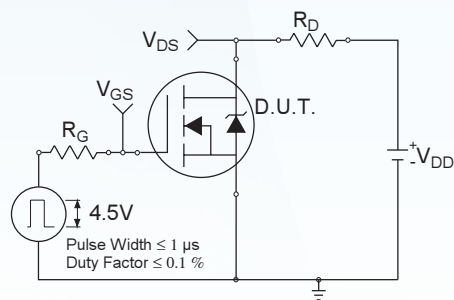


Fig 10a. Switching Time Test Circuit

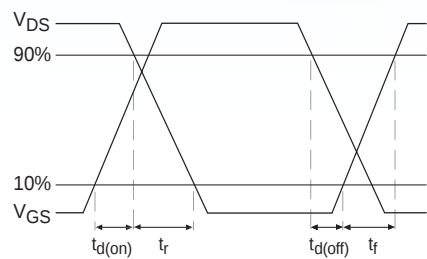


Fig 10b. Switching Time Waveforms

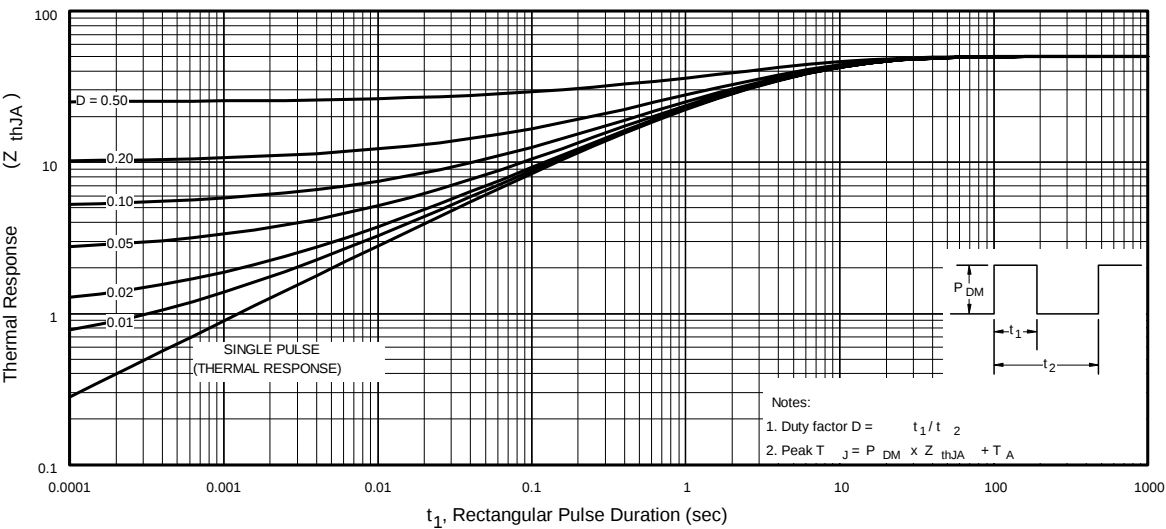


Fig 10. Maximum Effective Transient Thermal Impedance, Junction-to-Case

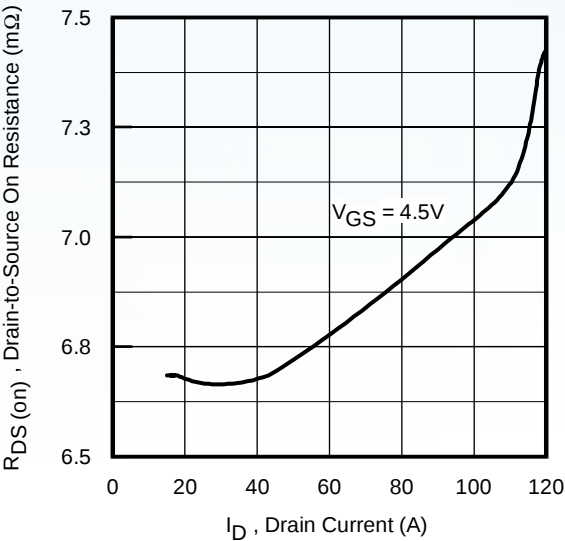


Fig 12. On-Resistance Vs. Drain Current

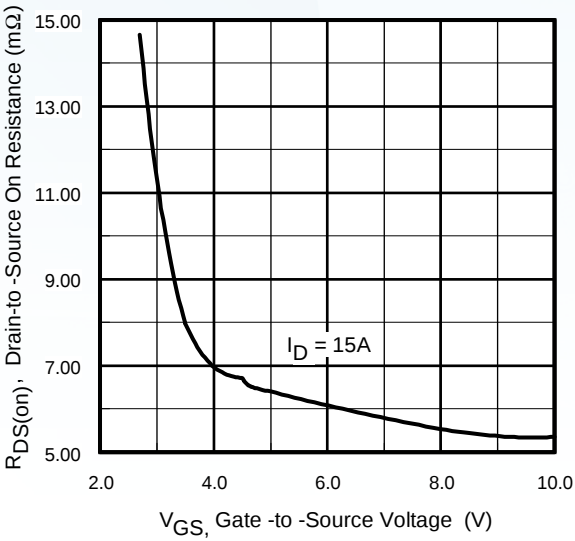


Fig 13. On-Resistance Vs. Gate Voltage

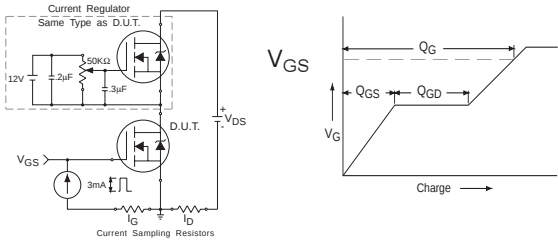


Fig 13a&b. Basic Gate Charge Test Circuit and Waveform

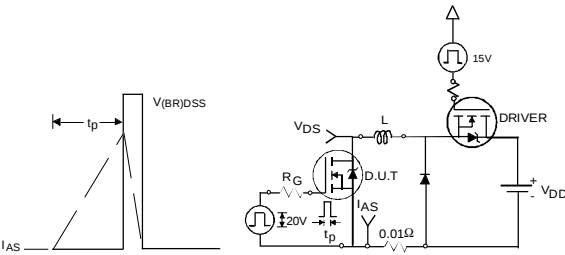


Fig 14a&b. Unclamped Inductive Test circuit and Waveforms

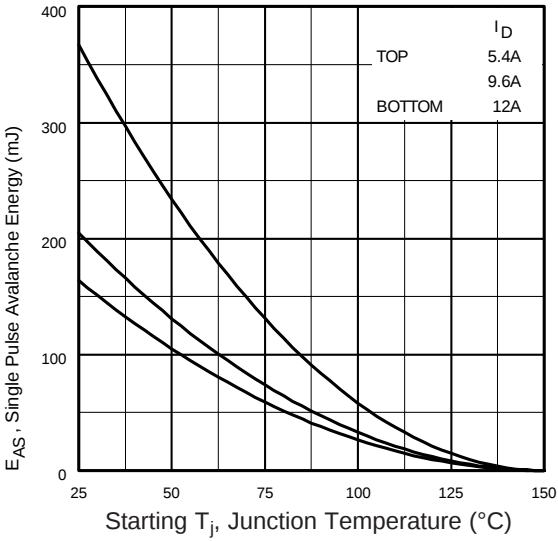
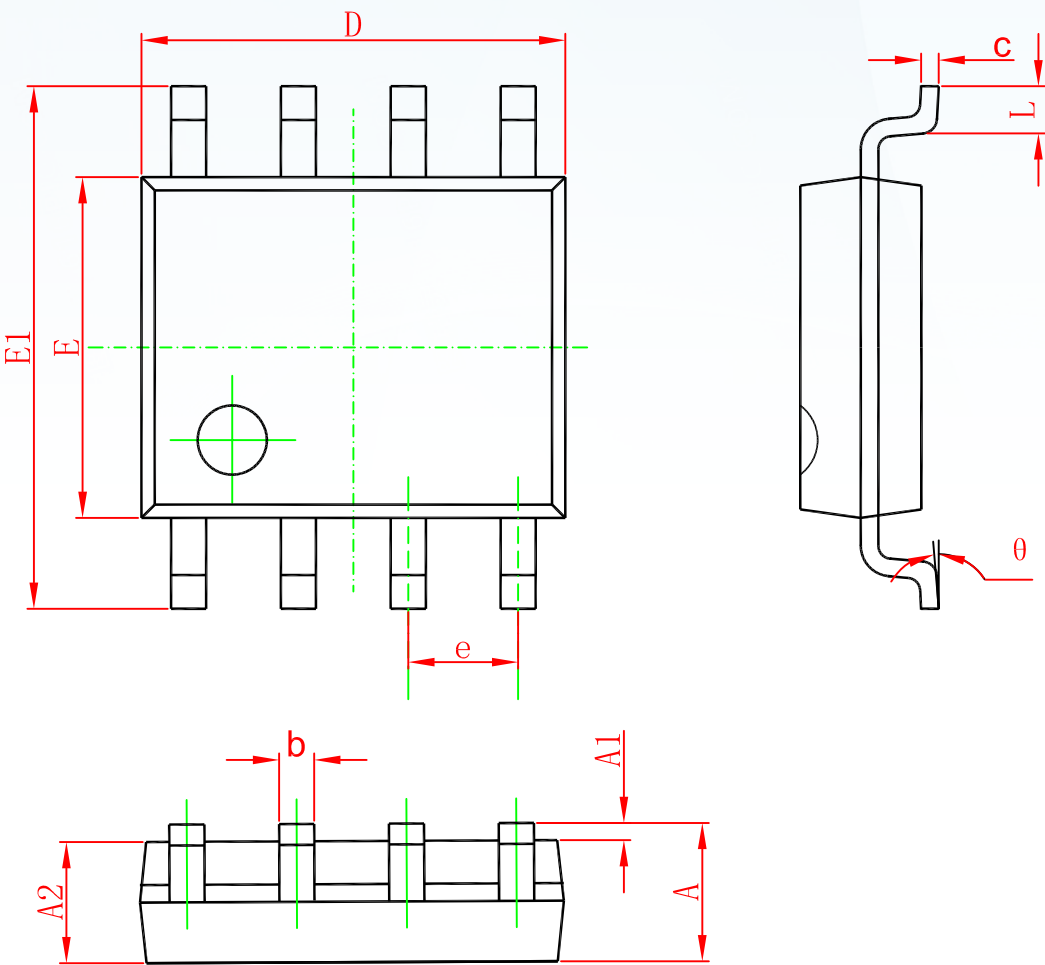


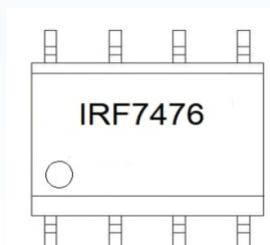
Fig 14c. Maximum Avalanche Energy Vs. Drain Current

SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

Marking



Ordering information

Order code	Package	Baseqty	Deliverymode
IRF7476	SOP-8	3000	Tape and reel

Disclaimer

EVVOSEMI ("EVVO") reserves the right to make corrections, enhancements, improvements, and other changes to its products and services at any time, and to discontinue any product or service without notice.

EVVO warrants the performance of its hardware products to the specifications applicable at the time of sale in accordance with its standard warranty. Testing and other quality control techniques are used as deemed necessary by EVVO to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

Customers should obtain and confirm the latest product information and specifications before final design, purchase, or use. EVVO makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does EVVO assume any liability for application assistance or customer product design. EVVO does not warrant or accept any liability for products that are purchased or used for any unintended or unauthorized application.

EVVO products are not authorized for use as critical components in life support devices or systems without the express written approval of EVVOSEMI.

The EVVO logo and EVVOSEMI are trademarks of EVVOSEMI or its subsidiaries in relevant jurisdictions. EVVO reserves the right to make changes without further notice to any products herein.