

EVVOSEMI[®]

THINK CHANGE DO



ESD



TVS



MOS



LDO



Diode



Sensor



DC-DC

Product Specification

▶ Domestic	Part Number	IRF8313
▶ Overseas	Part Number	IRF8313
▶ Equivalent	Part Number	IRF8313

EV is the abbreviation of name EVVO

30V 2N-Channel Enhancement Mode MOSFET

General Description

The IRF8313 is the highest performance trench N-ch MOSFETs with extreme high cell density, which provide excellent RDSON and gate charge for most of the small power switching and load switch applications. The meet the RoHS and Product requirement with full function reliability approved.

General Features

$V_{DS} = 30V$ $I_D = 9A$

$R_{DS(ON)} < 13m\Omega$ @ $V_{GS}=10V$

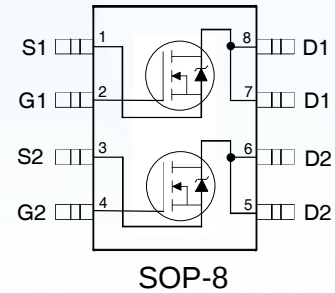
$R_{DS(ON)} < 18m\Omega$ @ $V_{GS}=4.5V$

Application

Battery protection

Load switch

Uninterruptible power supply



SOP-8

Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current, V_{GS} @ 10V ¹	9	A
$I_D@T_C=100^\circ C$	Continuous Drain Current, V_{GS} @ 10V ¹	8.2	A
$I_D@T_A=25^\circ C$	Continuous Drain Current, V_{GS} @ 10V ¹	6.5	A
$I_D@T_A=70^\circ C$	Continuous Drain Current, V_{GS} @ 10V ¹	5.6	A
I_{DM}	Pulsed Drain Current ²	30	A
EAS	Single Pulse Avalanche Energy ³	15	mJ
I_{AS}	Avalanche Current	22	A
$P_D@T_C=25^\circ C$	Total Power Dissipation ⁴	1.6	W
$P_D@T_A=70^\circ C$	Total Power Dissipation ⁴	1.0	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹	75	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	4.8	$^\circ C/W$

30V 2N-Channel Enhancement Mode MOSFET

Electrical Characteristics ($T_J=25^\circ\text{C}$, unless otherwise noted)

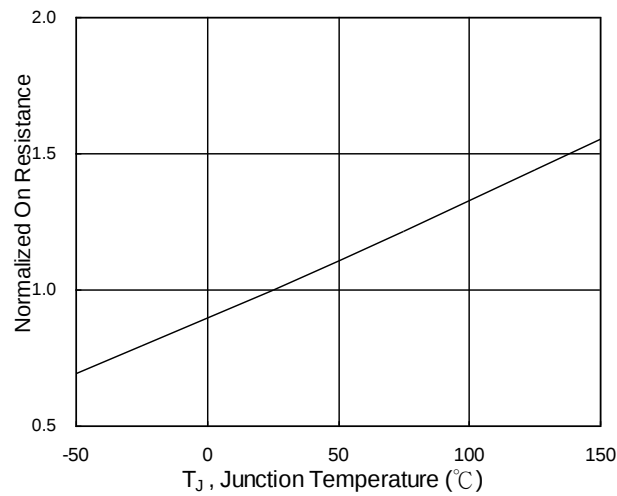
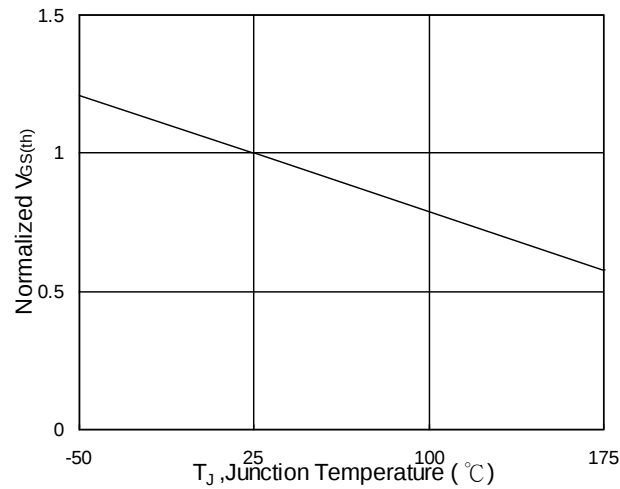
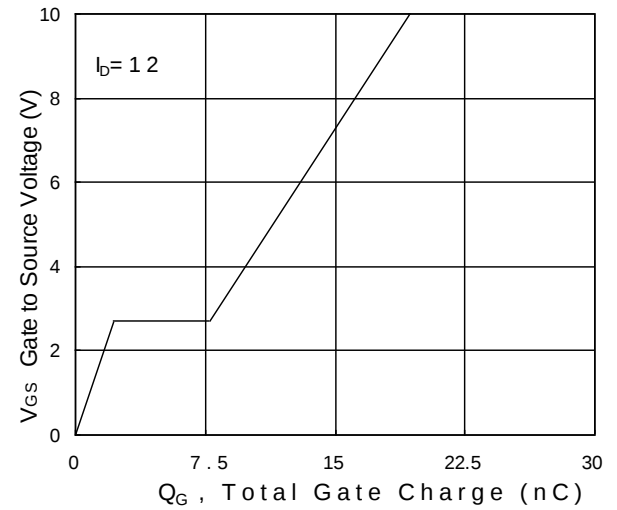
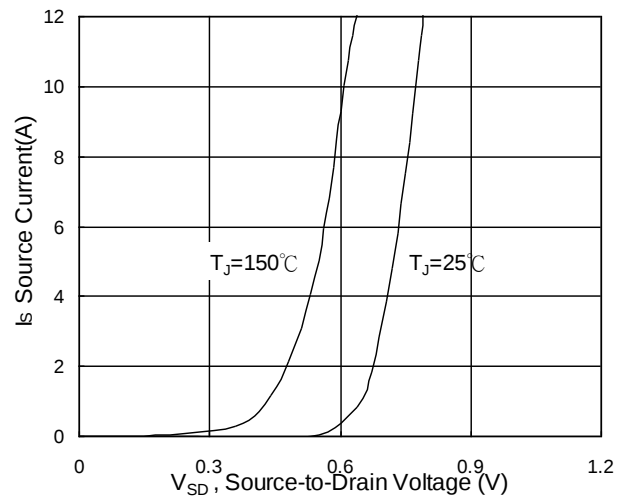
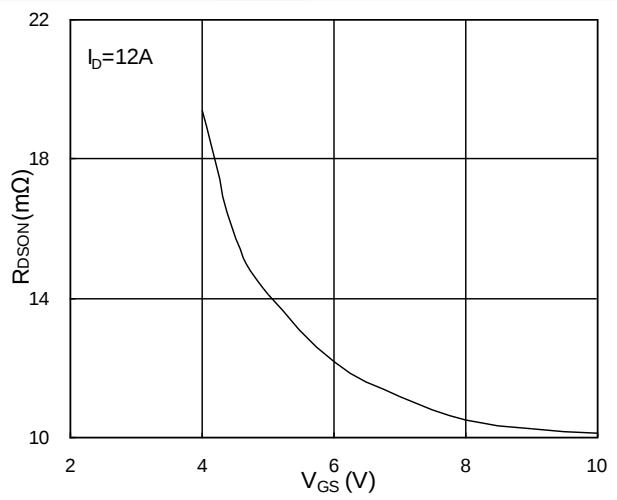
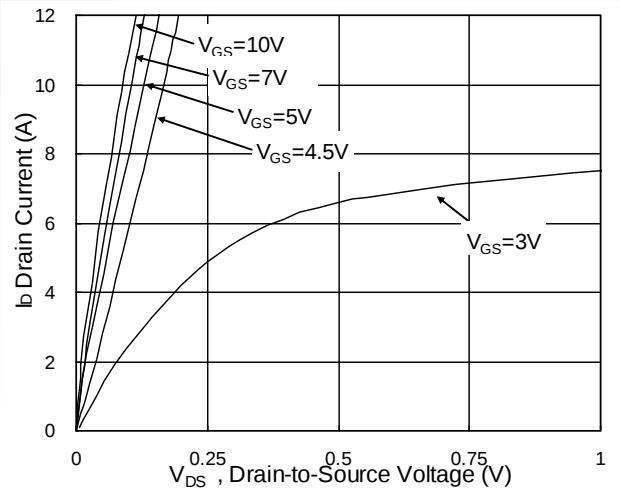
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30			V
$\Delta BV_{DSS}/\Delta T_J$	BV_{DSS} Temperature Coefficient	Reference to 25°C , $I_D=1mA$		0.023		V/ $^\circ\text{C}$
$R_{DS(ON)}$	Static Drain-Source On-Resistance ²	$V_{GS}=10V, I_D=15A$			13	m Ω
		$V_{GS}=4.5V, I_D=10A$			18	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0		2.5	V
$\Delta V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient			-5.08		mV/ $^\circ\text{C}$
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=24V, V_{GS}=0V, T_J=25^\circ\text{C}$			1	μA
		$V_{DS}=24V, V_{GS}=0V, T_J=55^\circ\text{C}$			5	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V, I_D=15A$		32		S
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$		1.7		Ω
Q_g	Total Gate Charge (4.5V)	$V_{DS}=15V, V_{GS}=4.5V, I_D=12A$		5.3		nC
Q_{gs}	Gate-Source Charge			0.78		
Q_{gd}	Gate-Drain Charge			2.2		
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V, V_{GS}=10V, R_G=1.5\Omega, I_D=20A$		6.4		ns
T_r	Rise Time			39		
$T_{d(off)}$	Turn-Off Delay Time			21		
T_f	Fall Time			4.7		
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		580		pF
C_{oss}	Output Capacitance			97		
C_{rss}	Reverse Transfer Capacitance			39		
I_S	Continuous Source Current ^{1,5}	$V_G=V_D=0V$, Force Current			37	A
I_{SM}	Pulsed Source Current ^{2,5}				75	A
V_{SD}	Diode Forward Voltage ²	$V_{GS}=0V, I_S=1A, T_J=25^\circ\text{C}$			1	V

Note :

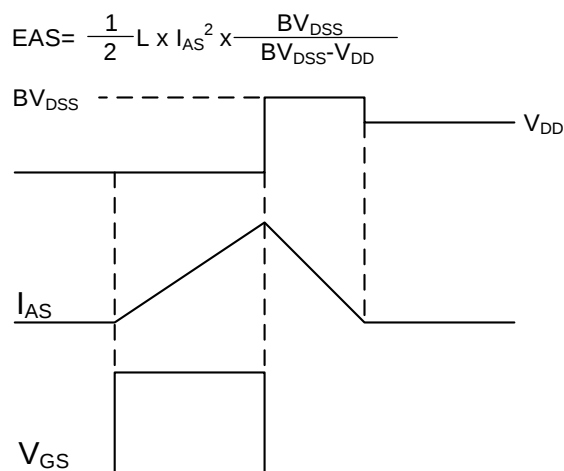
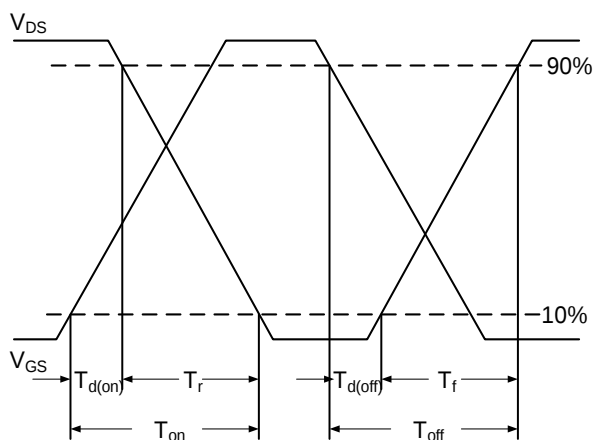
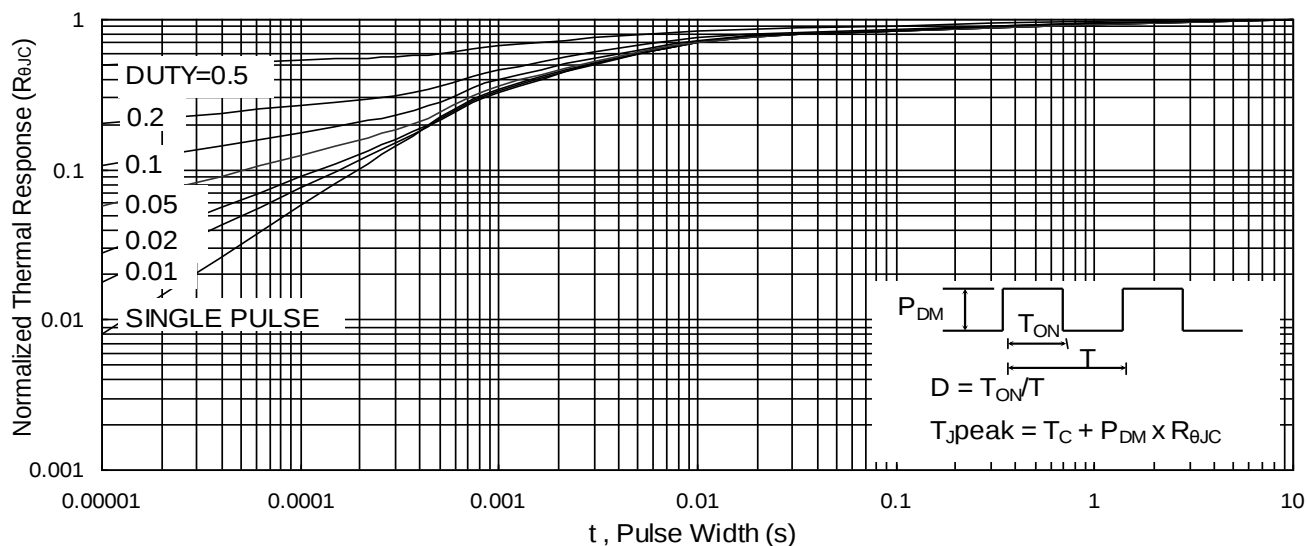
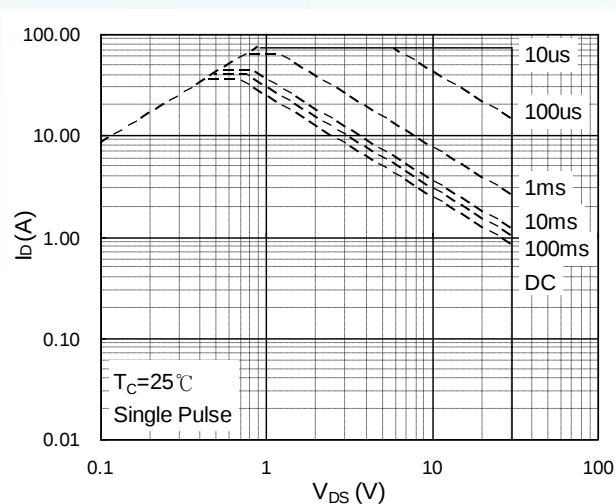
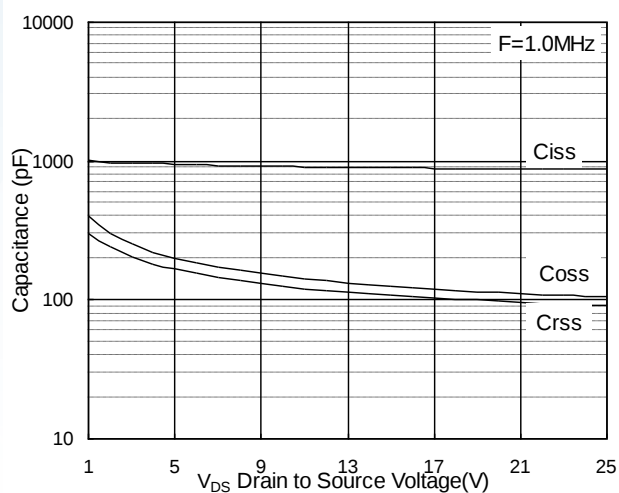
1. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
2. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The EAS data shows Max. rating. The test condition is $V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=22A$
4. The power dissipation is limited by 175°C junction temperature
5. The data is theoretically the same as I_D and I_{DM} , in real applications, should be limited by total power dissipation.

30V 2N-Channel Enhancement Mode MOSFET

Typical Characteristics

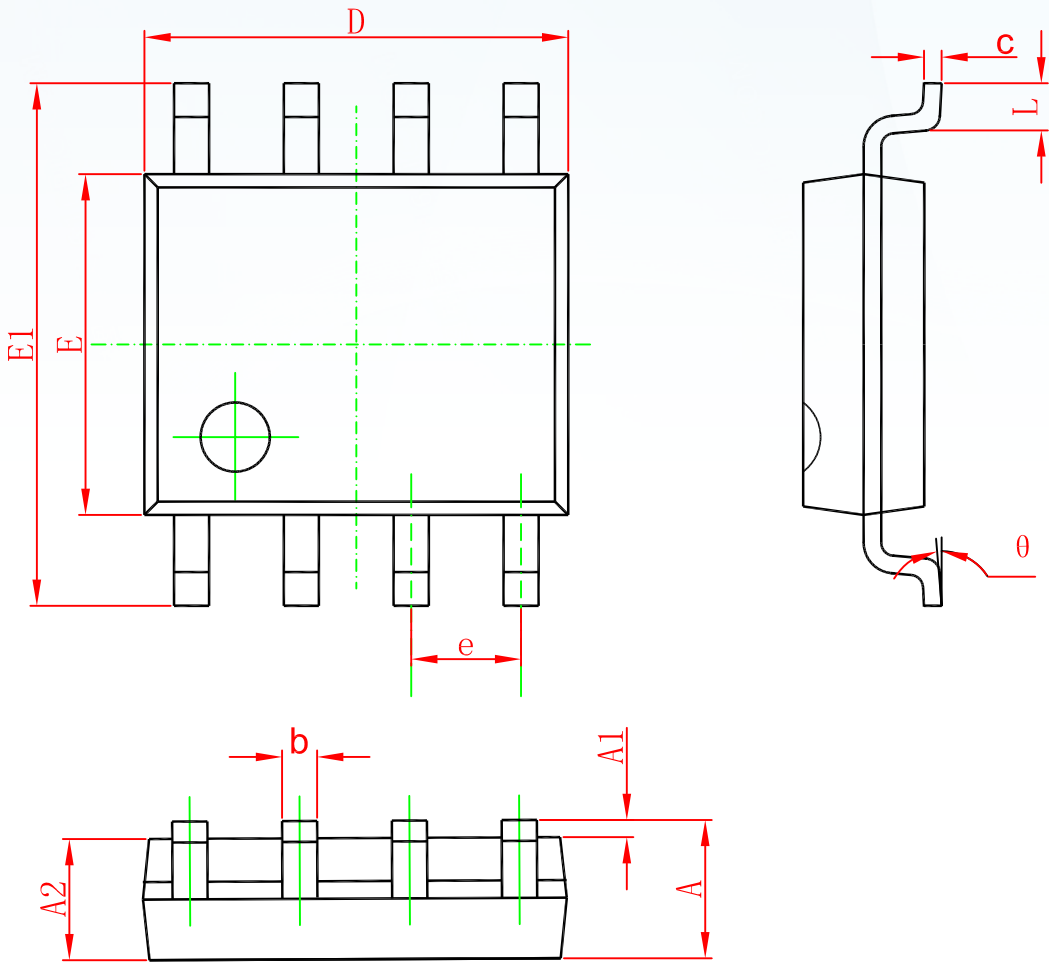


30V 2N-Channel Enhancement Mode MOSFET



30V 2N-Channel Enhancement Mode MOSFET

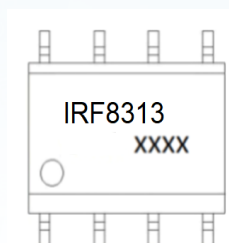
SOP-8



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°

30V 2N-Channel Enhancement Mode MOSFET

Marking



Ordering information

Order code	Package	Baseqty	
IRF8313	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.