

EVVOSEMI[®]

THINK CHANGE DO



ESD



TVS



MOS



LDO



Diode



Sensor



DC-DC

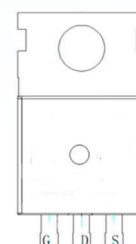
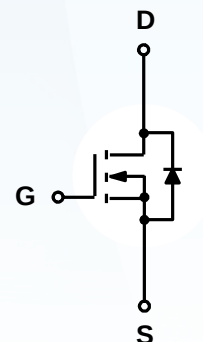
Product Specification

▶ Domestic	Part Number	IRFS4127
▶ Overseas	Part Number	IRFS4127
▶ Equivalent	Part Number	IRFS4127

EV is the abbreviation of name EVVO

Features

- 200V,70A
 $R_{DS(ON)} < 27m\Omega @ V_{GS}=10V$ TYP:23 m Ω
- Surface-mounted package
- Advanced Process Technology
- Low QG for Fast Response
- High Repetitive Peak Current Capability for Reliable



Applications

- Short Fall & Rise Times for Fast Switching
- 175°C Operating Junction Temperature for Improved Ruggedness
- Repetitive Avalanche Capability for Robustness and Reliability
- Class-D Audio Amplifier 300W-500W(Half-bridge)

ABSOLUTE MAXIMUM RATINGS ($T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	200	V
Gate-Source Voltage		V_{GS}	± 30	V
Continuous Drain Current	$T_C=25^\circ\text{C}$	I_D	70	A
	$T_C=100^\circ\text{C}$		48	A
Pulsed Drain Current		I_{DM}	280	A
Single Pulsed Avalanche Energy ($V_{DD}=50V, L=0.5mH$) ⁽²⁾		E_{AS}	223	mJ
Drain Power Dissipation		P_D	263	W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	0.57	$^\circ\text{C/W}$
Thermal Resistance- Junction to Ambient		$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Junction Temperature		T_J	175	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55~ +175	$^\circ\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS(T_J=25°C unless otherwise noted)

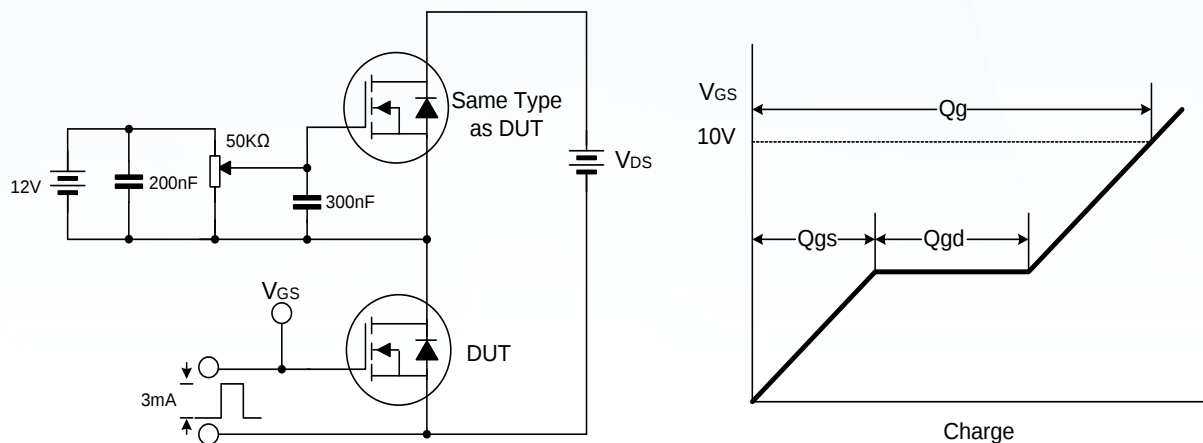
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	200	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =200V, V _{GS} = 0V	-	-	1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ± 20V, V _{DS} = 0V	-	-	±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	3.0	3.8	5.0	V
Drain-source on-resistance ^(a)	R _{DS(on)}	V _{GS} =10V, I _D =46A	-	23	27	mΩ
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f =1.0MHz	-	4460	-	pF
Output Capacitance	C _{oss}		-	470	-	
Reverse Transfer Capacitance	C _{rss}		-	160	-	
Gate Resistance	R _g	V _{GS} =0V, V _{DS} Open, f=1MHz		1.1		Ω
Switching characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} =100V, I _D =46A, R _G =2.5Ω, V _G =10V	-	33	-	ns
Turn-on rise time	t _r		-	64	-	
Turn-off delay time	t _{d(off)}		-	45	-	
Turn-off fall time	t _f		-	22	-	
Total Gate Charge	Q _g	V _{DS} =160V, I _D =46A, V _{GS} =10V	-	84	-	nC
Gate-Source Charge	Q _{gs}		-	36	-	
Gate-Drain Charge	Q _{gd}		-	25	-	
Source-Drain Diode characteristics						
Diode Forward voltage ^(a)	V _{SD}	T _J =25℃, V _{GS} =0V, I _S =46A	-	-	1.2	V
Diode Forward current	I _S	T _C =25℃	-	-	70	A
Body Diode Reverse Recovery Time	t _{rr}	T _J =25℃, IF=20A, di/dt=100A/us		145		ns
Body Diode Reverse Recovery Charge	Q _{rr}	T _J =25℃, IF=20A, di/dt=100A/us		0.6		nc

Notes:

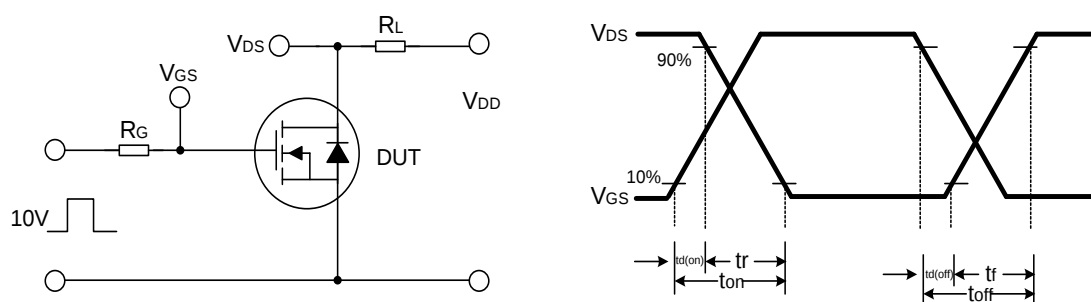
- a) Pulse width ≤ 300 μs, duty cycle ≤ 2%
 b) Guaranteed by design, not subject to production testing

Test Circuit

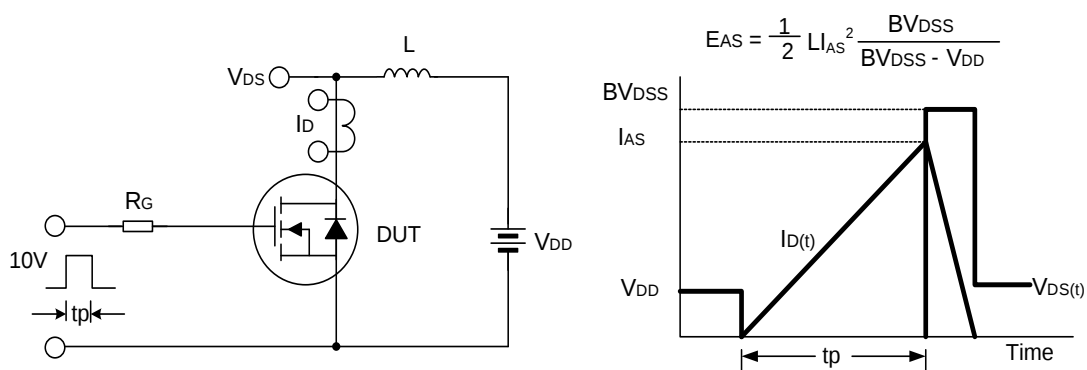
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching Test Circuit & Waveform



Typical Characteristics

Figure 1. Output Characteristics

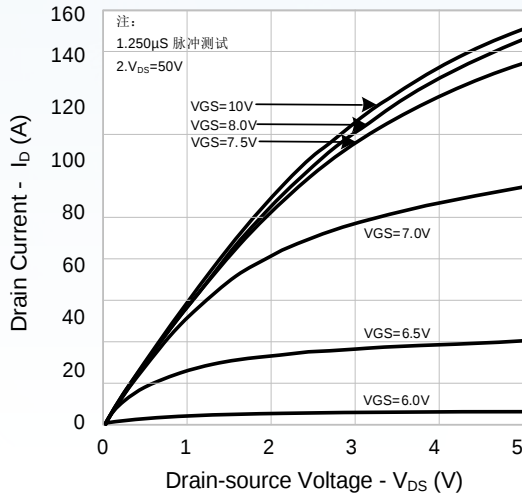


Figure 2. Transfer Characteristics

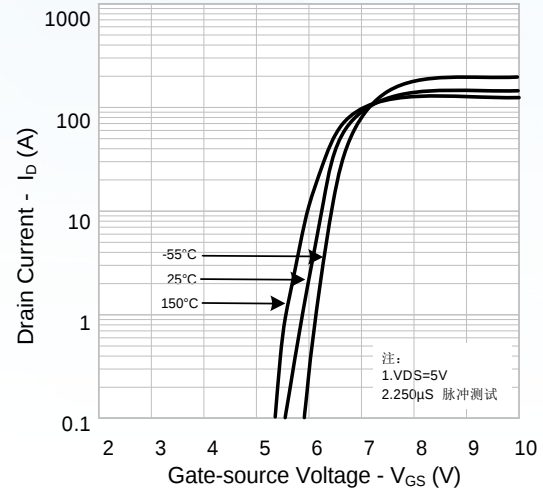


Figure 3. On-resistance vs. Drain Current

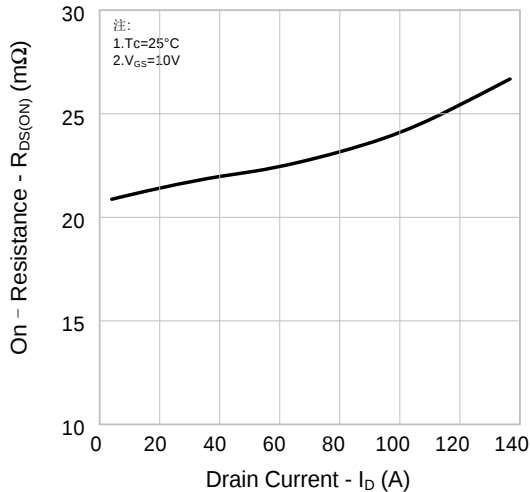


Figure 4. Body Diode Forward Voltage Variation vs. Source Current and Temperature

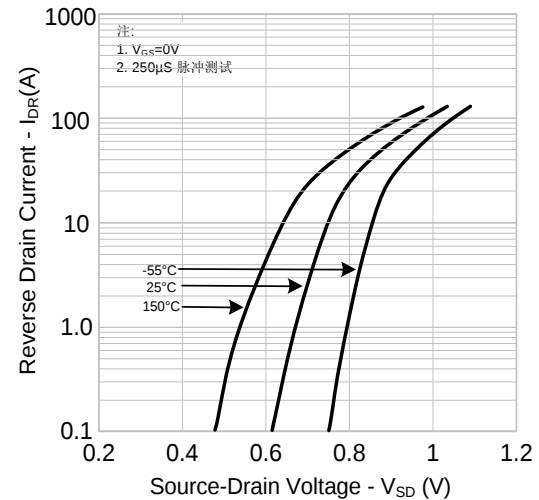


Figure 5. Capacitance Characteristics

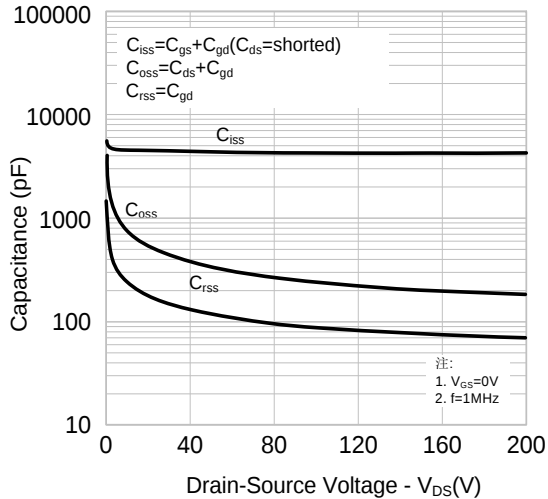
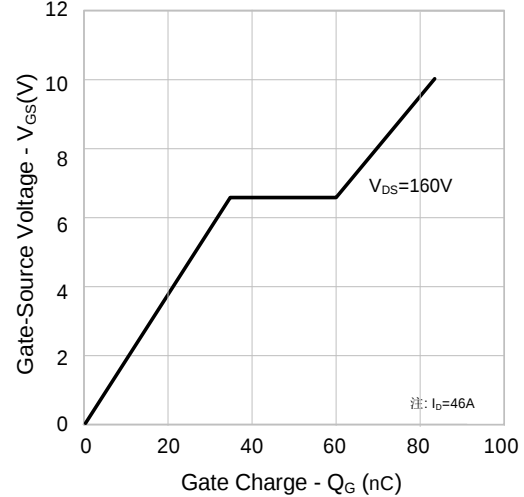
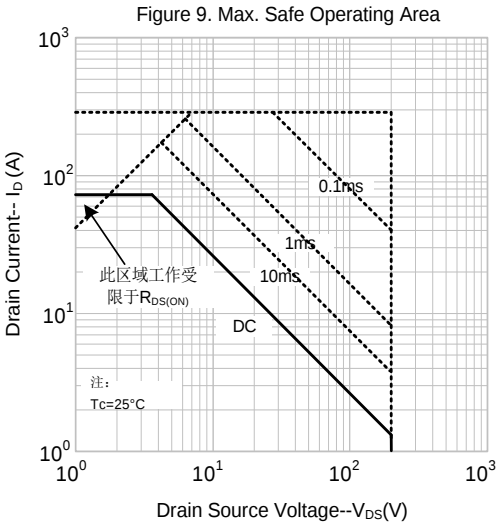
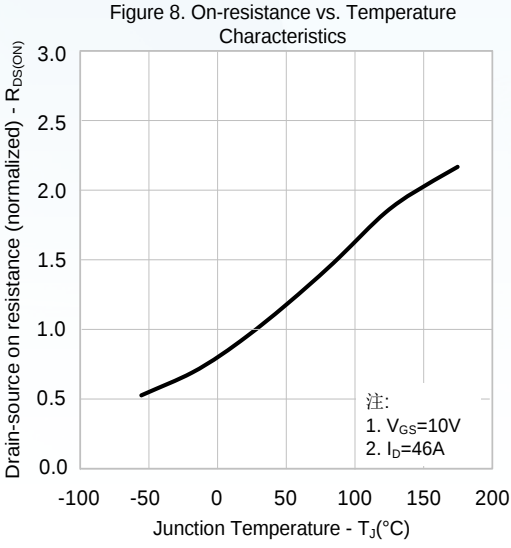
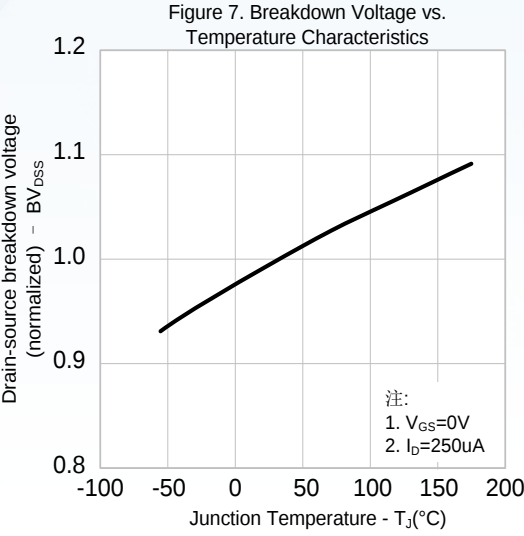


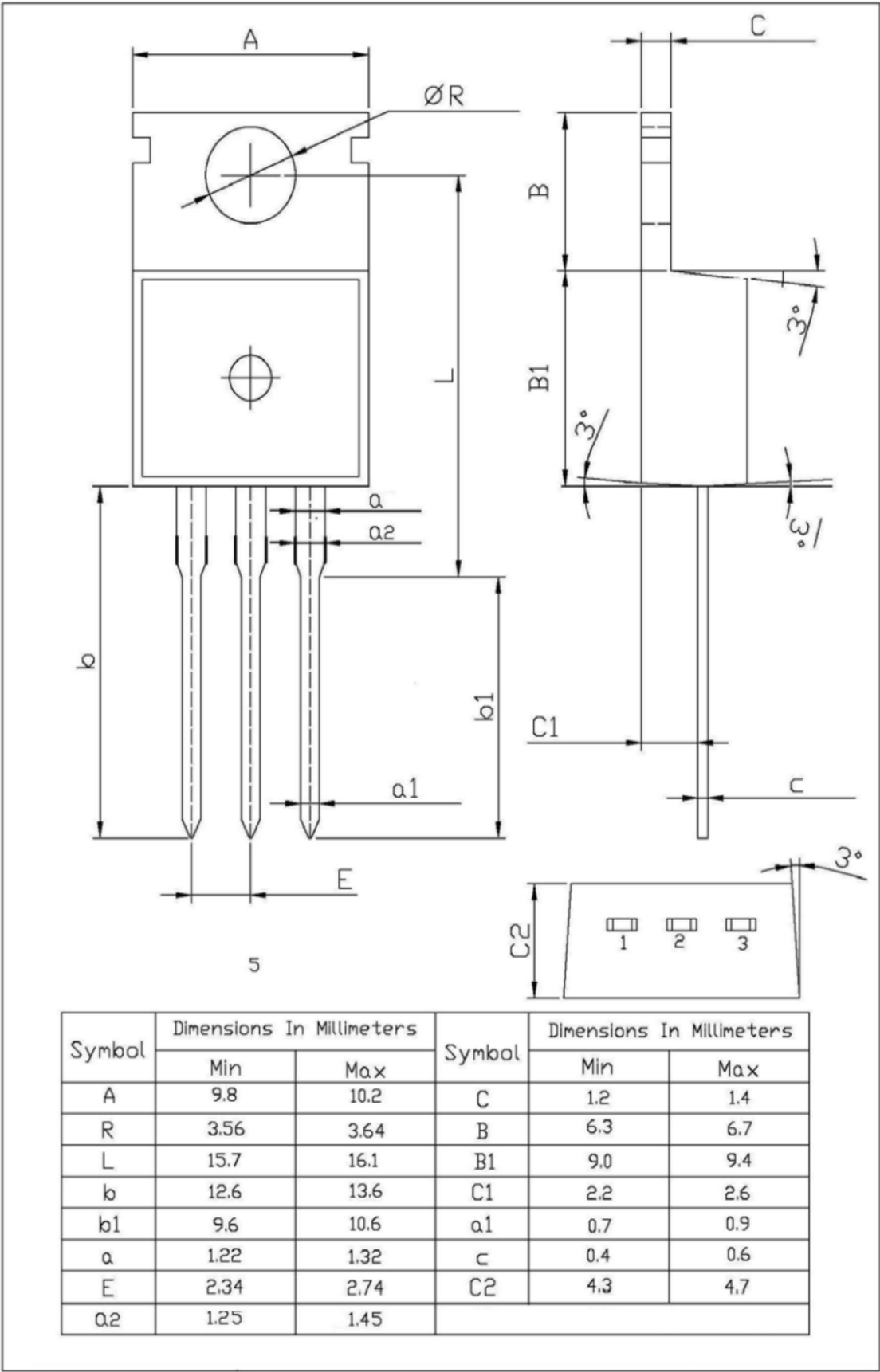
Figure 6. Gate Charge



Typical Characteristics



TO220 Package Information



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.